Short Question of the CS201

Lecture No. 2

Introduction of the programming

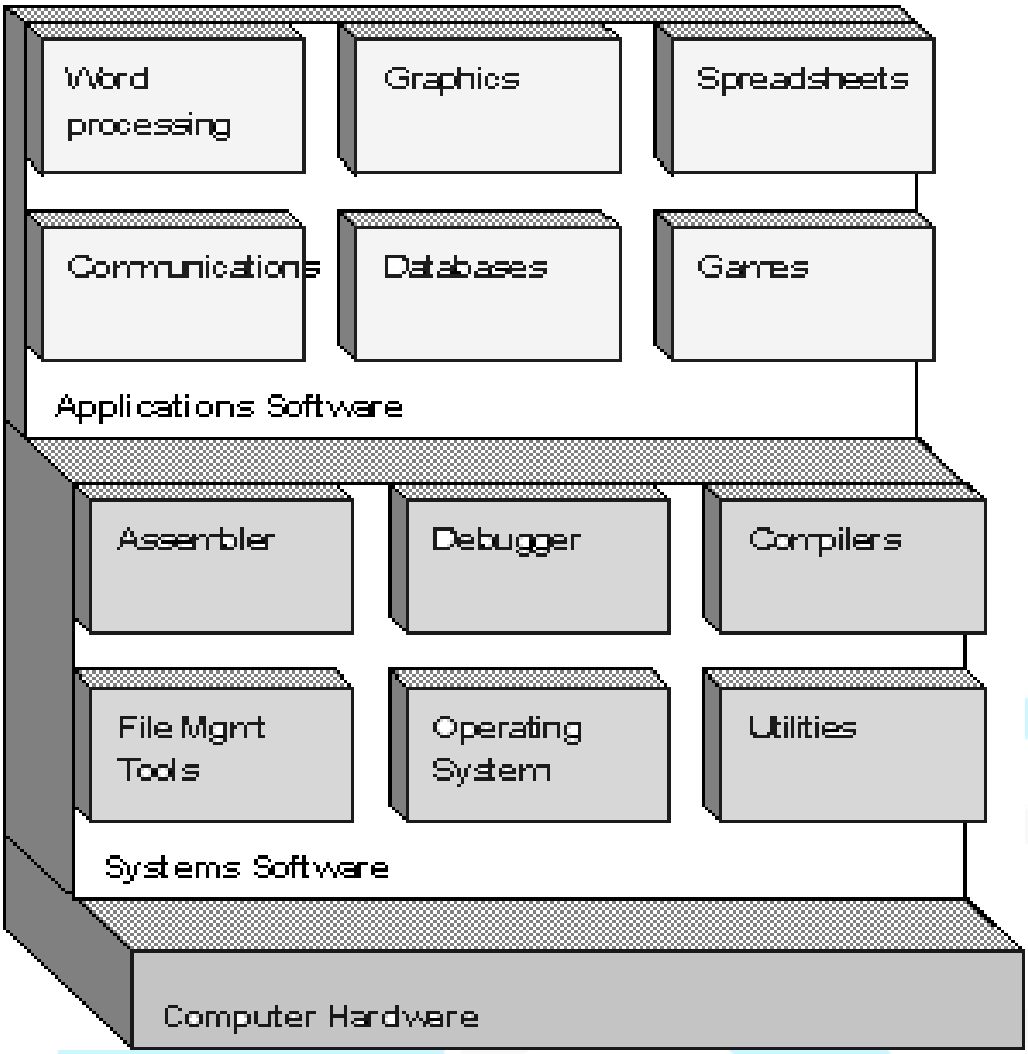
Question No.1 Long Question

What are the Software Categories? Explain with detail.

Software is categorized into **two** main categories

1. **System Software**
2. **Application Software**

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Question No.2

Define System Software {QUIZ} {S.Q}

The system software controls the computer. It communicates with computer's hardware (key board, mouse, modem, sound card etc) and controls different aspects of operations.

Question No.3

How many Sub categories of system software are?

1. **Operating system**
2. **Device drivers**
3. **Utilities**

Question No.4

What is the Operating System? { S.Q }

An **operating system**(sometimes abbreviated as "**OS**") is the program that manages all the other programs in a computer. It is a integrated **collection of routines that service the sequencing and processing of programs by a computer**. *Note:* An **operating system may provide many services, such as resource allocation, scheduling, input/output control, and data management**.

Definition

"**Operating system is the software responsible for controlling the allocation and usage of hardware resources such as memory, central processing unit (CPU) time, disk space, and peripheral devices. The operating system is the foundation on which applications, such as word processing and spreadsheet programs, are built. (*Microsoft*)"**

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Muhammad Bilal Kahlon

03045099998

Question No.5

What are Device drivers?

The device driver software is used to communicate between the devices and the computer.

We have monitor, keyboard and mouse attached to almost all PC's;

if we look at the properties of these devices **we will see that the operating system has installed special software to control these devices.**

This piece of software is calleddevice driver software.

When we attach a new device with the computer, we need software to communicate with this device.

These kinds of software are known as device drivers e.g. CD Rom driver, Sound Card driver and Modem driver. Normally manufacturer of the device provide the device driver software with the device. For scanners to work properly with the computers we install the device driver of the scanner.

Nowadays if you have seen a scanner, it comes with TWAIN Drivers. TWAIN stands for **Technology Without An Interesting Name**.

Question No.6

What is Utility Software? {SQ

Utility software is a program that performs a very specific task, usually related to managing system resources. Utility software use for the disk management, Disk compression and Disk defragmentation in the computer.

The compilers and interpreters also belong to the System Software category.

Question No.7

What are the Application software? {SQ

A program or group of programs designed for end users. For example a program for Accounting, Payroll, Inventory Control System, and guided system for planes. GPS (global positioning system), another application software, is being used in vehicles, which through satellite determines the geographical position of the vehicle

Question No.8 Long +3 shorts+8Quizs

What you know about History of C language explain in detail.

The C language was developed in late 60's and early 70's, in Bell Laboratories. In those days **BCPL and B** languages were developed there.
The BCPL language was developed in 1967 by Martin Richards as a language for writing **operating systems software and compilers**.
In 1970 Ken Thompson used B language to create early

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1) versions of the UNIX operating **system at Bell Laboratories**.
2) Thus both the languages**[PCBL+B]** were being used to develop various system software **even compilers.**
3) Both PCBL and B were 'type less' languages, every data item occupied one 'word' in memory and the burden of treating a data item as a whole number or real number, for example was the responsibility of the programmer.
4) Dennis Ritchie developed a **general purpose language**, called C language, by using different features of BCPL and B languages.
5) C uses many important concepts of BCPL and B while adding data typing and other features.
6) In the start C became widely known as the development language of the UNIX operating system, and the UNIX operating system was written by using this C language.
7) The C language is so powerful that the compiler of C and other various operating systems are written in C.
8) C language has almost unlimited powers to do with computers. You can program to turn on or off any device of computer. You can do a lot to hard disk and other peripherals.
9) It **is very easy to write a** program in C that stops the running of computer. So be **careful while programming in C.**
10) The C language and UNIX operating system widely spread in educational and research institutions. There was C and UNIX everywhere. Due to the wide spread of C, different researchers started to add their features in the language. And thus different variations in C came into existence.
11) Many universitiesdeveloped their own C by adding different features to the C language developed by Ritchie.>>
12) These variations led to the need of a standard version of C.
13) In 1983 a technical committee was created under the American National Standards Committee on ComputerandInformation Processing to provide an unambiguous and machine-independent definition of the language.
14) In 1989 the standard was approved. ANSI cooperated with the International Standard Organization (ISO) to standardize C worldwide.

Tools of the trade

As programmer we need different tools to develop a program.

Question No.9

What are the Editors?

First of all we need a tool for writing the code of a program. For this purpose we usedEditors in which we write our code. We can use word processor too for this, but word processors have many other features like bold the text, italic, coloring the text etc,so when we save a file written in a word processor, lot of other information including the text is saved on the disk. For programming purposes we don't need these things we only need simple text. Text editors are such editors which save only the text which we type. So for programming we will be using a text editor

Question No.10

V.V.V imp S.Q }

Define Compiler and Interpreter {converters}

As we write the code in English and we know that computers can understand only **0s and 1s.** So we need a translator which translates the code of our program into machine language.

Question No.11

Define and write the types.

There are two kinds of translators which are known as Interpreter and Compilers.

1. These translators translate our program which is written in C-Language into Machine language.
2. Interpreters translates the program line by line meaning it reads one line of program and translates it, then it reads second line, translate it and so on.
3. The benefit of it is that we get the errors as we go along and it is very easy to correct the errors.
4. The drawback of the interpreter is that the program executes slowly

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as the interpreter translates the program line byline. Another drawback is thatas interpreters are reading the program line by line so they cannot get the overall pictureof the program hence cannot optimize the program making it efficient.

2# Compilers also translate the English like language (Code written in C) into a language (Machine language) which computers can understand.The **Compiler read the whole program and translates it into machine language completely.**

Question No.12

What is the difference between interpreter and compiler?

The difference between interpreter and compiler is that

1. compiler will stop translating if it finds an error and there will be no executable code generated whereas
2. Interpreter will execute all the lines before error and will stop at the line which contains the error. So Compiler needs syntactically correct program to produce an executable code. We will be using compiler in our course

Question No.13

What is the Debugger? {SQ}

Another important tool is Debugger. Every programmer should be familiar with it. Debugger is used to debug the program i.e. to correct the logical errors. Using debugger we can control our program while it is running. We can stop the execution of our program at some point and can check the values in different variables, can change these values etc.In this way we can trace the logical errors in our program and can see whether our program is producing the correct results. This tool is very powerful, so it is complex too

Question No.14

What is the Linker?

Most of the time our program is using different routines and functions that are located in different files, hence it needs the executable code of those routines/functions. Linker is a tool which performs this job, it checks our program and includes all those routines or functions which

we are using in our program to make a standalone executable code and this process is called Linking

Question No.15

What is the Loader?

After a executable program is linked and saved on the disk and it is ready for execution. We need another process which loads the program into memory and then instruct the processor to start the execution of the program from the first instruction (the starting point of every C program is from the main function). This processor is known as loader. Linker and loaders are the part of development environment. These are part of system software.

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