**KSS2 SCHEME OF WORK 3RD TERM**

**COMPUTER STUDIES**

**TOPICS CONTENT**

1. **ALGORITHM AND FLOWCHART Definition, Characteristics and Functions.**
2. **ALGORITHM AND FLOWCHART Writing Algorithm to solve a given Problem.**
3. **ALGORITHM AND FLOWCHART Flowchart symbols and use.**
4. **BASIC PROGRAMMING II Definition, functions, types and BASIC notations.**
5. **BASIC PROGRAMMING II BASIC notations of Algebraic expression.**
6. **BASIC PROGRAMMING II Writing BASIC program to Computer Algebraic Equation.**
7. **THE INTERNET Definition Internet and internet terms.**
8. **THE INTERNET Main Browser and Features of main browsers.**
9. **THE INTERNET Internet services, List and Explanation.**
10. **ELECTRONIC MAIL Definition of email and email services.**
11. **Revisions**
12. **Examination**

**1 -3. ALGORITHM AND FLOWCHART.**

The objectives of this chapter are to guide students:

1. Define an algorithm;
2. State the functions of an algorithm;
3. State and describe the characteristics of algorithms;
4. Write simple algorithms for problem solving;
5. Define a flowchart;
6. State the functions of a flowchart;
7. State the characteristics of a flowchart;
8. Identify flowchart symbols and state their meaning and uses;
9. Write algorithms and design the flowcharts for solving problems

**ALGORITHM**

An algorithm is a list of instructions that shows the steps or procedures to follow in Order to solve a specific problem That is, it is designed to perform an operation which will lead to the desired result, if followed correctly. E.g. the steps followed tor baking a good cake, is the algorithm of cake making.

**THE FUNCTIONS OF AN ALGORITHM**

1. It gives step by step guide on how to solve a problem.

2. It shows how a program works, i.e. the logic behind a program.

3. It determines how fast a program can work.

4. It makes sorting of programs very easy.

5. It helps to find the shortest path to achieve the result of a program.

**CHARACTERISTICS OF ALGORITHMS**

a. Clarity: Every instruction should be clear and easy to understand.

b. Finite: It must begin at a point and end after a finite series of steps.

c. Sequential: It must flow from one step to another, e.g. from top to bottom.

d. Effective: It should get the desired results at the end.

e. Scope: It should solve a specific problem or problems of similar nature.

**GUIDELINES OR RULES FOR WRITING ALGORITHMS**

To effectively write an algorithm that is practicable, the programmer or user needs to

Be conversant with the rules guiding the writing.

1. Define the Term Algorithm: At the beginning of the program, give a brief Definition of the term algorithm.
2. Define the Problem: Give a name to the algorithm and define the problem it is Meant to solve i.e. the aim.
3. Designing an Algorithm: This can be done using the steps below
   1. Include a syntax or code format where necessary depending on the programming Language.
   2. Include the variables and how they are used.
   3. If there are loops or specific instructions that require multiple executions, make room for sub-codes or sub-instructions.
   4. if instruction on loop fails, give a specific instruction on what the program should do.
   5. Use Jump statement to move from one program line to another
   6. Avoid the use of unwanted raw data.
   7. Define expressions used.
   8. viii. Use stop to terminate the process.

4. Check the Correctness of Algorithm: Implement the algorithm through program testing i.e. use test data.

5. Documentation Preparation: Document all that has been done.

**WRITING ALGORITHMS FOR PROBLEM SOLVING**

1. Computing Average of a Given Set of Numbers

To write an algorithm to calculate the average of two numbers and display

The result, the following steps are taken:

Step 1: Input the first number A

Step 2: Input the second number B

Step 3: Get C by adding A and B

Step 4: Get D by dividing C by 2 i.e. (C/2)

Step 5: Print out the result D

Step 6: Stop

Examples 1: Using the algorithm above, calculate the average of 58 and 64.

Step 1: A = 58

Step 2: B = 64

Step 3: C = A+B = 58+ 64

Step 4: D = A+B/2 = 58 +64/2 = 122/2 = 61

Step 5: Print out D = 61

Step 6: Stop

1. Evaluating the Equation Y = a(b -c)²/d+2.

Step 1: Get a, b, c, d

Step 2: Y=a\*(b-c)²/d+2

Step 3: Y=a\*(b-c)(b-c)/d+2

Step 4: Print out Y

Step 5: Stop

Example 2: Using the algorithm above, evaluate the equation below.

Y= a(b-c)²/d+2

Step 1: Given: a = 3, b=9, c=6, d=4

Step 2: Y = 3\*(9-6)²/4+2

Step 3: Y= 3\*(9-6)(9-6)/4+2 = 3\*(3)(3)/6 = 3\*3²/6

Step 4: Print out Y= 9/2 = 4½

Step 5: Stop

**WHAT IS A FLOWCHART?**

When an algorithm is described or represented with symbols, it is called a flowchart. A flowchart is a diagrammatic or pictorial representation of an algorithm. It is a set Symbols used to describe the steps to follow when solving a specific problem.

Flowcharts use simple geometric symbols and arrows to define relationships.

**FUNCTIONS OF A FLOWCHART**

1. It gives a snapshot view of the entire program, i.e. it gives flesh to the logic behind a program.

2. It provides a pictorial summary of the step by step process involved in a program. This helps in the design of a program’s interface.

3. It helps to troubleshoot programs easily, i.e. users or programmers can easily find mistakes and correct them.

4. When used as an aid for training, a nicely laid out flowchart is visually stimulating

i.e. it gains and holds the reader’s attention and it is easy to understand.

5. It helps to create an efficient work flow management that leads to continuous

Improvement.

6. It ensures that customers’ needs within an organisation are met. This is achieved by organising into the business processes flowchart so that waste and inefficiency

Can be identified and corrected or eliminated.

**CHARACTERISTICS OF A FLOWCHART**

1. Vertical Design: Every flowchart is designed or constructed vertically from top to bottom.

2. Different Symbols: Each instruction or operation to be performed is represented with a different symbol.

3. Directional Arrows: Arrows are used to show the flow and direction of instructions.

4. Terminal Points: Every flowchart has a start point and an end point.

**GUIDELINES OR RULES FOR DESIGNING FLOWCHARTS**

Having been conversant with many of the flowchart symbols, it is now important to learn how to use them in designing flowcharts for the written algorithms. However to be able to do this perfectly, users need to know and understand certain rules that deserve some respect in flowcharting and stick to them.

1. All important requirements in the program should be listed out in logical order.

2. Flowcharts should be clear, neat and easy to follow i.e. there should not be a ambiguity (confusion) in understanding the flowchart.

3. The flowcharts should flow either from left to right or top to bottom, i.e. it should have a particular direction.

4. Only one flow line should come out from a process symbol.

5. Only one flow line should enter a decision symbol. Two or three flow lines, one for each possible answer can leave the decision symbol.

6. Only one flow line is used in conjunction with terminal symbol.

7. Use short write ups in flowchart symbols. When necessary, use the annotation, symbol to describe data or computational steps in detail.

8. In complex flowcharts, use connector symbols to reduce the number of flow lines. Also avoid the intersection of flow lines to make a more effective and better way of communication.

9. Ensure that the flowchart has a logical start and finish or end.

10. Test the validity of the flowchart by passing through it with a simple test data.

**WRITING ALGORITHMS AND DESIGNING FLOWCHARTS FOR SOLVING PROBLEMS**

Example 1: Write an algorithm to calculate the average of two numbers and design its flowchart

Solution: The algorithm for solving the given problem is written below:

Step 1: Input value for a

Step 2: Input value for B

Step 3: Process Average C by adding A and B and dividing by 2

Step 4: Print the result C

4 – 6. BASIC PROGRAMMING II

The objectives of this chapter are to help students:

1. Define functions and state their types
2. Identify BASIC built-in functions and their types;
3. State the application of each built-in function;
4. iv. Write BASIC notations of some algebraic expressions using built-in functions;
5. Write sample programs in BASIC using built-in functions;
6. Define library functions and how they are used.

**THE MEANING OF THE TERM FUNCTION**

A function is a type of procedure, routine or self-contained module of code that performs a specific task. It combines many instructions into a single line of code. Functions are designed to take in data, process it and return the result as a value. Most programming languages come with built-in functions, while users can also write Their own functions to perform Specialised tasks. A function, whether built-in or written Can be used several times repeatedly.

**TYPES OF FUNCTIONS**

1. Built-in Functions

2. User Defined Functions

1. **Built-in Functions:** These types of functions are built into an application and

Can be accessed by the end-users. E.g., most spreadsheet applications Support the built-in SUM function that adds up all cells in a row or column.

**Advantages of Built-in Functions**

1. It is optimized to operate in the least amount of time no matter the input type and size.
2. It reduces coding time which consequently reduces overall development and project delivery time.
3. It reduces debugging time. If same code is put in multiple places it becomes difficult to make debugging changes in all of those places, so the need to use functions.
4. It improves readability.
5. It makes program maintenance easy.

**Disadvantages of Built-in Functions**

1. It requires the programmer to be well versed in the programming language.
2. For any compiled programming language like C language, bugs in the code might not manifest themselves until well after the C function ends, making debugging difficult.
3. There may not be any speed advantage due to debugging challenges.
4. It is less portable. C function means a new executable program must be made if the hardware platform changes.

2. **User Defined Functions:** Since one may not always find built-in functions that

Calculate the value of what is needed, programmers can define their own functions

Which must return a single value of a specific type. E.g. a function should be defined using the DEF statement thus:

DEF Sech(x) = 1/ Cosh(x) – This defines the hyperbolic secant function.

Advantages of User Defined Functions

1. It solves tasks that are not available in built-in into simple subtask ang
2. The complexity of the entire program can be divided into simple subtask and functions subprograms can be written for each subtasks.
3. The subprograms are easier to write, understand, and debugging.
4. A function can be shared by other programs by compiling this function separately and loading and linking them together.
5. .Reduction in size of program due to program code of a function can be
6. It allows for faster execution because it does not need to be reoptimised with used again and again, by calling it.
7. It can be used in a number of places without restrictions as compared to stored

procedures.

**Disadvantages of User Defined Functions**

1. It does not allow the use of temporary tables.
2. It does not allow the print command.
3. It does not allow the use of the insert, update and delete commands, but can only be used on the table variable defined inside the function.
4. The stored procedure from inside the function cannot be called.
5. In Structure Query Language (QL), performance of a SQL function is low as compared to a stored procedure.

**RULES FOR NAMING FUNCTIONS**

1. The name used for functions must be different from that used for variables.

2. The return value for a function may either be a number or a string

3. For string functions, the name must end with a dollar sign.

4.Before a function is used in a program, it must first be defined with a DEF statement or it must be named in a DECLARE DEF statement.

5.Parameters used for functions may be numeric variables, string variables, or names of arrays.

6.When function is invoked, the arguments provided must match the parameters named in the DEF statement, For example:

DEF abcdef (x, z$, u)

LETn=abcdef (3.2,”dog”, y)

Here, the value 3,2 is assigned to x, “dog” is assigned to z$, and the value of y is

Assigned to u.

7. The name used for function should be self-explanatory. For example, a function getName() will tell the developer what it returns as well as setAddress(), isMale(),

etc.

8. The names used for functions should be short, i.e., a function name must be as

Short as possible so that it is simple to type as well as easy to remember. E.g. using a long name like getNumberOfPagesln’TheBook() is not good for a function rather, a shorter name like getBookPageCount() is better.

9. Use of prefixes is allowed in naming functions as they aid better understanding. For example, getName(), setName(), hasHair(), isBlond(), etc.

**THE BASIC BUILT-IN FUNCTIONS**

BASIC built-in functions are functions that perform a wide range of operations in BASIC. A function in BASIC is a structure that simplifies a complex operation into a Single step. They act as “black boxes” that accept some input value or values and process that input in a defined manner to produce or “return’” an output value.

For example, in the process of taking the square root of a numeric value, if this has to be defined in the program every time a square root is needed, extra code will always be repeated and this can be tiring. But the entire square root operation has now been compressed into a single step using the SQR function as shown below:

DO

INPUT PROMPT “Enter a number:” “:n”

IFn<0 then EXIT DO

RINT “The square root of”; n; “is”; Sqr(n) LOOP

END

Note that the SQR function displays the square root of a numeric value provided by the user.

**TYPES OF BASIC BUILT-IN FUNCTIONS**

1. Numeric functions

2. String Functions

3. Time and Date Functions

1. Numeric Functions: These are Functions that are designed to return the answer or value as a number.

1. SQR(X): This is used to find the square root of a number.
2. SIN(X): This is used to find the sine of an angle.
3. COS(X): This is used to find the cosine of an angle.
4. TAN(X): This is used to find the tangent of an angle.
5. ABS(X): This is used to find the absolute value of a number.
6. EXP(X): This is used to find the exponential value of a number.
7. INT(X): This is used to find the integer of a real number.
8. RND(X): This is used to find the random value of a number
9. LOG(X): This is used to find the natural logarithm of a number.

Note that X is the value to be found.

2. String Functions: These are functions that are designed for string manipulations. E.g.

i. LEFT$()

ii. RIGHT$()

iii. MID$

1. Time and Date Functions: These functions return the time and date known by the system. If the current time and date are entered during the system Startup, the correct time and date will be given.
   1. Time (): This shows the current time including units.
   2. Years (): This shows the current time in years.
   3. Mins (): This shows the current time in minutes.

**LIBRARY FUNCTIONS**

A library is a file that contains any number or external procedures ( functions, subroutines or pictures) or modules, but no main program .

A library function is the collection of the modules and functions that are stored in the file library.

Importance of Library Functions

1. Any program can use the procedures and modules in a library without having to Duplicate any code.
2. Libraries can be compiled separately from the main program.
3. Uncompiled programs can use compiled versions of libraries which reduce the time it takes your program to begin running by decreasing the amount of code that must be compiled.

How Library Functions are Used

Each library file must begin with an EXTERNAL statement as its first non-comment line. The EXTERNAL statement tells BASIC not to look for a main program in the current file, allowing the library to be compiled separately from the main program

File. Because no main programs are allowed, a library may not contain an END statement.

7 – 9. THE INTERNET

The objectives of this chapter are to help students:

1. Define the lnternet
2. Define some basic Internet terms
3. List common internet main browsers
4. list the features in a main browser window,
5. State the services available on the Internet;
6. List the requirements for the Internet connection,
7. Access some of the Internet websites
8. Mention the benefits of the Internet to our society.

**WHAT IS THE INTERNET?**

The Internet as a word, is derived from the term International Network. It is the Connection of several computer networks across organizations, states, countries and continents via dedicated routers and servers for the exchange of data, news, opinions and other information.

A network itself, is a system consisting of two or more computers that are connected together to share information

However, computers connected to the Internet share information using the same Language or protocol known as TCP/IP, i.e. Transmission Control Protocol/Internet Protocol Through the Internet, billions of information are transmitted and shared Across the world on a daily basis.

**COMMON INTERNET TERMS**

1. Browse: This is the process of accessing and viewing the contents of hypertext files or web pages on the Internet. It simply means to read or look at information on the computer, using a browser.

2. Browser: This is also known as Web browser. It is a computer software package or program that enables users to access, read and view (navigate) the contents of files and web pages on the internet. Examples, Microsoft Internet explorer, Google, Mozilla Firefox, Safari, Opera Mini, Chrome.

3. Chat Room: This is a website or part of a website where several uses can communicate with each other and share common interest online via instant messaging.

Examples, America Online (AOL), Microsoft Network (MSN), Yahoo Messanger, Google Talk.

4. Cyberspace: This describes the Internet environment within which all data can be accessed. This domain is characterized by interconnected computers and Computer networks on the Internet.

5. Download: This is the process of copying or transferring files such as information, music or video files from the Internet to a user’s personal computer or from a computer to a smaller device like flash drives or mobile phones.

6. E-mail: This is the shorthand form for electronic mail. It is a system by which Messages are sent and received electronically over a computer network using Internet. Thus with e-mail, users can communicate with themselves in any part of the world in a matter of seconds.

7. Home Page: This is the first page a user comes in contact with when accessing navigating a website. It usually serves as a landing page to attract user’s attention And also provides links to other pages on the site.

8. Web Page: This is a single page document that can contain text, pictures, videos sound, etc., or any other information relating to a particular subject or topic within a website.

9. Website: This is a set of related web pages that are linked together on a computer server to provide information about a particular subject to users. Examples, [www.isponline.com](http://www.isponline.com), [www.yahoo.com](http://www.yahoo.com), [www.google.com](http://www.google.com), [www.wabp.com.ng](http://www.wabp.com.ng)

10. HTML: This stands for HyperText Markup Language. It consists of a set of markup codes or symbols that are used for creating web pages and other information that can be displayed on a web browser. It is a standardized system for tagging text files to achieve font, colour, graphic and hypertext links between documents used on Web pages for the users.

11. HTTP: This is the short for HyperText Transfer Protocol. It is the standard

Application protocol used to transfer data over the World Wide Web, by enhancing communication between web browsers and web servers.

12.URL: This stands for Uniform Resource Locator. It is the unique web address of a file, program or any other resources that can be located or accessed on the Internet, e.g. [http://www.cnet.com/or “ftp://info.apple.com/](http://www.cnet.com/or%20“ftp://info.apple.com/). This resource Can be accessed by typing the URL on the web browser address line.

13. Web Crawler: This is a computer program used by search engines such as Google and Yahoo to constantly search the web in order to index and catalogue the content and pages of other sites and store these information in their database to aid their users search for more information quickly. A web crawler is also called a Web Spider, an Internet bot, an ant, or an automatic indexer.

14. Webcam: This is a Video camera that may be in-built or attached to a computer, which is used to capture, save, view or transmit images and sounds by the Internet users stream them over the web in real-time. It is widely used by skype and other video calling software, for chatting with other users and also monitoring locations such as stores and offices

15. Log-in/Log-out: The process by which a user’s identity is verified by a user ID and password before he or she can gain access to a secured computer network is known as log in, log on, sign in or sign on.

The reverse process by which a user closes off access to the site or exit an account in a computer system when he/she is through is known as log out, log off, sign out or sign off.

Note that when a user logs out, the computer does not recognize he/she anymore until perhaps he/she logs in again.

16. ISP: This stands tor Internet Service Provider. This is a company or organisation

That provides tor its customers (individuals or organizations), services for participation or access to the Internet for a monthly or annual fee. Examples, Internet Access, Internet Transit, Domain Name Registration, Web Hosting, Usenet Service, Colocation.

17. Intranet: This is a private computer network that allows users to share Information only within an organisation. It can also be described as a local, restricted or internal communication network.

18. Router: This is a networking device that connects two or more networks together. That is, it is the medium through which packets or data travel to and from different

19. Bridge: This is a networking device that serves as a link between two or more Networks. It works like a router by allowing information on the Internet to travel from one network to another. However, a bridge does not analyze data that is Being forwarded, which makes it faster than the router in transferring data.

20. Packet: This is a single unit of data or a piece of message transmitted over a network. Every packet is made up of two parts, i.e. the user data which is the actual information being sent and the address of the source, which is the destination of the data. The process of sending and receiving packets over a network is called packet-switching. Packets help to improve performance and Reliability of communication between networks.

21. Upload: This is the transfer of data, information, files or programs from a smaller Device, like flash drive or mobile phone to a larger one, like a computer. This transfer can also be made from a personal computer to the Internet server.

Note that any type of transmission that occurs in the opposing direction to the above is known as download.

22. Protocol: This is the standard format (i.e. defined set of guidelines, rules and Conventions) used for transmitting data between two network devices.

23. Cybercafé: This is also called the Internet Café. It is a place which comprises a number of personal computers that provide internet access to the public for a fee charged as a time-based rate, usually per hour or minute. Areas of the network. Since information is always traveling through the Internet, the job of the router is to direct information traffic from one network to another so that every information gets to its required destination

**THE INTERNET SERVICES**

The Internet has become a very essential work tool that can be used for almost Everything such as searching for information, sending and receiving e-mails, chatting, downloading and uploading information, listening to news, etc.

1. Electronic mail (e-mail): This is a system that allows users to send and receive messages electronically with the aid of computers connected to the Internet. It is the fastest means of sending mails world wide.

2. Electronic Mail Discussion Group: This is sometimes called forums. It is an e-mail service which allows participants with common interests exchange open messages concerning certain topics and receive feedback from others in the group, e.g. Usenet.

3. Usenet: This is the short for Users Network, which began as a bulletin board Between two universities to exchange ideas, and now it has grown to become a Platform of choice where individuals organised into newsgroups can discuss Various topics globally.

4.Telnet: This is a network protocol that enables the Internet user to easily connect With, communicate and make use of resources on other computers on the same Network.

5.File Transfer Protocol (FTP): This is a standard network protocol that enables The transfer of files across the Internet. It remains the biggest use of the Internet For software distribution.

6. www: This is an abbreviation for the term World Wide Web. It is a spider-web like interconnection of web pages located on computers around the world. These web pages or documents are hypertext based, i.e. they combine both text and graphic links to other web pages on the Internet. It is a multimedia part of the Internet.

7. Facebook: This is a free social networking site that allows registered users create profiles with pictures, videos and information about themselves. It also enables users keep in touch with friends, families and colleagues by browsing their profiles and wanting messages on their pages.

8. Twitter: This is another social networking site that allows registered users send and read short messages of not more than 140 characters called “tweets” Users can interact with one another through this medium.

**BENEFITS OF THE INTERNET TO OUR SOCIETY**

* 1. E-learning: The Internet is a vast network of information covering various topics of interest. With it, students can learn more beyond what they are taught in the classroom. Many institutions in Nigeria e.g. Open University now offer online Programme from which people can study and get certificates or degrees without Necessarily attending school physically.
  2. Entertainment: There is a vast array of materials individuals can entertain themselves with on the Internet, ranging from games, movies, music, news ,etc.
  3. E-commerce: With the Internet, business transactions have become far easier to carry out, without making a physical appearance. For example, transactions such as booking and payment for flight tickets, buying items online from established retailers within and outside the country, trading in stocks and bonds, etc., have all become convenient.
  4. Communication: With the Internet, the world has become a global village such That two or more people located in different countries can communicate easily as if they were in the same room, just by the touch of a button.
  5. E-banking: People can transfer funds to anywhere in the world, check their account, pay salaries by just using a computer connected to the Internet. This saves people the stress of queuing up at the banking hall.
  6. E-registration: With the Internet, students can easily register for different examinations such as West African Examination Council (WAEC), National Examination Council (NECO), Unified Tertiary Matriculation Examination(UTME), Post UTME within the country and other examinations like Scholastic Aptitude Test (SAT), Test Of English as a Foreign Language (TOEFL), International General Certificate of Secondary Education (IGCSE), Graduate Record Examination (GRE), etc., for those who want to study outside the country.
  7. Publication: Some published books, newspapers, magazines and other articles Are now available online so that interested readers around the world can easily Gain access to them.
  8. Investment: The Internet offers investors, entrepreneurs, etc., access to regular and latest updates on the financial and investment information at a particular period or throughout the year.
  9. Software: Every software company has an internet site where users can download the latest version of their software for use.
  10. Search Tools: The Internet provides search engines for users to get information quickly and easily.
  11. ELECTRONIC MAIL.

The objectives of this chapter are to help students:

1. Define the term ‘electronic mail’ (e-mail)
2. Mention available electronic mail (e-mail) services
3. Create an e-mail account,
4. list the steps involved in opening an e-mail box,
5. Explain how to send and receive e-mails using Yahoo,
6. List the features of an e-mail address
7. State the differences between the features of e-mail address and website address
8. Define chatting and mention the steps involved in chatting.

**DEFINITION OF ELECTRONIC MAIL (E-MAIL)**

E-mail stands tor Electronic Mail. It is a method of transmitting (sending and receiving) electronic messages from one person to another across computer networks. The greatest advantage of e-mail is its fastness.

Note that any unsolicited e-mail is called a junk.

**ELECTRONIC MAIL SERVICES**

An e-mail service typically refers to a Web-based e-mail provider such as Google and Yahoo, that offers e-mail services.

Note that the e-mail service is the platform provided to users to create, send and receive e-mails irrespective of the provider, while e-mail service providers are the different companies that directly or indirectly provide e-mail services for users.

1. Sending and Receiving Mails

2. Chatting

1. Sending and Receiving Mails: Individuals from all parts of the world can send and receive mails containing text, pictures, music, etc., to each other through the Internet. The sender and receiver must have their unique e-mail addresses and passwords before the e-mail can be sent or received.

An e-mail address identifies an e-mail box to which e-mail messages are delivered i.e., it is an electronic address assigned to a user who has registered or opened an e-mail account or box with an e-mail service provider such as yahoo, google, etc. This address is unique to the individual and all the mails bearing that address are received by the user on that account.

A password, on the other hand, is made of two words: PASS and WORD. In simple terms it is simply a secret word or set of characters (letters, numbers or symbols) that gives a pass or access to an individual to enter into a computer system, network or database. Without the password there is no way you can be granted access.

Note that both e-mail address and password enable high level of online security.

2. Chatting: This is the process of exchanging text (typed messages) via keyboard in real-time through a computer network or on the internet as if having a face-to-face conversation.

**STEPS INVOLVED IN CREATING AN E-MAIL ACCOUNT**

Some websites provide users with free e-mail services e.g. Hotmail, Yahoo, Gmail, etc.

1. Double click on the Internet Explorer icon.

2. Enter [www.yahoo.com](http://www.yahoo.com) on the address bar

3. Click on the Sign In which is found on the upper right corner of the Yahoo website.

**FEATURES OF AN E-MAIL ADDRESS**

Every e-mail address has a single format which is based on the standards developed for the Internet mailing systems since the 1980s.

1. Username: Every email address must begin with a username, which is the name that uniquely identifies the owner of the e-mail address. It could be a personal name, a company’s name or any other name related to the user. Examples, bosede, micah24, president-obama, wabpeditorial.

2. The “At” sign: The username is followed by the ‘At’sign which is represented by the symbols @ to identify the origin of the mail address. Example, micah24@, wabpeditorial@, etc.

3. Website Address: This is the website from which the e-mail address was created

i.e., the service provider of the e-mail, e.g. Yahoo, Hotmail, Google, etc. For example, bosede@yahoo, micah@hotmail, wabpeditorial @yahoo, etc.

4. Website Extension: This shows the kind of website the e-mail is created from

And for what purpose. Examples, .com meaning commercial, .org meaning organisation, .netmeaning network, .ng meaning Nigeria

A complete e-mail address having any of the features listed above will look like

This [wabpeditorial@yahoo.com](mailto:wabpeditorial@yahoo.com); which shows that the e-mail address was created on the commercial website Yahoo.

**PROBLEMS ASSOCIATED WITH E-MAILS**

1. E-mails can only be sent or received by users with computers, ipads or phones that have an Internet connection.

2. Using e-mails is not free, there is a cost attached to it i.e. the user must subscribe to an Internet provider.

3. E-mails can be hacked into by unwanted and unauthorised persons to access and steal private information about individuals.

4. Individuals are now forced to receive unwanted or spam mails from other individual persons or organizations.

5. Unwanted or spam mails can be a source of virus infection into personal computers.