DEF
DIGITAL EMPOWERMENT *foundation*

A Participant Manual

The training manual comprises of a detailed introduction to Internet, web browsing, search engines, understanding websites and online communication media like email, chatting, web conferencing and social media. Through this comprehensive guide, beginners can start understanding how the Internet works and be comfortable using the Internet for their personal work.

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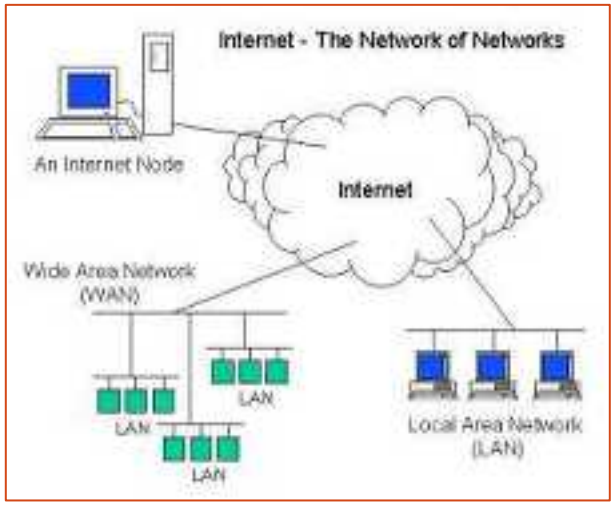
Chapter 1: Introduction to Internet

Welcome to the tutorial for learning all basics of Internet – how it works and how to use it! We will begin with a chapter on introduction to Internet where we tell you what we mean by Internet, World Wide Web, domain names, hypertext, URL and all other Internet jargon. Then we find out what the most common uses of Internet are and how it can be beneficial to one and all. Following that, we dive deep into how the Internet actually works – what hardware is used, how the software behind all the systems work and how communication really takes place across the world.

Let us begin with the first topic!

What is the Internet?

The Internet has revolutionized the way things operate in the 21st century. Let us learn how it actually works!



To put in simple words, the **Internet is a global network of networks.** Traditionally, it was used to connect different types of computing devices like personal computers (PC), servers, workstations and mini-computers spread out across the world by using a set of rules known as a protocol. Now-a-days, the new-age devices like tablets, mobile phones and even TVs are connected to the Internet.

All these devices connected to the Internet are called **end-systems.** The end-systems are connected to each other via **communication links**. The links can be formed using various physical and non-physical **media** like coaxial cable, fiber optic cable radio spectrum etc. The transmission and receipt of information via the Internet is controlled by two important protocols – Transmission Control Protocol (TCP) and Internet Protocol (IP), together known as the **TCP/IP Protocol**.

Types of Networks

As mentioned previously, Internet is a network of networks. A number of computers connected together form a computer network and many such networks connected together form the Internet.

The networks can be of various types depending on their size and function. A few main types are mentioned below:

1. **Local Area Network (LAN)** – to connect devices at a short distance, e.g. in an office building, school or home. A LAN is generally owned and managed by an individual or organization.
2. **Wide Area Network (WAN)** – to connect devices across a large physical distance. E.g. across the country, across continents etc. A WAN usually has co-ownership and management. The largest WAN is the Internet.
3. **Metropolitan Area Network (MAN)** – usually larger than a LAN but smaller than a WAN. E.g. a city network. It is usually owned by an organization such as government body.

What is the World Wide Web?

The World Wide Web is a system of hypertext documents connected to each other and accessed over the Internet. **Hypertext** is the text displayed on electronic devices like computers, tablets etc. and contains references (**hyperlinks**) to other documents. By clicking on the link, another web page or document can be accessed. A hypertext document can contain multimedia like text, images, sound, videos, graphics and links. The World Wide Web is also known as "www" in short.

Basic Terminology

Internet: A global network of computer networks which uses a standard protocol suite to connect billions of devices across the world.

World Wide Web: A system of *hypertext* documents that can be accessed through the Internet.

Hypertext: Type of text displayed on digital devices like computers which has references to other text (using *hyperlinks*) which can be accessed via a simple click.

Internet Protocols: Non-proprietary standards defined to communicate across the Internet. It contains a protocol suite with multiple protocols for different Internet-related functions.

Web Browser: Software used to connect to the World Wide Web and find, view, send and receive information via Internet. E.g. Google Chrome, Mozilla Firefox, Microsoft Internet Explorer

HTTP (HyperText Transfer Protocol): An application protocol defining rules to exchange information (text, audio-visual files, graphics, other multimedia) on the World Wide Web.

IP Address: An Internet Protocol address used to define each device connected to the Internet. The address can be defined using two systems – IPv4 defines a 32-bit address and the new IPv6 defines a 128-bit address. It is a binary address.

Domain Name: A simple user-friendly name which points to the IP address of a computer. An example of a sample domain name is given below with the description of its three parts:

www.sampledomainname.com

1. **.com** is the top-level domain (defines a company). Other top-level domains are .org, .net, .in
2. **.sampledomainname** is the 2nd-level domain (to define the name of the website)
3. **www** is the 3rd-level domain defining the Word Wide Web.

URL (Uniform Resource Locator): The web address for a particular web resource like website, document, image etc. It looks like:

http://www.sampledomainname.com/page1/document.pdf

The above example defined a PDF document stored on page 1 of a website named sampledomainname.

Email: Electronic mail sent via Internet to share multimedia information and communicate with other individuals who also have an email account.

HTML (Hyper Text Markup Language): A programming language to create hypertext documents for the World Wide Web. E.g. websites, web documents

Search Engine: Software used to search information on the Web and display a line of results. E.g. Google, Microsoft Bing, AOL

Common Uses and Benefits of Internet

Internet has been the most commonly used and useful technology of the modern era. It finds uses in our personal as well as professional life. Listed below are most common uses of Internet:

- **Communication** – Through emails, chats, audio-video conferencing and social networking, it has become very easy to connect with family, friends, colleagues and even strangers across the world. It's also a very cheap and fast method of communication. There is opportunity for people to connect with like-minded people via groups, online communities and social networks. Internet also offers ways to connect with prospective employees, apply for jobs and find business opportunities.

- **Searching for useful information** – Internet is very useful for education and research as it helps us get information and learn new things at the click of the mouse. There are books, articles, educational websites, applications and games, help centres, discussion forums and unlimited other platforms available online for learning purposes. We can find information on almost any topic on earth for study, research or general knowledge. We can also read general information like news, magazines and get real-time updates about all our favorite topics. This method makes learning and education fast, convenient, interesting and simple.

- **Aiding businesses and organizations** – Internet is extensively used by small and large organizations, institutions and businesses to promote themselves and reach a larger audience. It is a

useful medium for communication and outreach, for marketing and branding, for online sales and fundraising and for general operations and administration of a business. It helps provide authenticity to an organization, transparency to information shared and an option for people to connect with them.

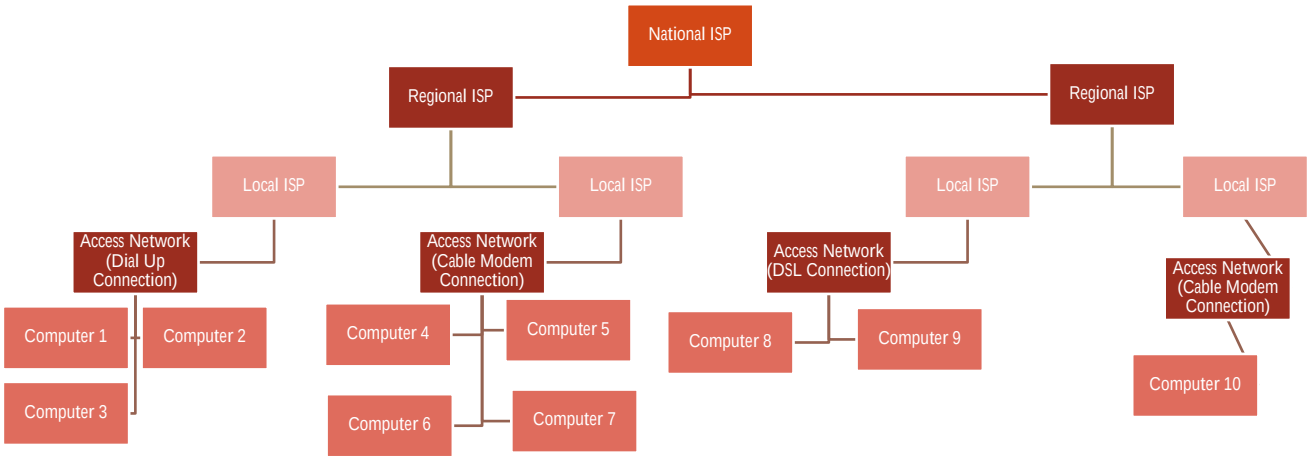
- **Providing Services** – Internet is extensively used to avail services like booking tickets, online banking, customer service, planning holidays, etc. The process has become much faster, easier and is also secure.

- **Providing Entertainment** - Most commonly, Internet is used for Entertainment in various forms like playing games, shopping online, watching movies, listening to songs, chatting with friends and reading up exciting and interesting information. Different forms of entertainment are available for individuals, groups and families.

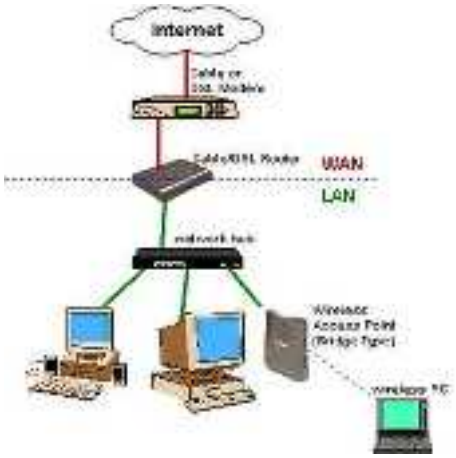
How the Internet works

Internet Hierarchy

The Internet has a loose hierarchical structure. The end-systems or computers are connected to the Local Internet Service Provider (ISP) via an Access Network. The Access Network can be a Dial Up, Cable Modem or Digital Subscriber Line (DSL) connection. All local ISPs are connected to a regional ISP and all of them in turn are connected to a National or International ISP. The National and International ISPs are connected together at the top to form the Internet.



Hardware Infrastructure – How the Devices are Connected



Any small network, whether a home or business network is connected to the Internet via a **Cable or DSL Modem** or some Access Network. The Internet connection received using a modem is distributed across the network through a **router/switch** which routes the information to the correct destination. A router or switch is what connects directly to the **end-computers**. The end-systems are connected to the router/switch via **physical cables** or via a **Wireless Access Point (WAP)**.

Circuit and Packet Switching – How Communication is established

If two devices want to communicate with one another, they need to establish a connection between themselves. The devices may be in the same room or may be in two different countries. There are two ways in which a connected can be created.

1. Circuit Switching

A dedicated path can be established through multiple networks and devices so that information can be exchanged. A circuit is setup between two devices and this path is used for the duration of the entire communication. The connection is created on a need basis. Once the information exchange is over, the connection is terminated.

This is similar to a telephonic conversation where a phone number is dialed to establish connection. The circuit is dedicated to the call while it is connected and the connection is terminated once the caller puts the phone down.

This method is useful to send data in a dedicated manner without interruption, but this limits the number of devices which can communicate at the same time.

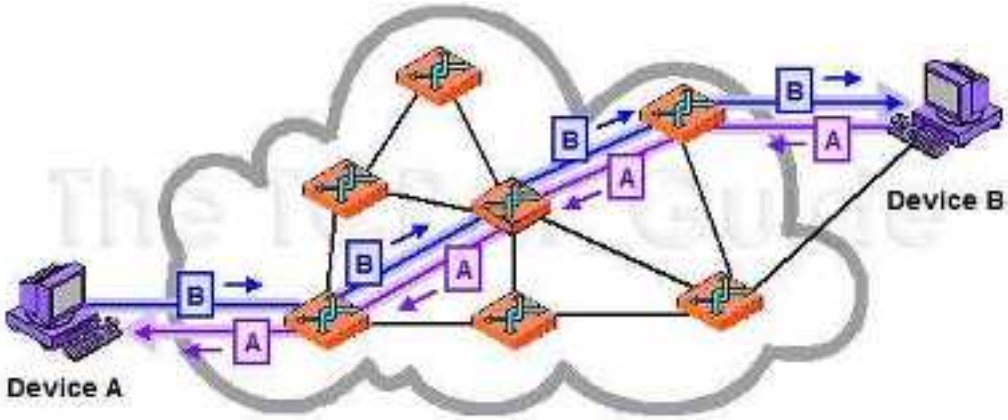


Figure 1: Circuit Switching

2. Packet Switching

As opposed to circuit switching, we do not need to establish a connection for Packet switching. Whenever data is available for sending, it is sent to the destination. The main point to note is that large chunks of data and broken down into smaller "packets" and each packet is sent via the best possible route towards the destination. The packets go different ways and may reach the destination at different times. They are reassembled at the destination to create the original message.

Packet switching is not as reliable as circuit switching. In circuit switching, once a connection is established, there is high probability that the data will reach the destination. In packet switching, some packets may be lost or duplicated or even corrupted. Proper transmission, reception and reassembly are important to reproduce the original content. Some network protocols help in doing that. Also packet switching is not very useful for certain applications like voice calls and video conferencing where loss of data can be problematic.

Network protocols – How Information is Exchanged

We have seen how devices are physically connected to each other through the Internet. But how do they talk to each other and exchange information? How do computers know whom to send information, where to direct it and how to ensure it is received? This is where we need to understand Network Protocols.

A network protocol defines a set of rules to define standard methods of information transfer and processing. There are different kinds of protocols for the kind of information we need to transfer and different operations we need to perform. Let us have a look at some of the common Network protocols.

1. TCP/IP

TCP/IP is the most important suite of protocols using which the information is distributed over the Internet. It defines the rules for packet switching. In simple words, TCP is used to create the packets, give

them a sequence number and forward them towards the destination. At the destination, TCP waits for all packets to arrive, rearranges them in order and then forwards the message to the receiving application.

The IP is responsible for forwarding a packet from the source to destination by assigning IP addresses to each packet. Whenever a packet reaches a router on its way, the router checks its address and knows where to send it.

2. Other Protocols

- **Hypertext Transfer Protocol (HTTP)** is used for sending multimedia files like text, audio, video, graphics etc. on the Internet. The protocol specifies that the files sent may contain hyperlinks i.e. web references to other files.
- **Post Office Protocol (POP3) and Simple Mail Transfer Protocol (SMTP)** are used by email clients like Microsoft Outlook and Thunderbird to send and retrieve emails from the server.
- **File Transfer Protocol (FTP)** is used to transfer computer files from one computer to another over the Internet.

Self-Practice 1.1– Write, Browse, Share and Learn!

To introduce the self-practice section, it consists of a few simple questions which can be answered based on what we learnt in the chapter. So note your answers, browse the Internet for more information, share with your co-learners and learn from each other!

1. What is the difference between Internet and World Wide Web? Answer in 1-2 sentences.
2. Give examples of the following. Do not copy the ones already mentioned in the chapter!
    a. Web Browser
    b. Domain Name
    c. Search Engine
3. Do you have an email ID? If yes, which platform have you used? What do you use it for?
4. Mention two uses of Internet which are not given in the chapter.
5. Create a table with 3 differences between circuit and packet switching.

Chapter 2: Browsing the Web

Now that you know a little about how the Internet works, I am sure you are excited to start using it! In this chapter, we will teach you all about web browsing, an activity which old and young love alike. We will learn about various web browsers popularly used across the world and then choose the most advanced and popular of them – Google Chrome, for our learning purpose. We will study all basic features in Chrome and learn how to install, setup and use the browser. At the end, we will also see an overview of browser errors as this is something we all will encounter in our process of learning and using any browser.

Web browsing Software

As defined in Wikipedia, a web browser is a software application for retrieving, presenting and traversing information across the World Wide Web. Browsing the web is the most common use of a browser, but it can also be used to access information in private networks or to access files in file systems.

The main web browsers used today are Google Chrome, Microsoft Internet Explorer, Mozilla Firefox, Apple's Safari and Opera in order of popularity. Google Chrome is the most recently developed browser and has grown its popularity rapidly over the years, occupying 38 % market share in 2014.

Firefox and Chrome are Open Source software i.e. they have been developed by a community of programmers and its source code can be changed. They are freely available for use, modification and adaptations. Internet Explorer, Safari and Opera are proprietary and have to be purchased.

Using a web browser

In this tutorial, we have chosen the Google Chrome browser for study as it is free, simple and also the most popular web browser.

Installing and Opening the Browser

Google Chrome is available for Windows, Mac and Linux operating systems. Before installing Chrome, we need to check system requirements and find out if our system is suitable for optimal Chrome performance.

System requirements as in Sept., 2014

	Windows requirements	Mac requirements	Linux requirements
Operating system	Windows XP Service Pack 2+ Windows Vista Windows 7 Windows 8	Mac OS X 10.6 or later	Ubuntu 12.04+ Debian 7+ OpenSuSE 12.2+ Fedora Linux 17
Processor	Intel Pentium 4 or later	Intel	Intel Pentium 4 or later
Free disk space	350 MB		
RAM	512 MB		

Steps for Installation

Below are the steps for installation of Chrome in Windows Operating System. For other OS, explore on your own.

1. Use the default browser Internet Explorer and search for "install google chrome" in Google search engine.
2. Click the first link and download Google Chrome installer file.
3. When downloaded, click "Run" to directly start installation or click "Save" to save it for later.
4. To install from saved file, double click on the installer and follow instructions to install the browser.
5. The browser will open up once installed and show a message informing that the browser address bar can be also used as a Google search engine.

Guided Practice – 2.1

Do the following exercises with the help of your instructor.

1. Use Internet Explorer to search for, download and install Google Chrome.
2. Were you able to download it? What difficulties did you face, if any?
3. Try to download and install Mozilla Firefox or any other browser of your choice. Note down the steps of installation. Choose a co-learner and share the steps with him/her. Ask him/her to follow the steps and install the browser themselves.
4. Note down any difficulties you faced during the second activity.

When the browser is being installed, it will ask if you want to have a desktop icon for Chrome and add a shortcut in the Start menu. A small icon will also be added to the task bar on your computer screen. Click on any one of them to open the browser.

Parts of a web browser

1. **Title Bar** – contains all opened tabs showing their titles on the tab
2. **Address Bar** – type the URL of website you want to visit or document you want to open and click Enter to open it
3. **Open New Tab** – click to open new tab
4. **Google Search** – type text and press Enter to search that information on Google search engine
5. **Browser Settings** – customize and change browser settings by clicking on this icon
6. **Refresh** – refresh or reload a web page by clicking on this icon
7. **Mark Favorite** – mark a website favorite, so that it moves to the top of the list of suggestions given by the browser

8. **Bookmarks Bar** – stores all web pages which are bookmarked, i.e. marked for importance, usefulness etc. It can be accessed through the Browser Settings.
9. **Open Home Page** – click here to open the default Home Page as set in the Browser Settings
10. **Recently Opened Websites** – the Home Page of the browser shows all recently opened web pages. They can be directly opened by clicking.
11. **Vertical Scroll Bar** – to scroll through a web page
12. **Google Apps** – various apps by Google like Gmail, Google Calendar, Google Maps etc. all available in one place by clicking this icon

Using Tabs

As shown in the figure above, clicking the grey button opens a new tab as shown. A few short cuts are useful to handle tabs:

Ctrl + T	Open new tab
Ctrl + tab	Navigate among the tabs

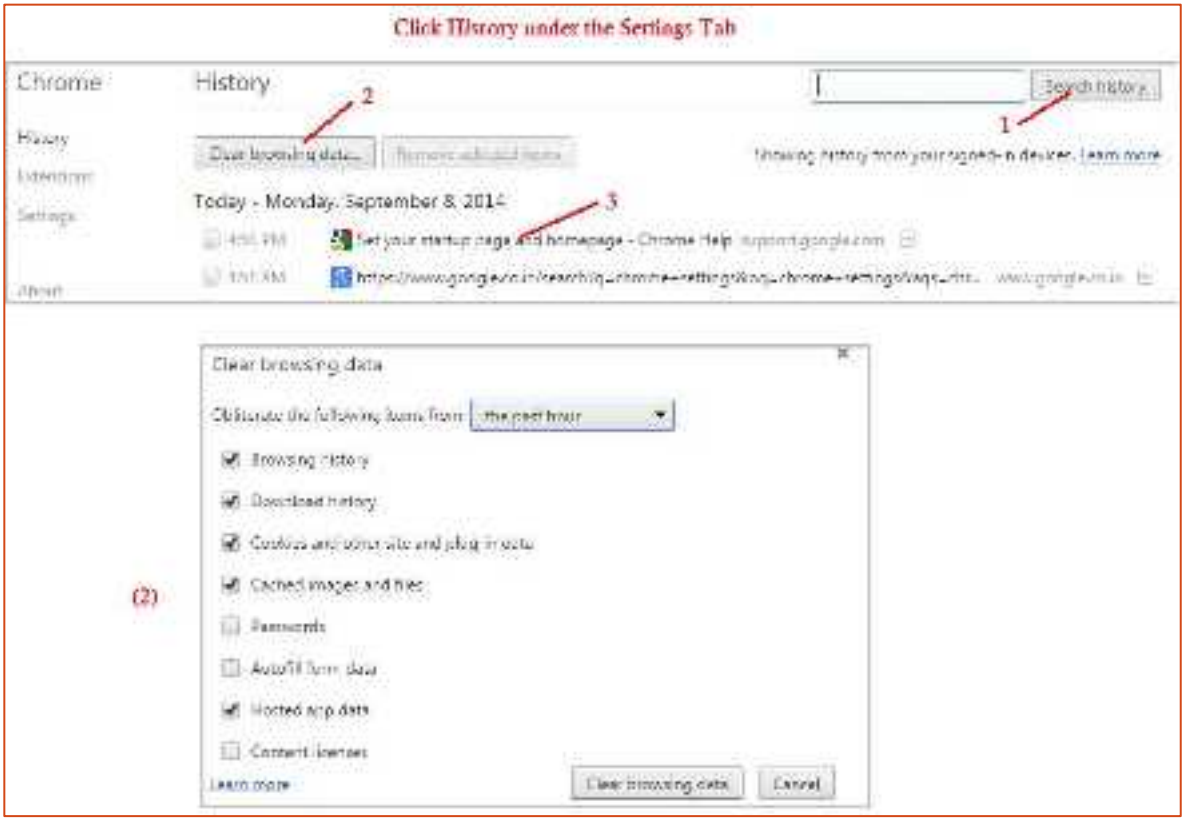
Changing Browser Settings

As learnt in the previous section, click on the icon with three horizontal lines and then click "Settings" to access browser settings.

A window opens up as shown below. We will check out a few settings here and others can be explored on their own.

1. **On startup:** Specify which page should open when the browser is opened for the first time
2. **Search:** Set the Search Engine to be used to search from the Address bar
3. **Advanced Settings:** Access Advanced Settings like Privacy, Downloads, Network etc.

Browsing History



Check for the following in the figure above:

1. **Search History** – lets you search for web pages which were browsed in the past
2. **Clear Browsing Data** – allows you to delete browsing history, download history, cookies, passwords etc. from the past few hours up to past few days. You can also delete entire history.
3. **Saved web pages** – shows the web pages saved in the browser history. Click on them to open the page.

Self-Practice 2.1

1. Open Google Chrome Browser. Type any URL you know in the address bar and open the website.
2. Search for some information on the Web. (e.g. Delhi weather, benefits of Internet).
3. Visit a website which gives good information according to you. Mark the website as Favorite.
4. Open another tab and type the same "Search Query / Keywords" as in pt. 2. Note if your Favorite website's name pops up in the Suggestion List.
5. Navigate between all tabs you have opened.
6. Explore Browser Settings.
    a. Change start-up settings. Close and reopen your browser to observe the changes. Were you able to do it?
    b. Get a theme for Google Chrome. Try to install the theme.
    c. Click "Privacy Settings". Without changing any settings, observe them and note two interesting settings to be discussed with co-learners or instructor
    d.
7. Perform similar operations as in pts. 1-6 using Mozilla Firefox or another browser of your choice.
8. Note down difficulties you faced.

Downloads

1. **Downloads Tab:** In the Downloads section of browser settings, you can set a default location in computer where all downloaded documents will be stored. Or else, you can choose "Ask where to save each file before downloading" so that it opens a "Save As" box every time you want to download a document.

2. **How to download:** When a web document is opened in Chrome, you can move over the bottom right corner of the screen. A menu as shown in above figure will open up. Click on the "Save/Download" option to download the file. The download will happen as per your settings.

Useful Shortcuts for PC

Ctrl T	Open new tab
Ctrl tab	Navigate among the tabs
Ctrl +	Zoom in
Ctrl -	Zoom out
Ctrl 0	Return to original size
F6	Jump to address bar

Common Browser Errors

A list of common Google Chrome browser errors and issues is given below with the description. It is useful to understand them as we may encounter such errors while browsing the Internet. Solutions for these problems are beyond the scope of this tutorial and can be studied on their own by students.

Issue	Meaning
"Aw, Snap!"	Message shown if webpage crashed unexpectedly
"He's Dead, Jim!"	Message shown if operating system has terminated the webpage processing due to lack of memory
"The following plug-in has crashed "	A plug-in is a small software application to add some features to the existing software application. This message is shown when a plug-in stops working or closes suddenly
"Whoa! Google Chrome has crashed."	Message shown when Chrome shuts down suddenly
Blocked plug-ins	Some plug-ins might be considered a security threat and are blocked by Chrome
Outdated plug-ins	Chrome informs the user about outdated plug-ins which might cause security threats and also blocks them.
Report an Issue	You can report a technical issue to Google

Understanding and Maintaining Basic Security Online

Various online frauds are prevalent since the Internet started and threat increases day by day as more people can go online. The importance of online security cannot be ignored at all. Without proper awareness, people can become victims to and even perpetrators of fraud. The damage can be detrimental if important data is lost or stolen, privacy is violated and crimes are committed online. Some of the most common online security threats are mentioned below:

1. **Malicious software:** Virus, worm, Trojan horse, logic bomb etc. are malicious software codes which can be inserted into computer data and other software via direct or indirect access, to destroy or damage them.

   Viruses usually replicate themselves when triggered by some event. Viruses can be merely annoying and sometimes completely destructive! A computer can be infected by a virus through external sources like an email attachment and file downloaded from a suspicious website. ***Trojan horses*** are carriers of destructive codes. They can delete data, mail their own copies to addresses in email contact list and more.

2. **Malicious hacking:** Accessing an online account without authorization to steal, damage or destroy important information is a very common threat. A hacker can access and manipulate multiple computers on the Internet at the same time, causing enormous damage.
3. **Theft and fraud:** Personal and financial information can be easily stolen online if proper security measures are not followed.
4. **Phishing and Spamming:** Phishing is also theft of sensitive information via electronic communication by pretention. Spamming means sending unsolicited bulk messages which may contain malicious software.

How to remain secure online

1. **Password Protection**:
   a. Use strong passwords for email and other online accounts by including numbers, letters and special characters in it.
   b. Avoid common words.
   c. Never write down your password anywhere or share it with anyone.
   d. Change your password frequently.
   e. Use separate passwords for different accounts. If you use the same one and it is hacked, the attacker will be able to access all your online information.
2. Do not open **suspicious email attachments**, even if sent by known people. Never open attachments from unknown senders.
3. Never share **sensitive personal or financial information** online. Never reply to emails from unknown senders asking for any sensitive information or data.
4. Use **anti-virus software** to secure your computer from threats like virus attacks, worms, spyware etc. Update the software regularly to maintain the recent database of viruses and worms online.

5. Download and install software only from **trusted sources.**
6. **Never click a link from an untrusted source.**
7. Close **popup ads** or unexpectedly opening windows by clicking on the 'X' button on the window. Do not click inside the window.

Guided-Practice 2.2

1. **Downloads:**
    a. Search online for a Word or PDF document.
    b. Try to download the document.
    c. Check where it got saved.
    d. In Settings, define where all your documents should be saved. If a location is already mentioned, change the location to another folder.
    e. Download another document and check where it got saved now.
2. **Online Security**
    a. Give one example each of a strong and weak password. Can you explain why they are strong and weak respectively?
    b. Using a search engine, find out more about viruses and worms.
    c. Is there other malicious software than the ones mentioned in this chapter? Find out and draft a short note of 4-5 sentences.
    d. Find out how to block and unblock pop-ups. Note the steps required to do it. (Hint: Settings)

Chapter 3: Surfing the Internet

Anyone can create content for the Web, which means that the Internet has millions of resources most of which are invisible to the users. The web resources or websites are not indexed and hence we need to use a search engine to find them online.

There are many search engines being developed and used by millions of people across the world. Google, Microsoft Bing, Yahoo! Search, Ask.com and AOL Search are some of the most popular search engines. In this tutorial we use the Google Search engine as it is the most advanced search engine of all.

We will learn how a search engine works in the background as it gives us useful webpage results in a fraction of a second!

Using a Search Engine

When we use a search engine to search for information on the Web, we type some words known as **keywords** in the Search Box and press Enter to get results. Then we look for the most useful web page link(s) suggested and click to open it/them. What is more interesting to know is what happens in the background. How does the search engine store and find information based on our keywords?

How a Search Engine works

A search engine works by following the three steps mentioned below:

1. web crawling
2. indexing
3. searching

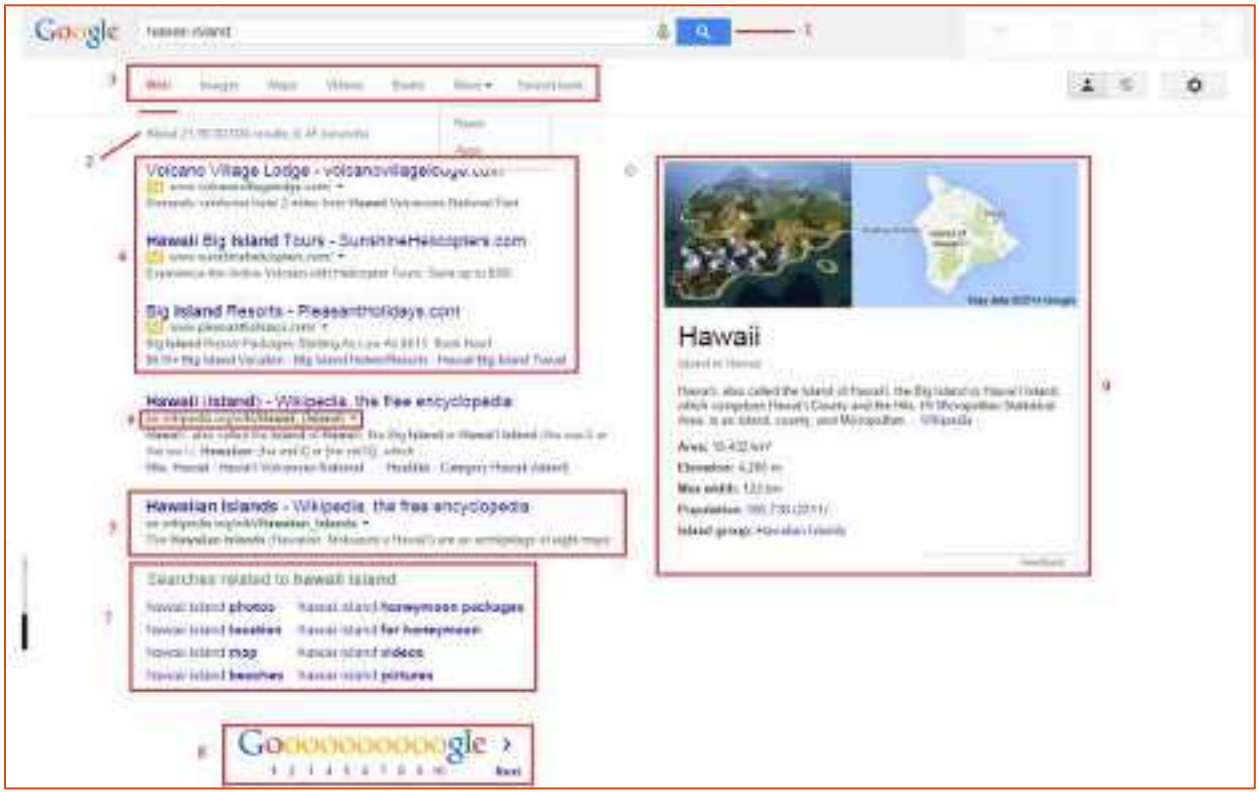
A search engine stored all links it finds on the Internet in its database. A **web crawler**, also called as a "spider" follows the links already in the database to access more links. It examines all the links to find information about the web page or resource that it needs to save for each link. This information can be found in the header, sub-headings, page content, keywords and other metadata of the page or resource.

This information is then **indexed** into the database and is used in further search engine queries. Whenever someone **searches** using keywords, the search engine finds those keywords in its database and gives back the most relevant links in its search results.

The search engine gives back the URL of the web page or resource along with the document heading glimpse and part of the relevant content. This helps the individual choose which document is most useful for him/her.

Basic Google Search

Let us do a simple search and then see what kinds of results we obtain. Let us say we want to know about Hawaii Islands. Here is a sample search for the same. Let's understand what all the items on screen mean.



1. **Search Box:** Type all keywords in this box. It also has an option to give voice searches for anyone who does not want to type. A small microphone icon can be seen on the right.
2. **Search Details:** Number of total searches based on given keywords and the time required for searching them. It's quite astounding to see how Google takes not even half a second to find billions of results.
3. **Types of Search Results:** Multiple tabs shows different types of results like webpages, images, maps, videos, books and more. Each category also has some useful search tools which we will explore later.
4. **Google Ads:** Some relevant Ads are displayed at the top and sometimes on the right as a part of paid promotions
5. **Example Result:** Shows an example search result with the
    a. clickable title

   b. link or URL of the web page and
   c. a short description of the content
6. **Webpage URL:** Hyperlink or URL of the webpage
7. **Related Searches:** based on our keywords, Google suggests similar searches which might also be relevant
8. **More Pages of Results:** Shows all previous and next result pages
9. **Quick Results:** Sometimes, Google provides useful information on the Search Results display itself. We do not even need to click on a link or visit a website to get the information.

Guided Practice 3.1

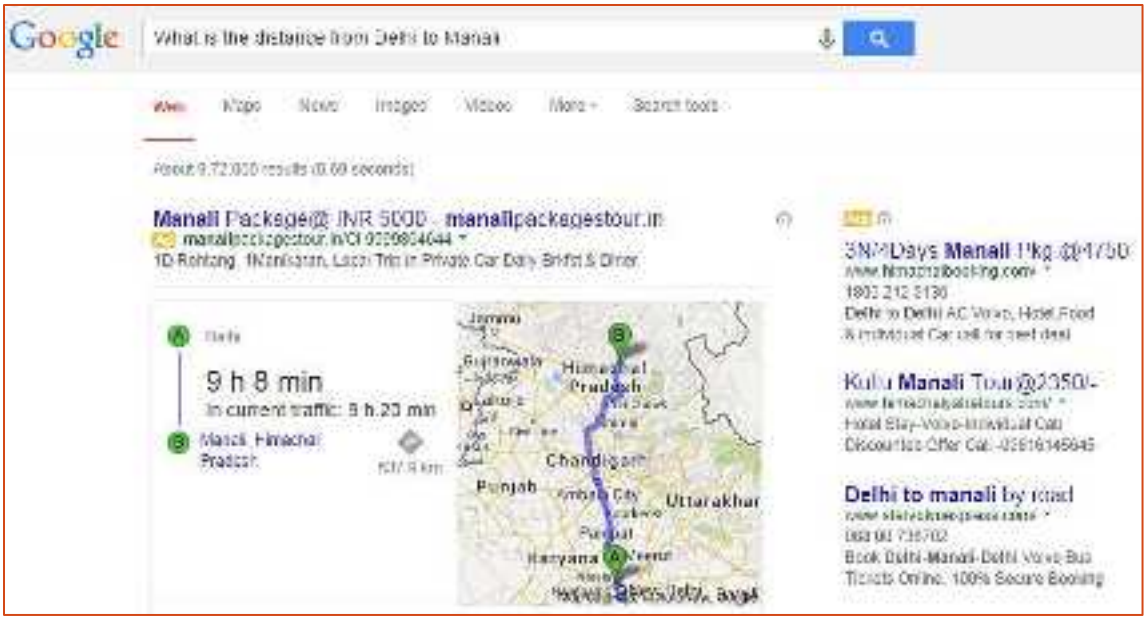
1. **Search Engine:** Describe in your own words what is meant by:
   a. Web crawling
   b. Web indexing
2. Why do we see advertisements in a Google Search?
3. **Google Search:**
   a. Think of something difficult to search for. Use some keywords and create your search.
   b. See if the results are relevant and useful.
   c. Change the keywords and see if the results improve or not.
   d. Make a note of what you learnt. Were your keywords good? Why? Why not?

Tips for Effective Search

Now we know that we should type keywords to search online and we have also seen what a search result looks like. But what exactly should we type or not type to get the most relevant results? Are our keywords useful? Or are they giving us the wrong or irrelevant results?

Here are some tips from Google directly about how we can do an effective Google Search.

1. **Keep it simple:** Don't think too much about what keywords to use. Start with a simple search like **"What is the distance from Delhi to Manali?"** It will give the following result. For many common questions, Google gives direct answers as shown below. We do not even need to open a webpage to find out.



1. **Remove Extra words:** Words like "what, is, if, the" are ignored by the search engine. So you don't need to use them. Use only the most important words. Use keywords without prepositions, conjunctions and articles.

e.g. Instead of **"give me some options of healthy food items",** you can say **"healthy food items"**

2. **Don't worry about small things:** As in the example below, you need not worry about:
    a. **Spelling:** Google Spell Checker will check your spelling and use the most common spelling of the word. It does not matter if you spell it wrong
    b. **Capitalization:** Google ignores capitals. Search [Delhi to Manali] is same as [delhi to manali]
    c. **Punctuation:** Most punctuation marks like ?,!%^*() etc. are ignored

So, the above search can be modified to "**distance from delhi to manali**" and it will still give the same result.

3. **Use web-friendly specific keywords:** Use words which you think might appear on websites.

e.g. Instead of saying " my head hurts", search for "headache causes" or "headache treatment"

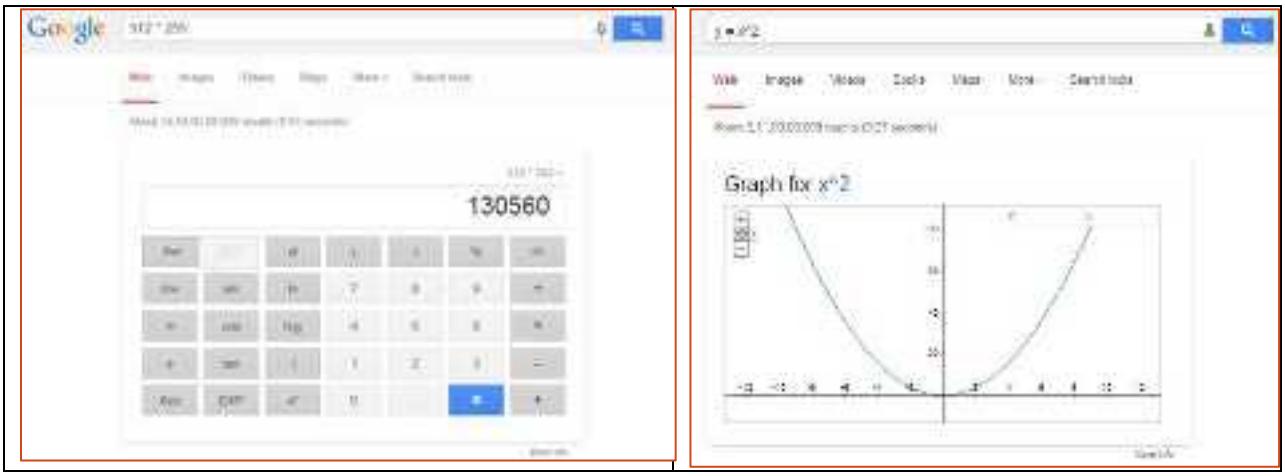
e.g. Suppose you want to know what the term "cc" means while typing an email. Don't just search "cc" as it will give you results for "creative commons", "cubic centimeter", ".cc domain" and more. Give specific words like "cc email". Then the search engine will give more relevant results.

4. **Find quick answers:** As seen in the previous section, Google directly finds many answers for you as seen in the first example. You should just know how to search.

Example Searches on Specific Topics

a. **Weather:** Type "weather" to find the weather at your exact location. Or Search "temperature mumbai" to find the temperature in Mumbai.

b. **Calculations:** Enter math expressions or solve complex graphical problems



c. **Maps:** Enter "map + name of city/area/location"

d. Conversion: Enter a conversion like "1000 rupees to dollars"

e. **Quick Facts:** Search for names of popular people, their details, movies, songs, etc. Google will also give information related to the result.

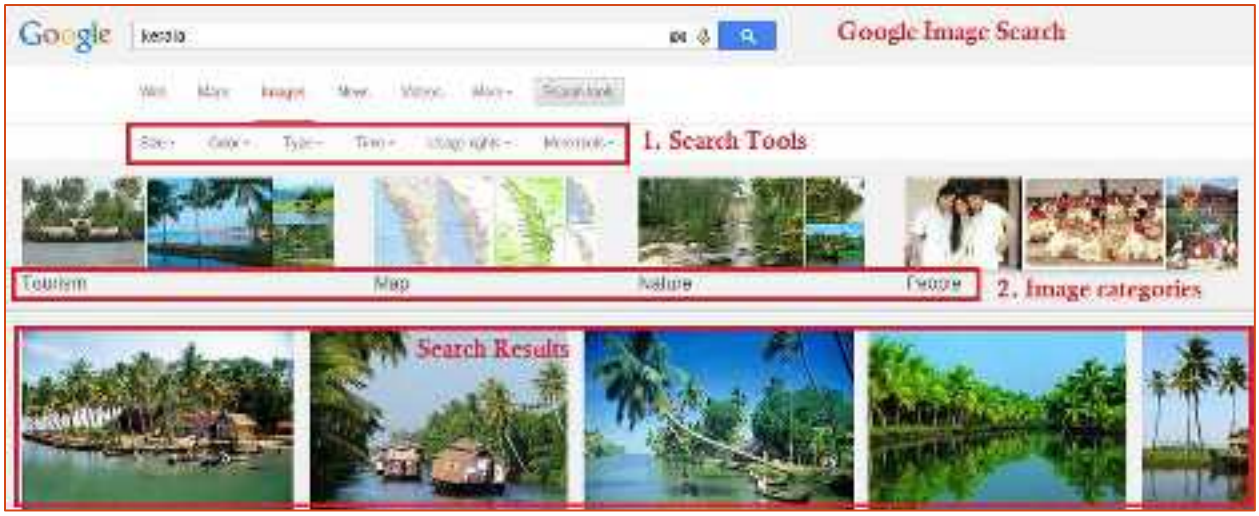
Guided Practice 3.2

1. Read the "Tips for Effective Search".
2. Based on that, analyze whether your previous searches were effective or not.
3. What was good? What could be improved? Note down a few points.
4. Explore the Search Engine by doing a few more sample searches, some general and some on specific topics like weather or a famous personality. Note down anything that you learnt new.

Image Search

Image Search is also done similar to the Web Search. The results can be found in the Images tab on the Results page. Let us see how an Image search looks like and what search tools can be used to enhance the results.

e.g. Someone has come to visit India and she wants to know more about Kerala. Based on the images she will decide whether to visit Kerala or not. So she searches images with keyword "kerala". The following are the results:



1. **Search Tools:** Various options like Size, Color, Type, Time, Usage Rights and more are available. Images of specific sizes and colors, taken at specific times, and with different reuse policies can be searched using these tools.
2. **Image Categories:** Based on our keyword "kerala", Google suggests some categories of images like Tourism, Nature and Map. We can click on these to view images from specific categories.
3. **Search Results:** Below this, all search results are displayed.

Self-Practice 3.1

1. Search for images on a general topic.
2. Then use the Search Tools to make your search more specific. Explore all different options in the tools.
3. Did you face any problems? What new did you learn? Please note.

Chapter 4: Using Emails

Email is a very useful form of communication on Internet. You can contact your loved ones, family and friends staying anywhere around the globe. You can create a professional email account to connect with your colleagues, business partners or anyone else professionally. You can send and receive information, documents, images, hyperlinks and more. You can subscribe to magazines and websites which interest you and then receive their newsletters, event announcements and any kind of information in your email address. Emails also have advertisements, mostly based on your surfing habits. So you can get useful information that way too. Most email IDS also have chatting facilities nowadays. Emails are thus very useful for all kinds of communication.

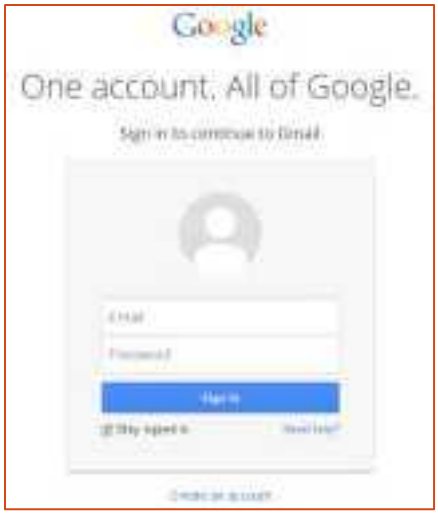
In this chapter, we will start from the first step and learn how to create an email account with Google i.e. a Gmail account. Then we will learn how to setup that account, understand all useful features, chat options etc. We will learn how to compose and send emails with attachments and read and organize emails well. At the end, we will explore various interesting settings provided by Gmail to configure your inbox, make your account more beautiful, add labels to emails, add features and much more! So let's begin!

Setting up an email account

There are many free email services available in the market like – Gmail, Yahoo! Mail, Outlook.com and AOL. Out of these, Gmail is the most popular service.

It is an advertising-supported email service and has very useful and attractive features, tools and support services. Also it is connected to other Google Applications like Calendar, Maps, Drive (for storage) etc. All applications are synced with each other and are free to use. For this reason, we have chosen to learn Gmail in this tutorial. The first step towards learning email is to create an account.

Create Email Account



Login to www.gmail.com. You will see a window as shown. If you have an account, you enter your email ID or just username and password and click on "Sign In" to enter the account.

As you are creating an account for the first time with Gmail, click on "Create an account". A page will open up as shown below.

A dummy account has been created for the purpose of teaching. Please create a real account with your true personal details.

1. Enter your **personal details** like name, birthday, gender, mobile number etc.

2. Choose a simple **username** which is easy to remember, has your name and surname both if possible and some numbers if necessary. Simple usernames with your own name look more professional than something like sweet.girl@gmail.com.

3. Enter a **password** with at least 8 characters. You can use capital and small letters, numbers and also some special characters. A password is case-sensitive. So remember which letters are capital and which are not. It will show you whether your password is strong or weak. Strong passwords keep your account more secure. So try to choose passwords which are easy to remember for you but difficult to produce for others.

4. Enter your **current email address** if you already have an account. It can be with any email service like Gmail, Yahoo or Outlook.com

5. The **Image verification** is necessary to prove that you are a human creating an email account and not some machine. This is an additional security measure. You can refresh the image and also hear it in audio if you don't find it easy to read.

6. Check if your **location** is set to your country, India in this case.

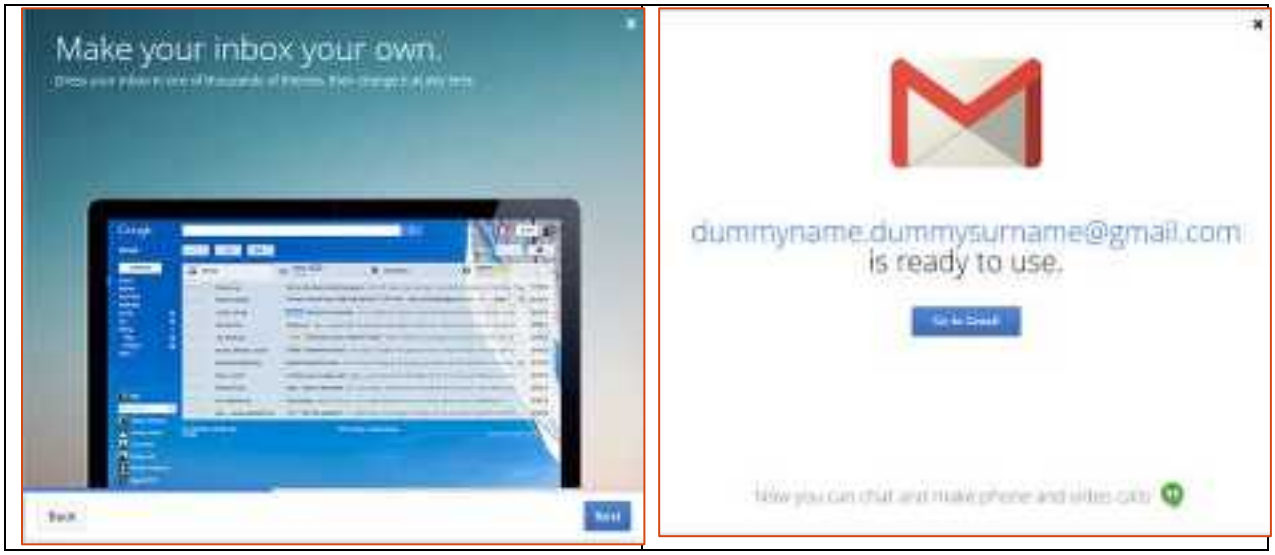
7. Agree to the **Terms of Service and Privacy Policy**. This is a required field without which the form will not be submitted. It means that you agree to have read and understood all terms and conditions behind using a Gmail account and its privacy policy.

8. Click on **Next Step**. The following page will open.

9. Google+ is another free service by Google which is similar to Facebook in a way. It is a social media platform to connect with others publically and share information and documents with them. It is not compulsory to do this, so you can skip the step and go to it later if you wish.

10. Click on "**Create your profile**". The following page will appear. Click on "**Continue to Gmail**".

11. Gmail will give information about its services, tools and features. Keep clicking on "Next" to read about all features. Then click on "Go to Gmail".



Explore your new email account

Gmail Home Page appears whenever you first login to your email account.

Study the above home page diagram carefully for all features. Most of them as self-explanatory like Sender, Email subject, email body, storage capacity and settings. Let us understand some features which may not be so obvious.

1. **Types of emails:** Any email program provides multiple types of email storage boxes like:
    a. **Inbox:** for incoming mails

b. **Sent Mail** for mails sent already
c. **Drafts** to create mails and store them before sending. Gmail auto-saves all mails you write and so if you do not send it, it will automatically be saved in Drafts.
d. **Starred** for mails which have been star-marked as the user finds them important.
e. **Spam** for mails sent by unknown senders in bulk, usually advertisements and sometimes problematic emails causing security problems. Open them carefully.
f. **Trash** for all deleted mails. Deleted mails are saved for 30 days before they are completely deleted from the system.
g. **More**: Explore the other categories like Chat, All Mail etc. on your own.

2. **Gmail Chat**: You can add email addresses of any people you want to chat with and click "Enter". This will send an invite to them. If they accept your invitation, their name will appear in your list and you will be able to chat with them. This option will be discussed in greater details later.

3. **Gmail Inbox Configuration:** This is a new configuration offered by Gmail in which you can keep your main emails separate from the promotional stuff, social media updates, subscriptions and spam. There are other ways in which you can configure your inbox. That will be learnt in Settings section.

Send/receive emails

Reading incoming emails

An example email is shown above and all important features have been labeled. When an incoming email is opened, a set of tools also opens at the top, marked in a red box. Using these tools, we can archive, delete,

move and label emails and even mark them as spam. A mail marked as spam goes into the Spam folder and similar emails will go directly to Spam in the future.

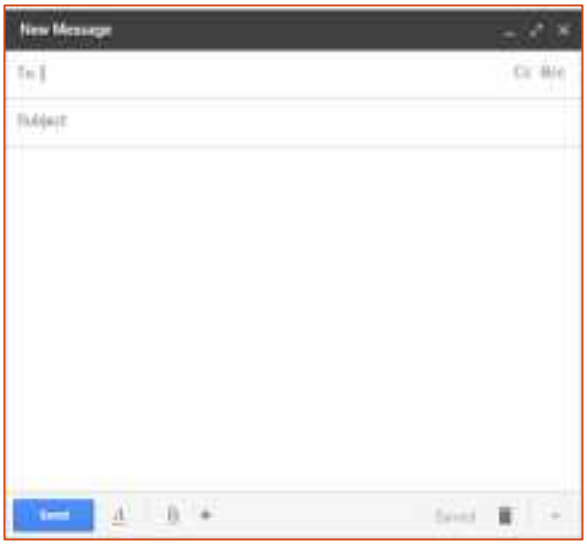
More options are available like "Mark as Unread", "Remove star" etc. We can mark an email as unread if we want to read it again later or perform some task based on it. We can also mark or unmark it as important and put it into a task list. The blue box shows the "Reply" button and there are more options like "Forward" the mail to others, "Reply to All" if the mail has multiple recipients, "Print" etc.

Guided Practice 4.1

1. Explore the different types of emails in a Gmail mailbox.
2. Read an email in your inbox.
    a. Mark it unread.
    b. Star mark it.
    c. Forward it to your co-learner.
    d. Move it to a new folder.
    e. Delete the email. Undo the Delete.

Composing and sending emails

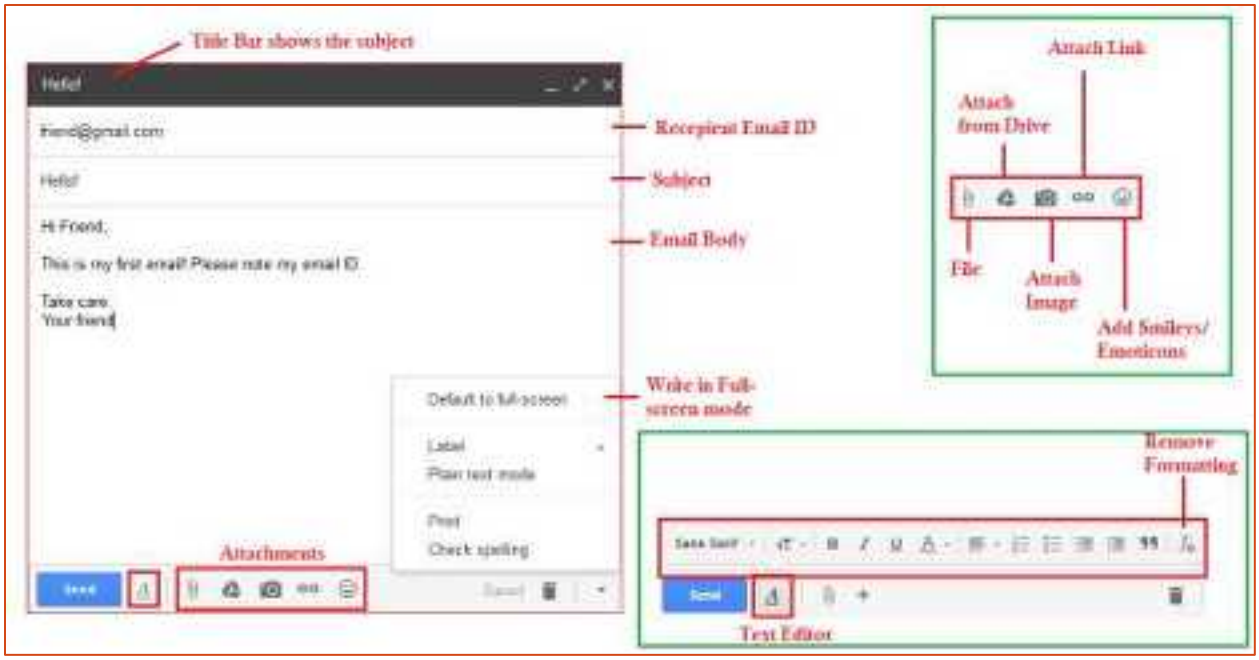
To compose a new email, click on the red "Compose" button on the left top corner of the home page. A window opens as shown below:



You can enter the Recipients in the "To" field. You can also add "Cc" and "Bcc" i.e. Carbon Copy and Blind Carbon Copy. Search online to find out what they mean.

With an example, we will explore different features of the email compose box. An interesting point to note it that as you start writing an email online, the email is automatically saved from time to time. This is a useful security feature, as your important emails will not get deleted due to power cuts, computer crashes or browser crashes.

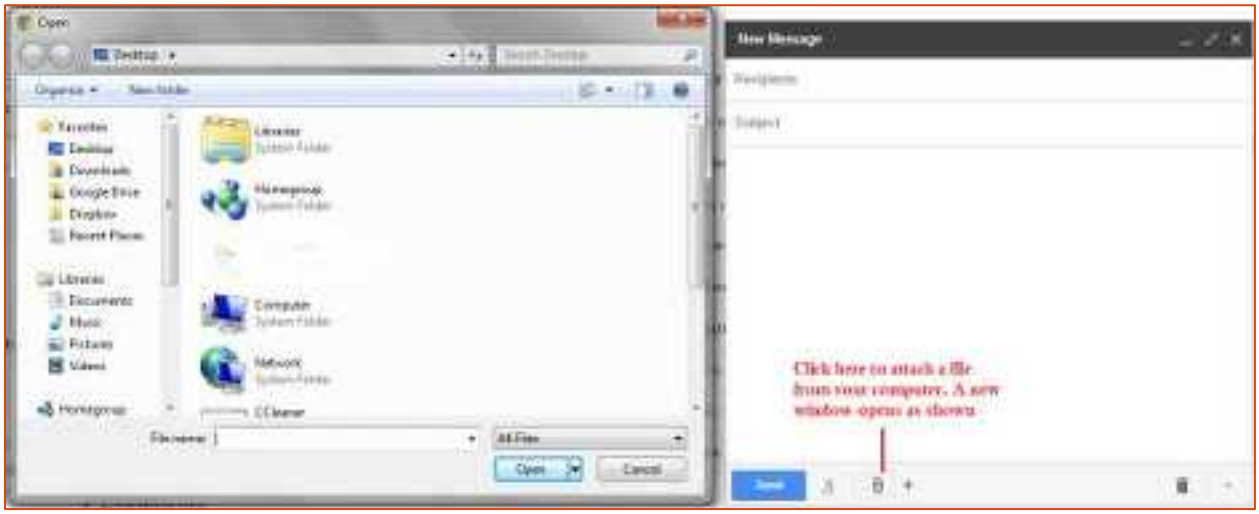
An example of a short email composition is shown below. Let us study the diagram below to understand all features.



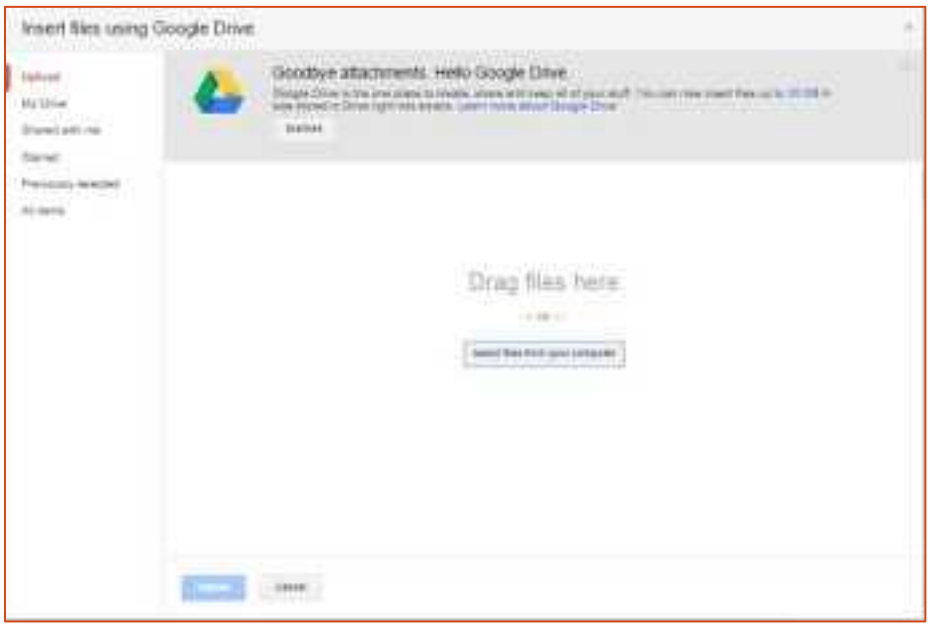
Most of the things shown above are self-explanatory. The top green box shows all different kinds of attachments which can be attached with a mail. We can send files, zipped folders, images, videos and links in our email. We can add smileys and emoticons to make our conversations more friendly. We can also attach documents stored in Google Drive which is an online storage provided by Google. Any attachment which is more than 25 Mb in size cannot be directly attached. It has to be first uploaded to Google Drive and then attached from there.

Email attachments

1. **Attach Files**



2. **Insert Files using Google Drive**



3. **Attach Images**

As shown above, images can be uploaded from the computer and also from a web page by inserting the Web Address (URL). Images can be inserted **inline** or **as attachment**. Inline means the image will be inserted at the cursor point in the email body itself.

4. **Add Link**

5. **Add Emoticons**

Guided Practice 4.2

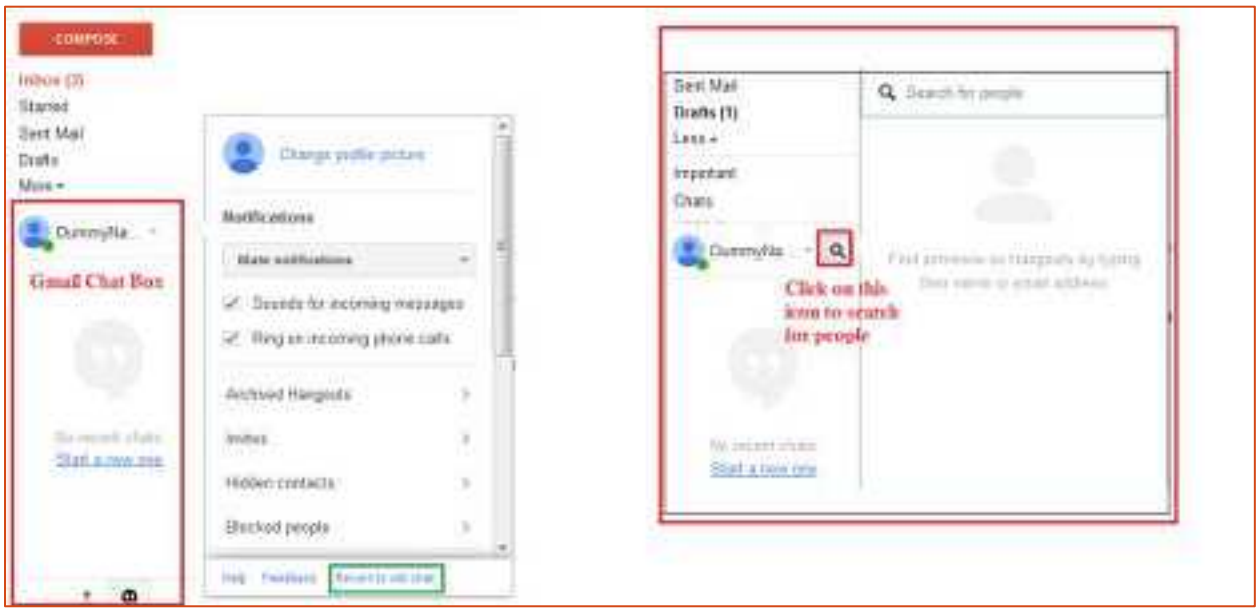
1. Share your new email ID with your peers. Ask them to send a short email to you.
2. Compose a Hello email to one of your friends.
    a. Write a short paragraph with the subject line.
    b. Edit the text to add some effects, for practice.
    c. Remove the changes you don't like by using the "Remove Formatting" feature.
    d. Download an image from the Internet. Attach it to your email.
    e. Or attach an image already in your Computer.
    f. Add some smileys.
    g. Add your signature (Regards, ABC).
    h. Send the email. Check if the email was sent or not.
3. Note two new things you learnt in this exercise.
4. Note two or more difficulties you faced. Share them and discuss with your peers.

Use the chat option

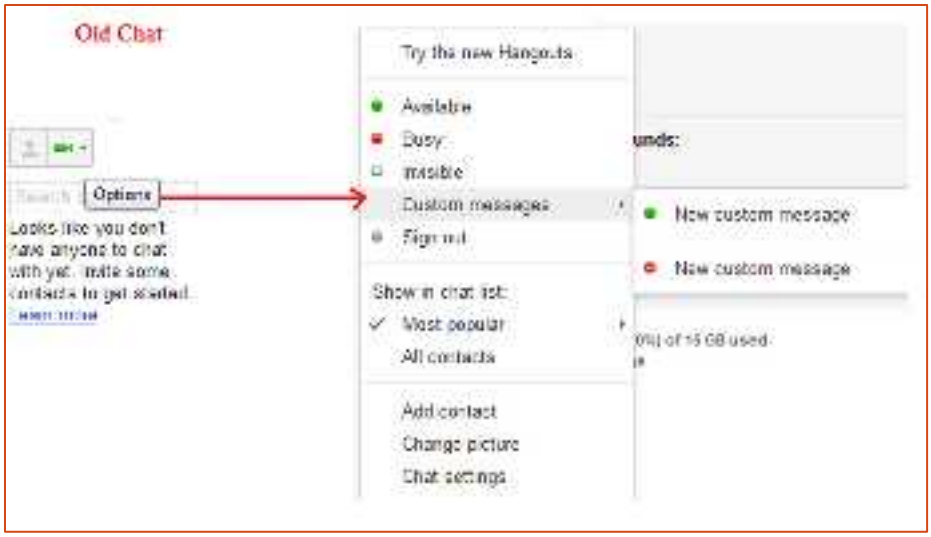
Chatting is a very cool and useful feature of Gmail. It becomes so easy to connect with family, friends and even new contacts we have made. Just send an invitation to their email ID! Gmail has two types of chat – original and Google Hangouts. The original chat is simple while Google Hangout is a newly developed application which allows multiple people to chat at once and provides other features also. Let us start exploring all options.

Gmail Chat – Old and New

The Gmail Chat Box is on the left sidebar on home page below the "Inbox". The image below shows the new Google Hangouts chat. It has a search button as shown on the right. By clicking that, we can enter names or email addresses of people we know and send them invitations. Once they accept the invitation, we can see when they are online and chat with them.

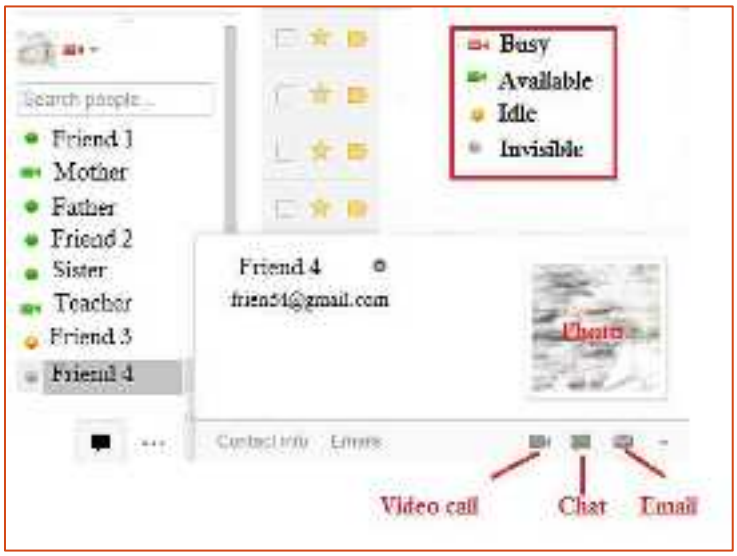


Google Hangouts has other advanced options like Notifications, Archived chats, hidden and blocked contacts etc. Explore these options on your own. As discussed before, there is a simpler older version of chat. Click on the text highlighted in green in the image above to "Revert to old chat".



The old chat looks as shown above. You can search for contacts in the same way. You can create custom messages which will be visible to people like "Happy New Year", "Got a new job today!" etc. Explore the other options like "Show in chat list", "Add contact" and "Sign Out".

An example chat



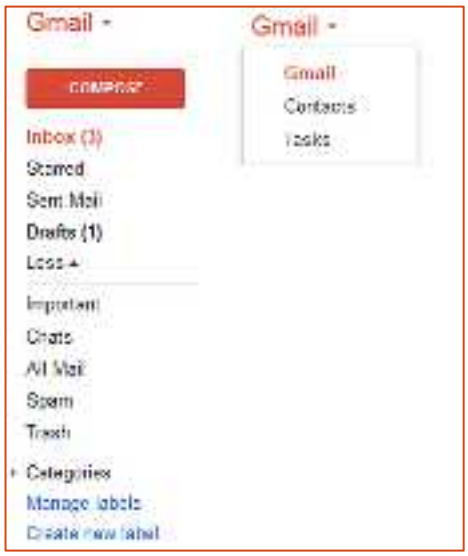
In the old chat, the contacts are visible as shown above. You can hover over any person's name to get more options. Here, the mouse is hovered over "Friend 4", so details of Friend 4 are shown with the email ID, status (invisible), photo and options like video calling, chatting and email. We can click on these options to start a text chat or video call.

The status of a person can be set using various colors. Red means busy, Green equals Available, Orange is for Idle and Grey is for Invisible.

Guided Practice 4.3

1. Change the status of your Gmail chat.
2. Add a custom message. (e.g. how you feel right now, about some event etc.)
3. Revert to the old chat rather than using Google Hangouts.
4. Send chat invites to your friends. Ask them to add you.
5. Once they accept your invitation or you accept theirs, chat with one of them.
6. Try various options like adding smileys, video chat etc.

Left Sidebar

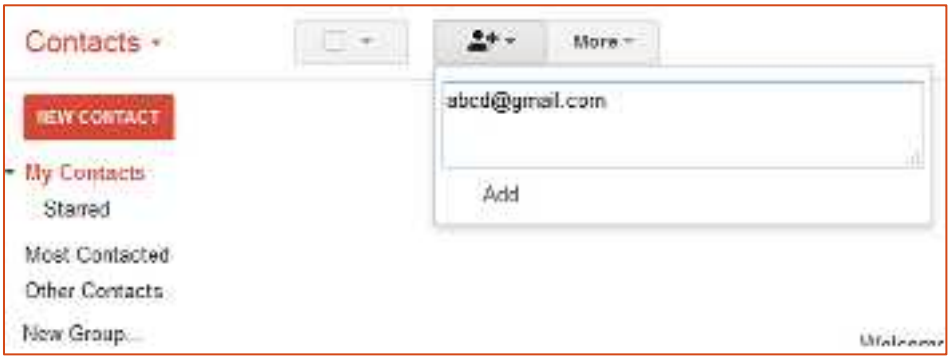


On the left top corner of the homepage, we can see "Gmail" written with an arrow pointing downwards. Clicking the arrow, we can see options like Gmail, Contacts and Tasks.

Gmail is what we have learnt till now, the email box. Tasks, as the name suggests help us create a small list of tasks that we want to do with the deadline. We can tick off the tasks that are completed.

In this section, we will check the option "Contacts".

Contacts



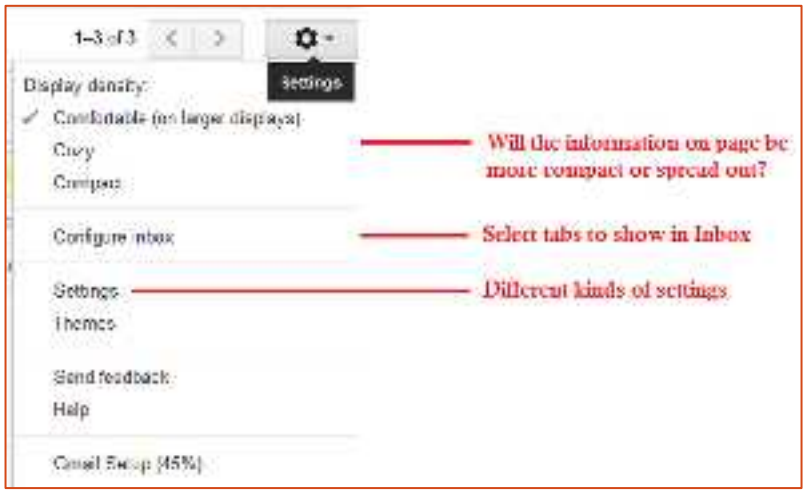
By clicking on "Contacts", we can see all the options as shown above. We can add new contacts, check starred contacts and create a new group like "College friends", "Family" etc.

There is a button on top with a person and + sign. By clicking on that, we can enter en email ID and click "Add" to add that contact to our contact list as shown.

Change email settings

Knowing how to change the settings in an email platform is very important. This way we can configure our email to have the features that we like, customize everything from the background to the chat settings and have the tools which are useful to us.

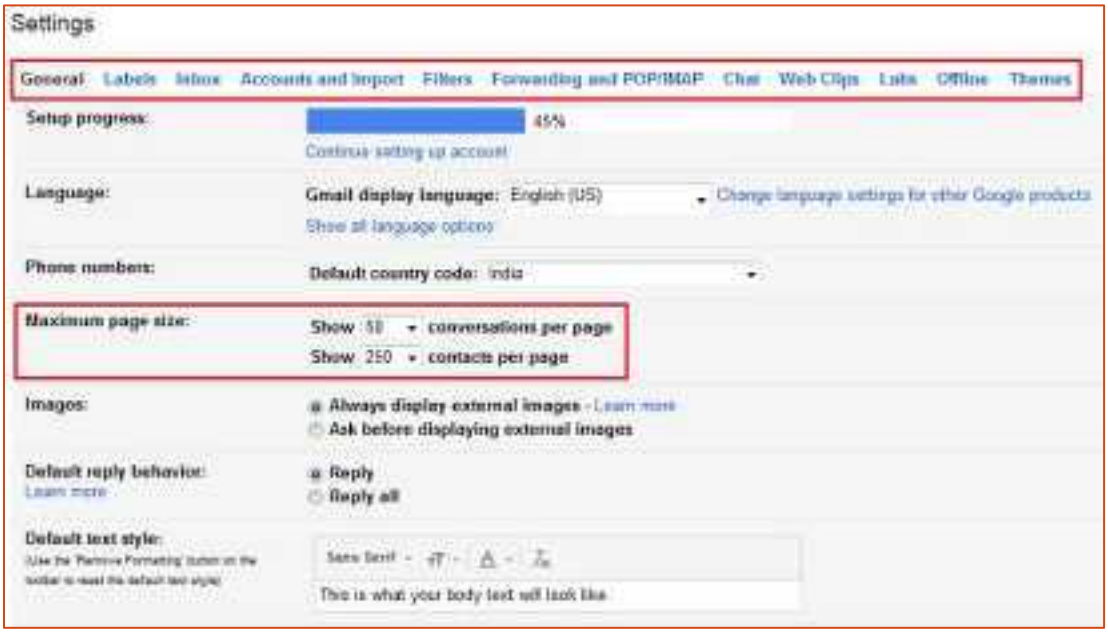
Settings can be access by clicking in the "Gear" icon on the top right corner of the screen as shown in the figure. A few extra settings are given in the drop-down menu. E.g. Display density which can be varied to make the screen information more or less compact.



The inbox can also be directly configured from here and a theme can be selected to apply in the background.

For all extra settings, click on "Settings" in the drop-down menu. We will explore some of the Settings tabs below.

General Settings

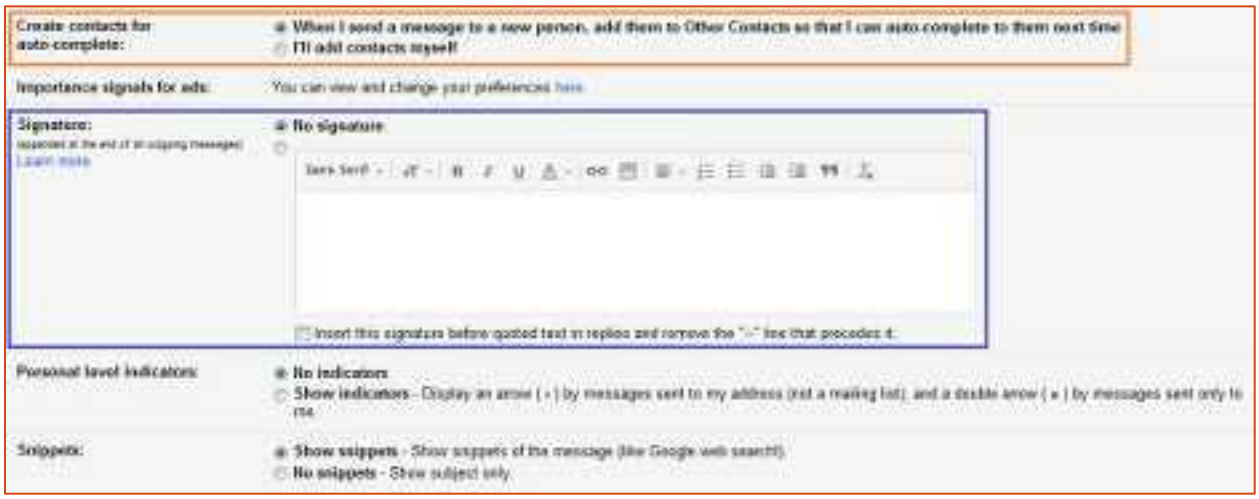


When we click on "Settings", the "General" Settings tab opens as shown. The other tabs are shown in blue.

1. **Maximum page size:** One useful feature to note is "Maximum page size". You can choose how many conversations you want to see in one page based on how much you wish to scroll to read emails.

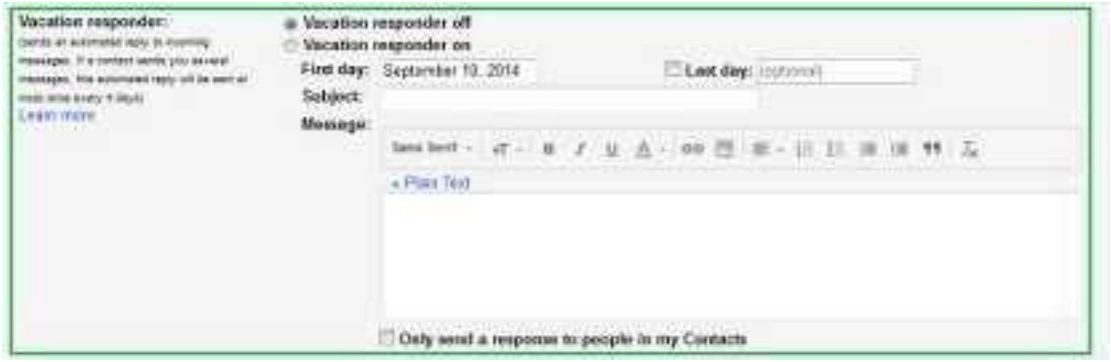
2. **Stars:** A very useful feature shown above in the red box is "Stars". We can mark an email using a star. This can be an indicator for us that this email is important. There are many colors for stars and also some other icons like exclamation mark, check mark and question mark. We can define our own stars like, red for a very urgent task, yellow for important task which is not very urgent and so on.

3. **Desktop Notifications:** This is a very useful feature if you are working on the computer and want to be notified about an incoming mail quickly. A notification will pop-up on your computer screen whenever you get a new mail. It can also have some audio effects like a popping sound. This will keep you aware of incoming mails even if you are working on some other program in the computer.



4. **Create contacts for auto-complete:** This feature allows Gmail to add contacts in your "Other Contacts" list so that they can be available for use next time. So whenever you compose a new email and type a receiver's email ID, the ID available in the "Other Contacts" will pop-up as a suggestion. You can choose it if applicable. Thus we don't need to remember all email IDs. Gmail remembers them for us.

5. **Signature:** The signature is like your identity. If you want people to know your full name, address, phone number, designation or any other details, you can create a default signature. It will be displayed at the end of your email, when you write to someone. It can have other information also like,
    a. Thanks and regards,
    b. Your organization's logo
    c. Some random image or link you want to share with others etc.



6. **Vacation responder:** The last feature we will learn is a Vacation Responder. This is again useful for professional purposes. When you are going to be busy for 2-3 days or are going on a vacation, you may

want people to know you are busy and would not be able to respond to emails immediately. You can inform them about this by creating a short message and deciding the duration for which this message should be sent. During that time, whenever you receive an email, the sender will automatically receive your Vacation responder message. You can also inform them how to reach you or who else can be reached when you are unavailable. This will save a lot of time and energy for the sender and will also make him/her feel assured.

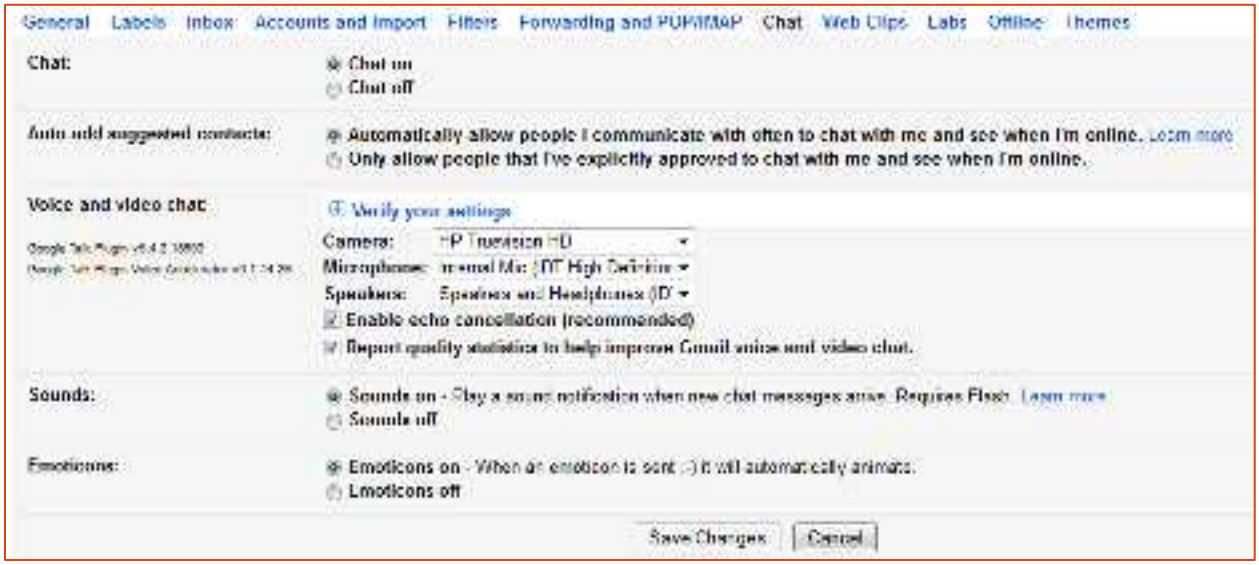
Labels

The next Settings tab we will learn about is "Labels". As shown below, some default labels are available in Gmail, like Inbox, Starred, Drafts, Social, Promotions etc. Labels help classify and identify types of emails. We can also add our own category like "Family", "Work", "Job Search" etc.

If we want to look for an email in a specific category, it is much easier to click on the label to search for it. All labels we create are available on the left sidebar on the homepage. The sidebar also has an option to create a new label. You do not need to visit "Settings" every time for this.

Chat settings

Chat settings can also be accessed directly from the chat box on the left sidebar. An interesting option is Voice and video chat. You can test the sound and video device of your computer and verify if it is working or not from here. You can decide whether you want to be notified with a sound every time you get a new chat message. Explore the other options on your own.

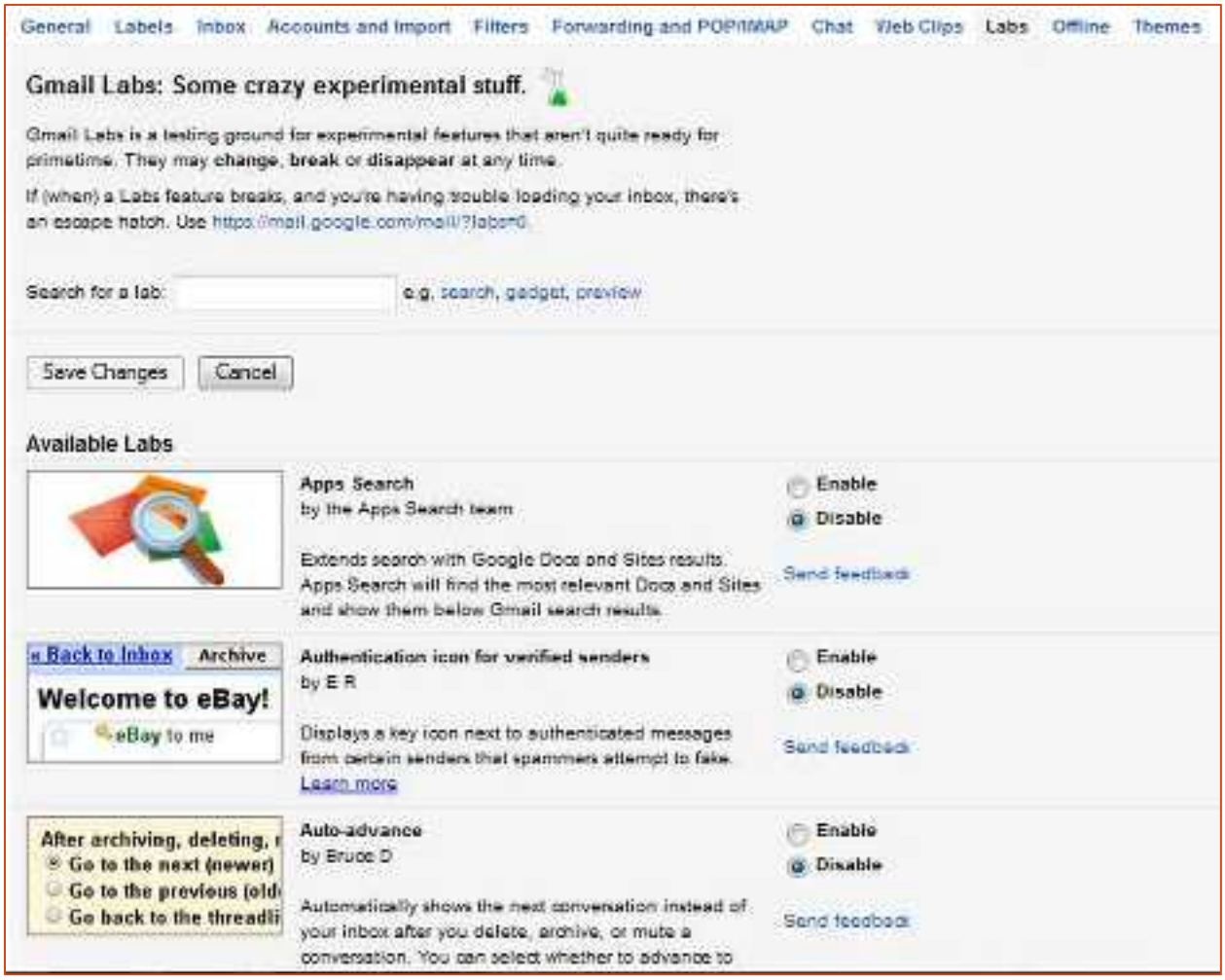


Themes

A theme is a design which will decorate your email background. You can choose one from the available themes. It makes your inbox more attractive.

Google Labs

Google Labs provides us with some interesting and useful features which are under development. You can scroll through the available features and enable the ones you like.



Account Settings

On the top right corner of the email home page, your email ID appears with an arrow pointing downwards. By clicking on that, some other features can be accessed like adding another Gmail account or signing out of your account. You can also access your Account settings by clicking on the "Account" link. Here, you can manage your passwords, personal information, Google+ account and more.

Self-Practice 4.1

1. Explore different settings learnt above. Note points of interest and problems you encounter to share with peers.
2. Explore two new settings not mentioned above. Make a short note on what you learnt or found difficult to learn.
3. Add some Google Lab apps to your Gmail. See how they work.
4. Try signing out of your account and logging in again.
5. Create your Signature.
6. Write a Vacation Responder but don't turn it on.
7. Add a theme of your choice to your inbox.

Chapter 5: Browsing through a website

We are quite familiar with surfing the Internet using a search engine now. The search engine gives us back results in the form of web page addresses. Let us now learn how to open and understand these web pages.

Opening a specific website

Let us recap what we learnt in the first chapter about Domain names and URLs.

Domain Name: A simple user-friendly name which points to the IP address of a computer. An example of a sample domain name is given below with the description of its three parts:

www.sampledomainname.com

1. **.com** is the top-level domain (defines a company). Other top-level domains are .org, .net, .in
2. **.sampledomainname** is the 2nd-level domain (to define the name of the website)
3. **www** is the 3rd-level domain defining the Word Wide Web.

URL (Uniform Resource Locator): The web address for a particular web resource like website, document, image etc. It looks like:

http://www.sampledomainname.com/page1/document.pdf

The above example defined a PDF document stored on page 1 of a website named sampledomainname.

If you are using a search engine to find out a useful website or you already know the website address, then all you need to do is type the address (URL) in the address bar of the browser and press enter. The address can look something like www.samplewebsite.com or https://www.samplewebsite.com . The "http://" need not be always written before www. Even if you don't write it, the browser will add it to the URL if necessary. "**https**" is for secure HTTP. Another simple way is to just type the name of the website domain like "Google" and press Ctrl + Enter. It will automatically add the www (3rd level domain) and .com (1st level domain) to the web address.

Knowing parts of a web page

Let us look at a real website example now to learn different parts of a website. The website we have chosen is www.huffintonpost.com as it contains all features that we would like to see in a website.

The main parts of any website are noted below. We will learn about each of them separately:

- Header-Footer
- Menu
- Multimedia Content
- About, Contacts and Careers Section
- Advertisements
- Lists
- Search Bar
- Comments
- Social media Plug-ins

Header-Footer

In the previous image, we saw the homepage of The Huffington Post website. The **Header** is an element at the top of the homepage of a website. It mainly contains the name of the website and can contain additional items like today's date, a capturing image, contact details and more.

The above image shows the **Footer** of the website which comes at the bottom of a webpage. It contains all supplementary information like Information about the website owner (About Us), Contacts, FAQs, Careers section, Policy documents and the Copyright information about the website.

The header and footer like any other features of a website can be customized easily to add and remove any information which is considered necessary.

Menu

The menu is usually at the top of the webpage above or below the header. It lists all the main topics which the website focuses on. Clicking on a topic link will direct you to the webpage for that topic. You can find various articles, images, videos and other content on that page related to that topic. The menu also typically contains the link for the "Home Page" or "Front Page". Someone who wishes to go back to the home page can click on this. Usually the organization logo or the header image has a clickable link which goes to the home page.

The menu also contains basic information about the website, about the individual or organization to which the website belongs, what work they do, what are their unique qualities, career options with them and much more.

Multimedia Content

Article (Top part)	Article (Bottom part)

Above, we see two parts of a sample article from the website. It shows a lot of multimedia content i.e. content expressed in multiple forms or media. We can see:

- An Article Header and Body
- A Video
- Images
- Hyperlinks to similar articles
- Social Media Plug-ins and Information about popularity of article on social media
- A Link to a form (to receive feedback)

The article can have more multimedia content like Flash animations, embedded forms, 3D images, audio clippings and much more.

About, Contacts and Careers Section

The Menu or the footer usually contain the About, Contacts and Careers sections of the website. Usually, a good website contains all these three sections. Most people visiting a website are first interested in knowing about the website, contacting the organization or person and sometimes finding jobs with the organization.

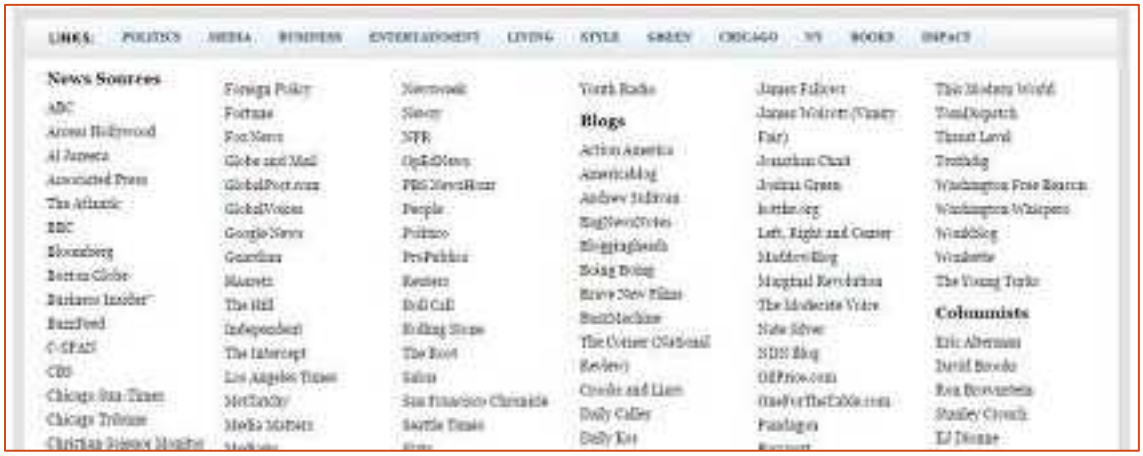
As seen before, these three sections are mentioned in the footer. Most of the times, they are also present in the menu.

Advertisements

Advertisements are an important part of most websites. Some websites are Ad-free as they have other sources of revenue. But now-a-days, it is very common to give free information and share free music, videos, information etc. with everyone. So the major source of income lies in the advertisements. Important Ads are most commonly placed at the top of a webpage where they will be visible as soon as anyone opens the website. Ads are also embedded in the webpage itself, sometimes in the left or right sidebar and in the middle of articles or anywhere else the website designer would like to insert it.

Lists

There can be multiple lists in a website. There can be a list of items in the menu, a list of all topics of discussion, a list of people in the organization, etc. Below is an example of a list. A list allows people to see all choices together and then choose what they want to see or read.



Search Bar

As already seen, a search box is included below the header and in the footer. A search box is also found at the top right corner of webpages as in the "BBC" website shown below. It helps us search for specific information on the website. Sometimes it is connected to a search engine like Google, so that the website search is conducted by Google rather than the website software itself.

Comments

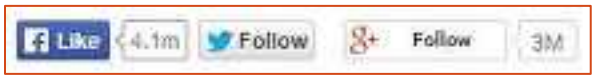
Getting people involved in your website is very important to boost business sales, reach out to more audience, advocate your ideas and convey important information. One way of doing that is allow people to like and share your articles, links and information and let them comment and give ideas. One comment on an interesting article can spark a conversation along multiple readers. Readers may be interested in discussing the article with their friends and may share the link on their social media accounts. In this way, the article can reach a larger audience. An example of such a conversation is shown below.

People can comment on each other's comments, like their replies and also follow the posts.

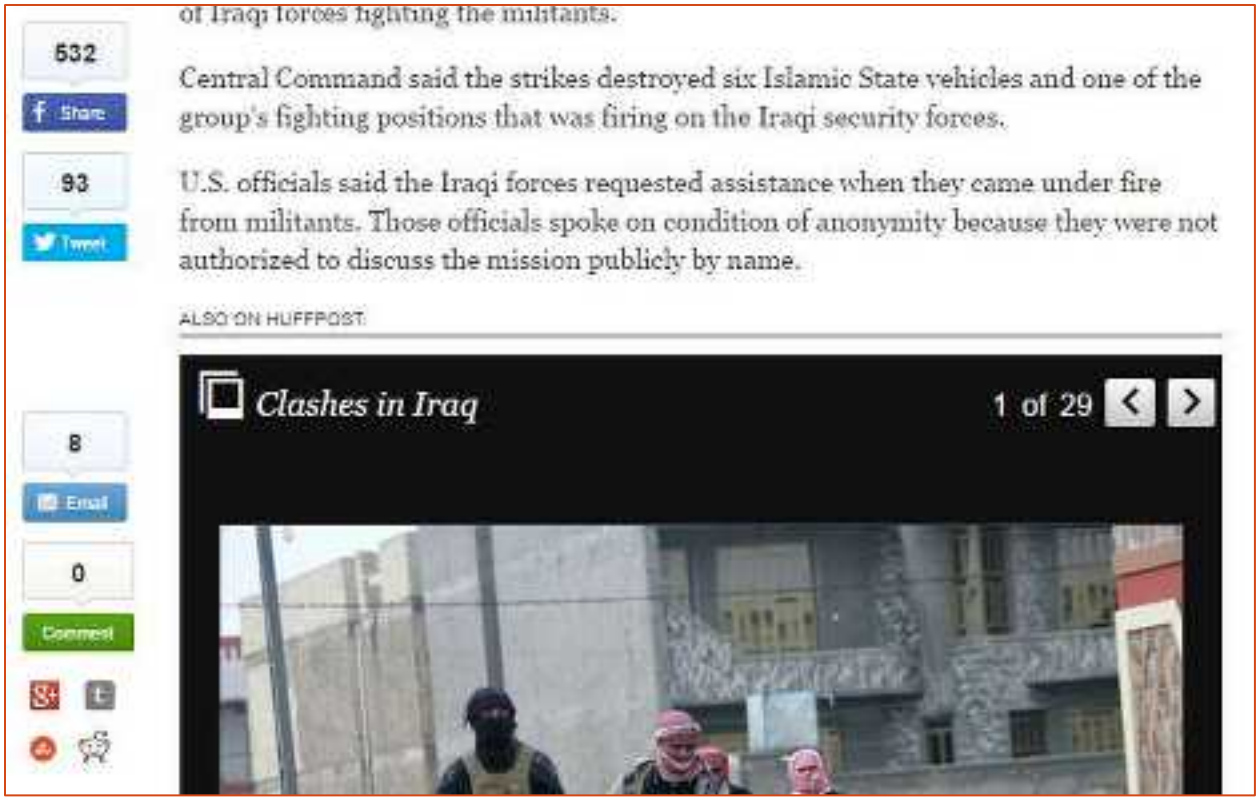
Social media Plug-ins

Social Media is the most powerful medium these days to reach the maximum number of people in the shortest period of time. Social Media plug-in is like a small software application which can be embedded in any part of the website. Plug-ins for multiple social media platforms can be used as per the website requirement. Plug-ins can be in any form as shown below.

1. **Above an article or a website**



2. **Floating alongside an article**



3. **For subscription purposes**

Self-Practice 5.1

1. Explore another News website or other kind of website on your own.
2. Observe all features mentioned above. Was any feature missing? Did you find any additional feature? Make a note.
3. Read some articles, comment below them. Like or share an article via email. (Tip: You may need some social media account like Facebook etc. to be able to comment on or like an article.)
4. Search the website for information. Was the search useful?

Features of a good website

We have already seen an example of a well-designed website. Before we see another example, let us look at an example of a badly designed website which fails to serve the purpose for which it was designed. Based on that information, we will define 5 main features which should be included in any good website.

Example of a bad website

www.mrbottles.com

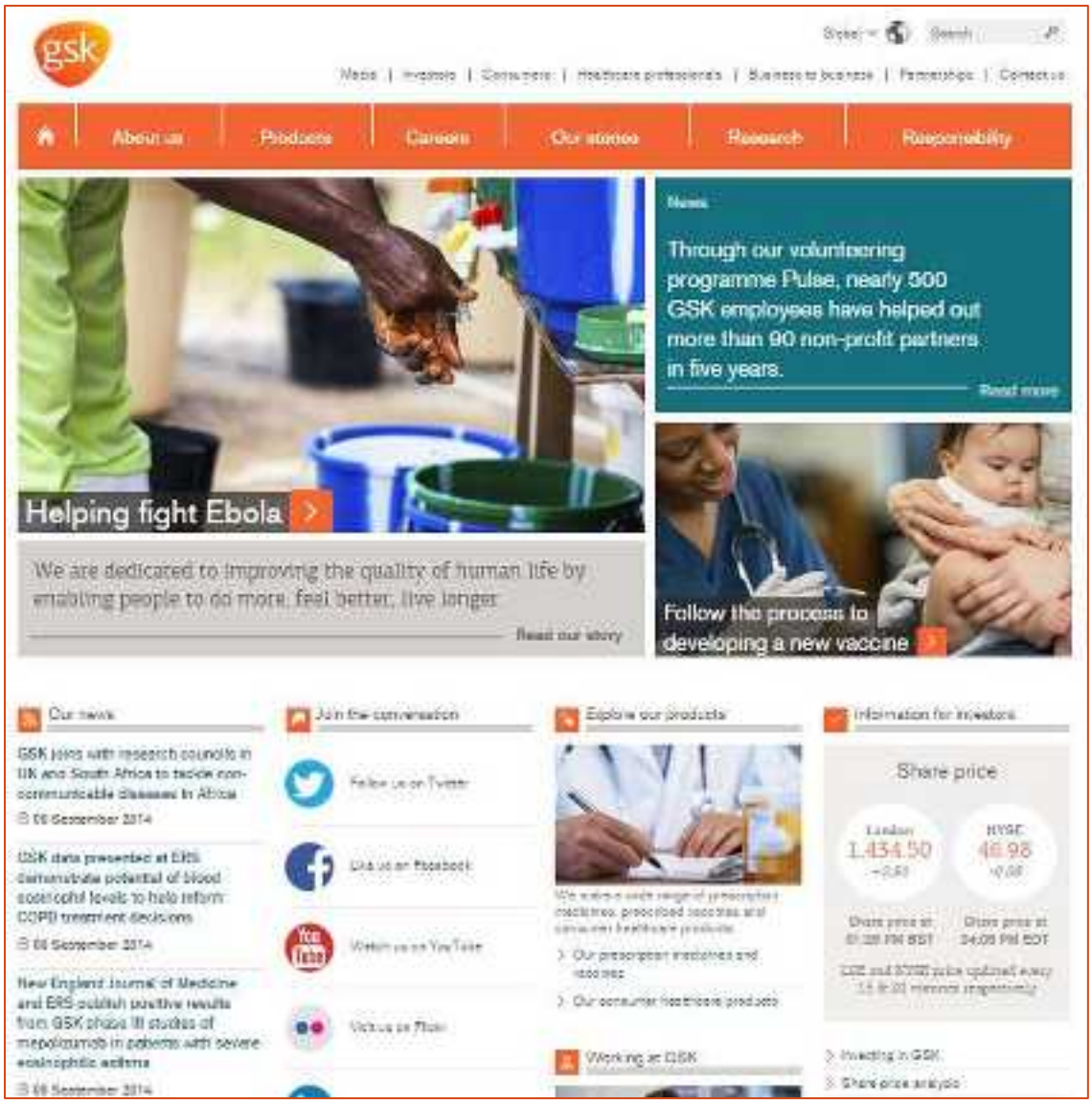
The first look at this website tells us that its design is bad, even in terms of content.

1. The purpose of the website, for whom it has been designed is not mentioned anywhere.
2. The homepage is cluttered with too many random pictures which do not convey any useful information.
3. Some text is hidden by images which are not useful.
4. Navigation is complicated. There are many links scattered here and there and not clearly visible. E.g. "Bottle Talk".
5. The homepage is full of text in paragraphs making it boring and difficult to read and not attractive to customers. There is no logical structure to the content and design.
6. There are grammatical errors and the language and text formatting is not professional.

5 Main Features of a Good Website

Now let us define a few features which make a website useful, relevant as well as attractive. The example we have taken is that of the pharmaceutical company GlaxoSmithKline – www.gsk.com

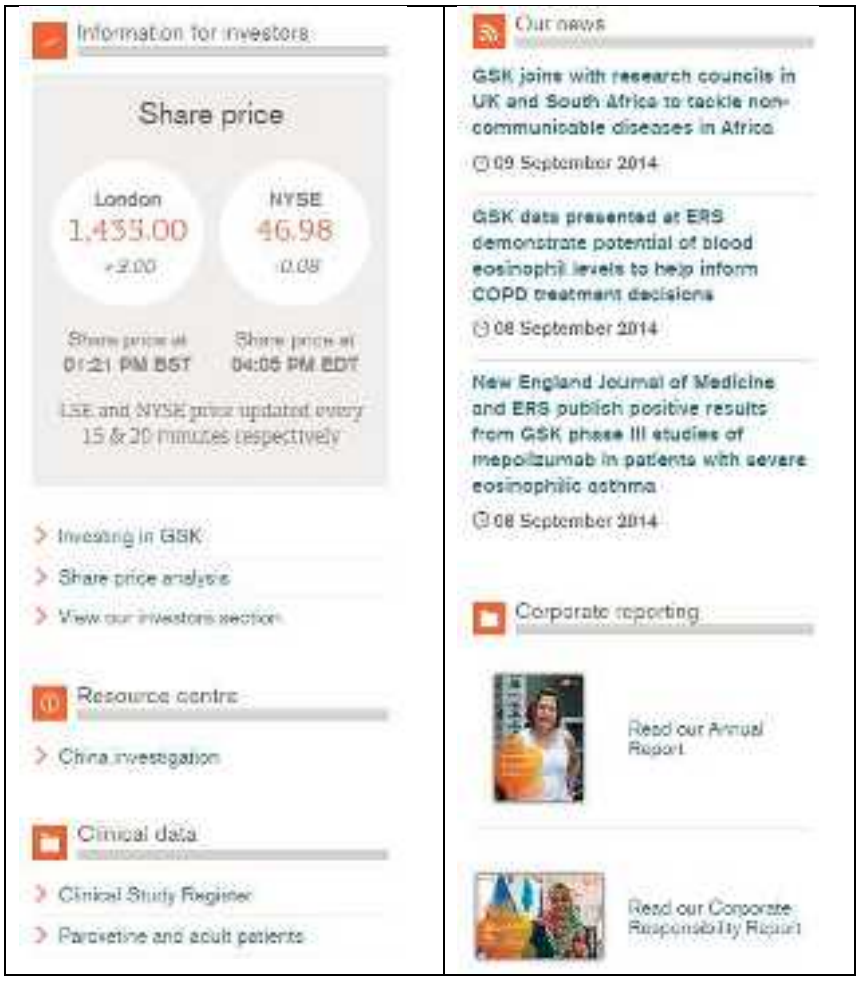
Simple structure

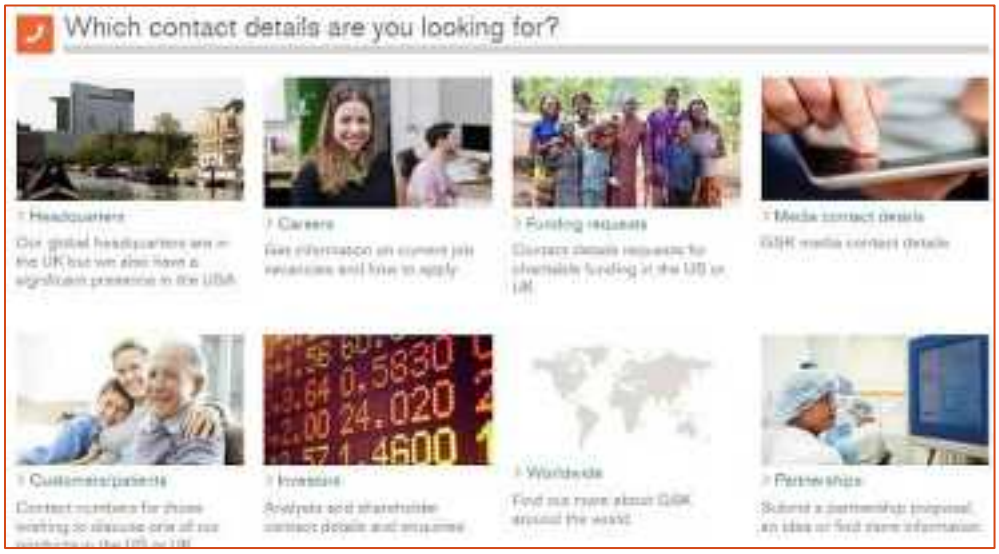


In the home page of the website shown above, we can see the website structure is very simple, logical and easy to understand. Main headings are defined at the top in larger font while secondary headings are defined above them in smaller font. The main story is highlighted with an attractive photo. News, product information, social media and other useful information is separated in columns. It is very easy to find the information you want without getting confused or bogged down.

Relevant Information and FAQs

Relevant information is provided on the homepage itself under various sections. We do not need to search around for it. Some examples are shown below.


Information for investors
Share price
London
1,433.00
+2.00
NYSE
46.98
-0.08
Share price at 01:21 PM BST
Share price at 04:05 PM EDT
LSE and NYSE price updated every 15 & 20 minutes respectively
Investing in GSK
Share price analysis
View our investors section
Resource centre
China investigation
Clinical data
Clinical Study Register
Paroxetine and adult patients
Our news
GSK joins with research councils in UK and South Africa to tackle non-communicable diseases in Africa
09 September 2014
GSK data presented at ERS demonstrate potential of blood eosinophil levels to help inform COPD treatment decisions
08 September 2014
New England Journal of Medicine and ERS publish positive results from GSK phase III studies of mepolizumab in patients with severe eosinophilic asthma
08 September 2014
Corporate reporting
Read our Annual Report
Read our Corporate Responsibility Report


Which contact details are you looking for?
Headquarters
Careers
Funding requests
Media contact details
Customers/patients
Investors
Worldwide
Partnerships

Logical Navigation

Navigation defines how all information in structured and how people can move from one part of website to another and how they can move back and forth from main to sub-topics. Tabs in the Header Menu are the most common way of creating a structured navigation as shown. Each main category in the Main menu has some sub-categories. They have been put in a compact drop-down menu spread horizontally rather than vertically to save space.

There is also a secondary menu above the main menu for links of lesser importance. It is therefore in smaller font size also. Let us jump into one of the Main category pages.

All the sub-categories are listed on the left for easy reference. Also a Breadcrumbs List is provided at the top of the article to help reader to move to previous and next links in the logical sequence.

Security

There can be multiple security features in a website. A few are shown below.

1. **Secure Payment Gateways**

VeriSign®	Norton SECURED powered by VeriSign	Secure Payments By PayPal

2. **Password protection**

3. **Website Security Certificate (https)**

Social media Integration

As seen multiple times, social media is an unavoidable part of most websites these days. We have already seen how social media can be integrated into a website.

Self-Practice 5.2

1. Choose a partner for practice and explore 5 new websites with him/her.
2. Create a table of observations. Note if:
    a. All good features mentioned above are available in these 5 websites or not.
    b. What other features did you find useful and attractive?
    c. What features did you not like?
3. Share your note with other groups of students and discuss what you learnt.

Common HTTP Status Code Errors

Now we have a fairly good idea of how to find a useful website, get inside and navigate through the website, understand its features and know whether the website is good or not. The last useful thing we discuss here are error codes used commonly by websites to inform the reader that something is wrong. The error code is usually accompanied by some text message also, but in case it is not, familiarity with the error codes will help. Here is a list of codes with examples.

1. **Error 400 – Bad request**

2. **Error 401 - Unauthorized**

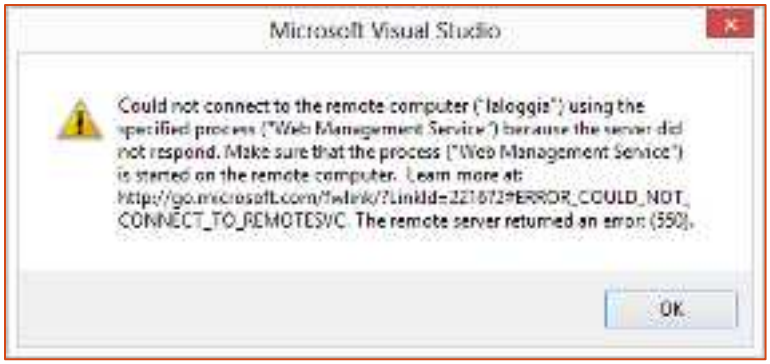
3. **Error 403 – Forbidden**

4. **Error 404 – Not Found**

5. **Error 500 – Internal Server Error**

6. **Error 503 – Service Unavailable**

7. **Error 550 – Permission Denied**



Chapter 6: Communicating on the Internet

Personal or professional communication is why most people use Internet. There are various old and new ways in which people can communicate like sending emails, chatting online, having a video call, messaging on social media, online voice call, instant messaging via cellphone Internet etc.

We all are aware of the very popular tools like Gmail, Facebook, Twitter, WhatsApp, Skype and blogs. In the previous section, we have already learnt about emails. Let us move on to the other types of communication like chatting, social media and voice calling over Internet.

Online chatting

There are multiple ways in which we can chat online.

1. There are **public chat rooms** in which you can meet new people and chat with them. This is one of the older ways of chatting.
2. Then there are separate **chat messengers** like Yahoo Messenger, AOL Messenger and Google Talk (Gtalk) through which you can not only chat but also share files.
3. **Gmail** has chat option integrated along with the email services. So it serves two purposes and hence is one of the most popular platforms.
4. **Social media platforms** like Facebook also provide a chat option.
5. **Smartphone-based chatting** can be done via the very popular WhatsApp, WeChat and Viber

Do you know of any other options? Share with us! From these numerous options, we have already seen what Gmail chat looks like. Let us have a quick look at Yahoo! Messenger.

Yahoo! Messenger

We will see how to download and install the messenger and check out a few options. Others can be explored on your own.

1. Search for "Yahoo Messenger download" in a search engine. Click the link https://in.messenger.yahoo.com or any other valid download link. Click on "Download Now" button on this website.

2. An installation file will be downloaded. Click on that to run the installation. Follow the steps as per the instructions on the screen. Click "Next" when applicable and agree to the Terms and Conditions on the next page.

3. Once the installation is complete, launch the messenger.

4. Once the application is started, Sign In using your Yahoo account. If you don't have a Yahoo account, you can create one from the same link.

5. Add contacts

6. Send an instant message to a contact

7. Explore other options like video calling, sharing photos, connecting to friends on Facebook etc.

Social media

Social Media is a very well-known term these days. For anyone who does not know, let's define it. Social media are the different kinds of online media that are used these days to connect with people and socialize. Through social interaction, people create and share information with one another through communities, networks and forums. The 6 different kinds of social media as defined by Kaplan and Haenlein in their Business Horizons (2010) article are:

1. collaborative projects (e.g. Wikipedia)
2. blogs and microblogs (e.g. Twitter)
3. content communities (e.g. YouTube)
4. social networking sites (e.g. Facebook)
5. virtual game-worlds (e.g. World of Warcraft)
6. virtual social worlds (e.g. Second Life)

As mentioned above, people collaborate and create content which can be educational and informative, like Wikipedia. Personal opinions, stories, information and files are shared via blogging. Content storage like video and photo collections can be created using YouTube. You can create your online profile and connect with your friends, family and even strangers via Facebook. You can play games individually and in groups as in World of Warcraft and create a new virtual identity for yourself in Second Life to build an alternative life for yourself in the online world.

The uses of Social Media are numerous. As useful it is for personal communication, information sharing and online socialization, it can be equally useful professionally to search and apply for jobs, help promote your business and increase your outreach. Exploring all types of social media is beyond the scope of this tutorial. We will catch glimpses of Wikipedia, YouTube and Twitter and then dive deep into Facebook.

Wikipedia

Wikipedia defines itself as a free encyclopedia which anyone can edit. It's free and open-source, which means anyone can create and edit content. It is available in multiple languages. Using the search box, we can type whatever we want to know and there is 99% chance you will get the information. There is no topic that Wikipedia has not reached.

Usually when we search information using a search engine, the first article to show up is usually from Wikipedia. Even though the content is shared by common people, it is verified and edited if wrong. The text always contains references and citations which are sources of information for the article.

Wikipedia also has a lot of sister projects like Wikibooks, Wikitionary and Wikiversity where we can get more specific information.

YouTube

YouTube is the world's largest video gallery and community. Anyone can upload, search and watch videos on YouTube. The download option has also been added these days. Most of the videos are freely available for watching and even downloading while some are paid. Channels can also be created by individuals or groups like Education, entertainment, Politics, Sports related channels. Anyone can subscribe to these channels.

Twitter

Twitter is a micro-blogging site in which people can share their thoughts or information in limited number of words. Only short messages are allowed. It's an impactful medium to share information quickly and for a lot of audience. Anyone who is interested in knowing what you want to say can "Follow" you and similarly you can follow other people. A person is identified by her "handle". People also start conversations on specific topics or events using a hashtag (#)

e.g. #IndianElections, #T20Cricket

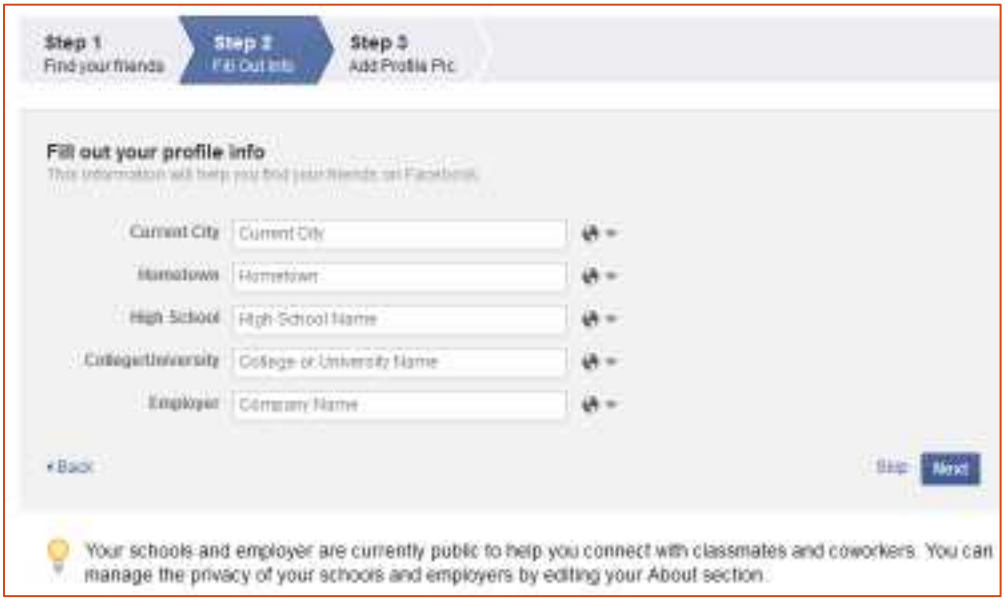
Facebook

Let us directly look at how to create and setup a Facebook account.

1. **Sign Up:** Login to www.facebook.com and sign up by providing your personal details. You need to have an email ID to create a Facebook account.

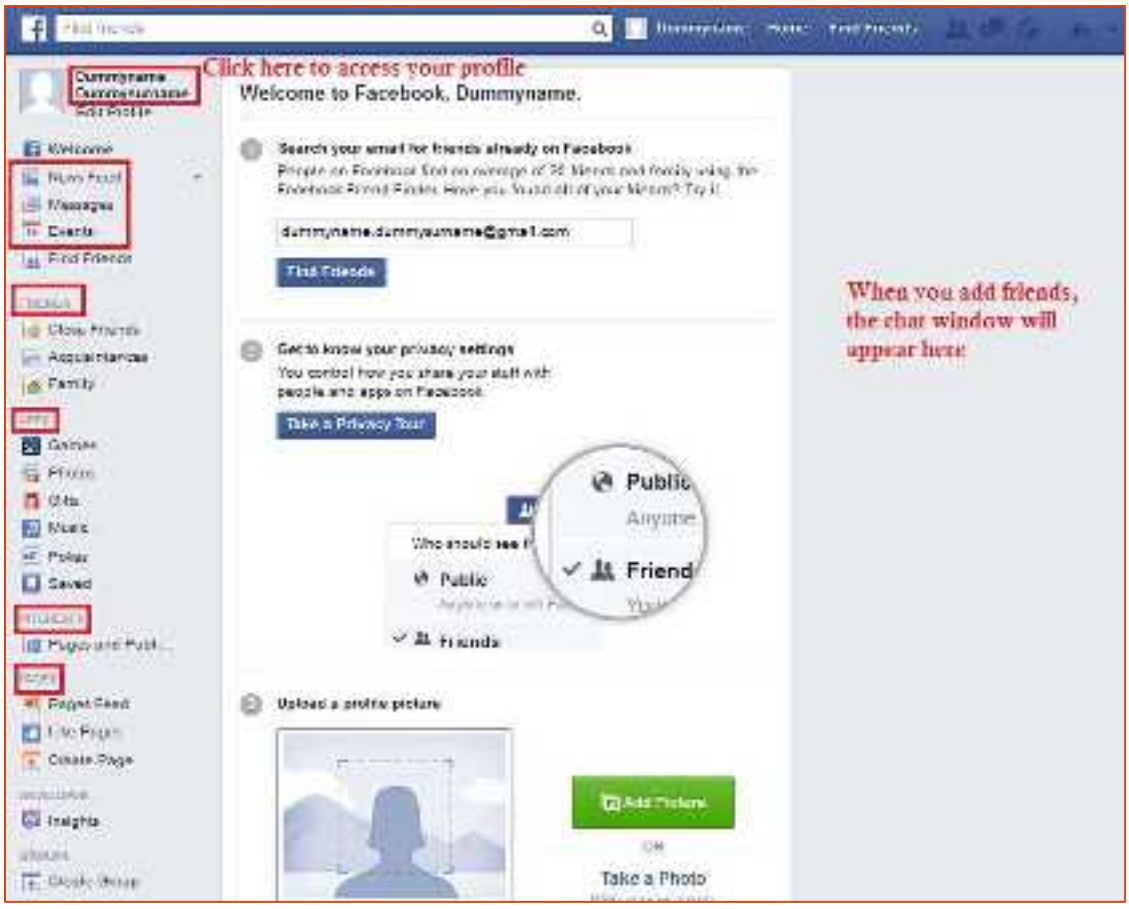
2. **Add friends:** Add friends already in your email accounts.

3. **Fill Profile Information:**



4. **Add Profile Picture:**

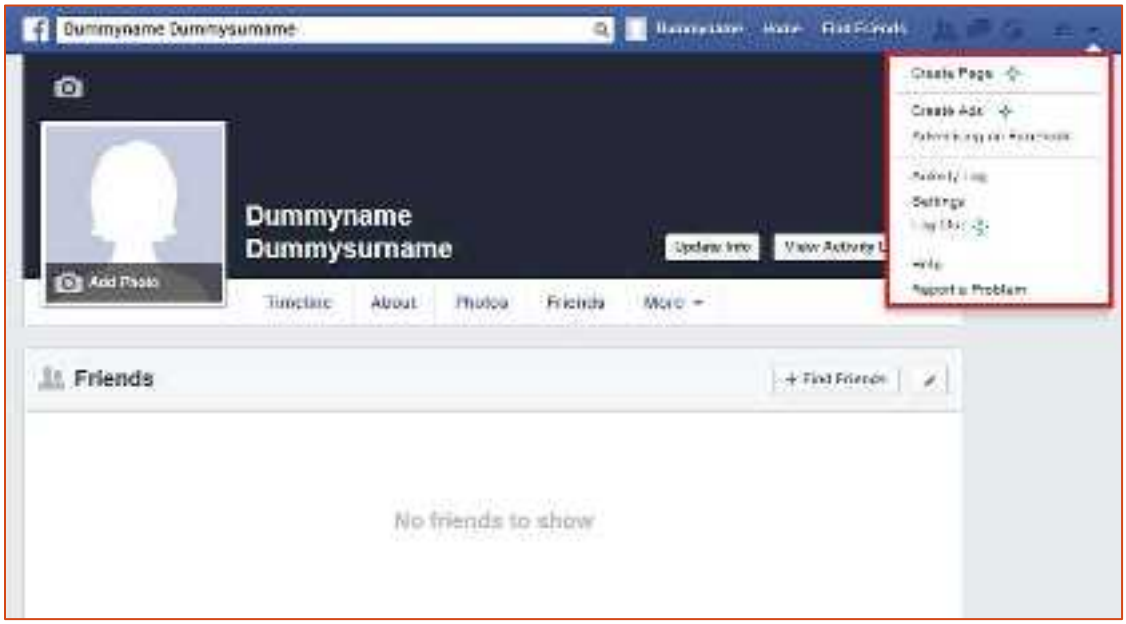
5. Check out Home Page



The home page has a left sidebar which has all important links like Messages, Events, Friends, Apps, Pages and Groups. At the center, the news feed is available where we can see posts posted by our friends, our subscriptions and any new updates. The right sidebar is reserved for chatting. It will be visible when friends are added to the Facebook profile. You can edit and access your own profile by clicking on your name at the top left corner of the page.

6. **Timeline:** Your timeline is the series of all posts you have posted, all photos/videos you have shared and your status messages from your first day on Facebook till today. They are ordered chronologically. It also contains some personal information about you, your photo gallery, friends, likes, recent activities and much more. Anyone interested to know more about you can visit your profile.

7. **Other options:** Check out some options like creating a page for a specific event or organization, creating an Advertisement and Facebook settings.



Audio-Video calling

Audio-video calling is another favorite option for Internet users. Because of Internet, traditional phones are slowly becoming obsolete. Free audio and video calling is available to call anyone in any part of the world! Paid services are also available for more and better features.

There are many free applications and services available for audio calling like Google Voice, BlackBerry Messenger (BBM), Viber, Facebook messenger and Skype. Popular video calling applications are Yahho Messenger, ooVoo, Skype, MSN Messenger and Google Hangouts.

In this tutorial we will have a quick look at Skype. Skype is a wonderful tool to make free audio and video calls via Internet. Along with the calls, instant messaging and file sharing facilities are also available. Calls can be made to one or more persons, but the quality of audio and video may vary. There is a paid service which offers calls to mobile phones across the world and much more. Skype works on many devices like desktop computers with webcams and microphones, laptops, mobile phones etc.

Uses and benefits of Skype

1. **Free calling**

Skype is a very useful tool to make free calls from your Internet enabled device. All you need is a microphone, speakers/headset and webcam. The Internet connection should however be good for high quality audio and video; broadband connection is preferable.

2. Connect from anywhere

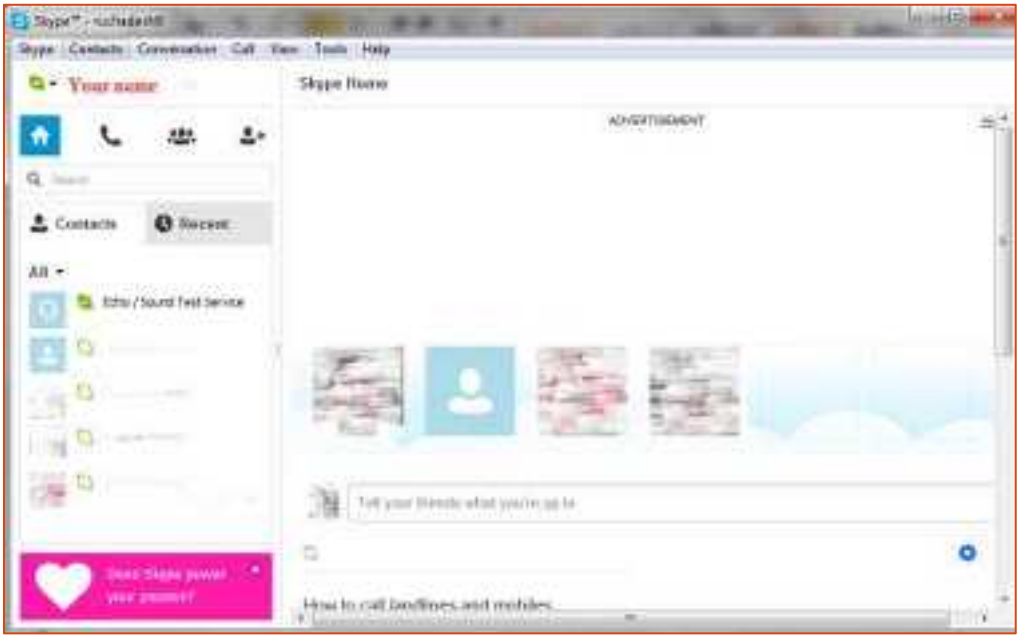
Skype allows you to connect to your family and friends from any place which has a good Internet connection. You can connect to them without having to be located in the same place.

3. Group discussions and meeting

Skype can be used to hold discussions and meetings with your colleagues. Multiple people can text, talk and see each other at the same time. Video conferences can be held too.

How to get Skype

1. Login to www.skype.com
2. Got to the section "Get Skype"
3. Choose your computer operating system, - Windows, Mac, Linux etc.
4. Check System Requirements (Is your device capable of handling Skype?)
5. Download Skype
6. Follow the instructions to install it
7. Explore its functions
8. Start using!



Self-Practice 6.1

1. **Yahoo! Messenger.**
    a. Create an account and login.
    b. Set status message.
    c. Add contacts.
    d. Send an instant chat to one of your Contacts.
    e. Share a photo with your contact.
    f. Explore other features. Note down what you learnt.

2. **Facebook:**
    a. Create your personal Facebook account
    b. Add basic content to the page like Profile Picture, Cover photo, Description, etc.
    c. Modify settings to suit your needs.
    d. Create 3 different types of Page content – status, photo, video, event, activity etc.

3. **Skype:**
    a. Download and install Skype using the steps explained in this chapter. Did you face any problems? Please note them down.
    b. Login to Skype using your Username and Password.
    c. Explore Skype
        i. Search people on Skype and add them as a contact (any friend from the training workshop)
        ii. Change your Status from Online to Do Not Disturb and back to Online.
    d. Check your audio settings and verify everything is working perfectly.
    e. Start a video chat with a friend.
        i. Send a message.
        ii. Share a file.
        iii. Mute/unmute your audio.
        iv. Disable/enable your video.
        v. End the call.
    f. Logout of Skype.

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DIGITAL EMPOWERMENT *foundation*

Head-quartered in New Delhi, Digital Empowerment Foundation (DEF) is a non-profit organization, registered under the Societies Registration Act XXI of 1860 that works to find solutions to bridge the digital divide. DEF's mission is to empower the under-served communities and create information-empowered societies. Using ICT and digital tools DEF works with a multi-stakeholder approach to have inclusive and equitable communities where access to information, knowledge and services is for all at all times across all geographic locations. DEF runs Digital Literacy training programs in more than 100 of its Community Information Resource Centres in backward regions across 19 states in India.