Programme Name: **BCS**

Course Code: **CSC 1016**

Course Name: **Operating System**

Individual Project

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Assume that you are a Software Engineer who needs to handle a training on Operating System (OS). In the early stage of your training activity, you need to brief your participants about the followings:

1. Purpose of using OS
2. **FOUR (4)** steps that are necessary to run a program on a completely dedicated machine
3. Main differences between OS for personal computer and mainframe
4. **FIVE (5)** major activities of an OS in regard to process management 5. **FIVE (5)** services provided by an OS

In 200 – 300 words, write the answer for the above topics.

1. **Purpose of using OS**

ANSWER:

An Operating System (OS) is an interface between a computer user and computer hardware. An operating system is a software which performs all the basic tasks like file management, memory management, process management, handling input and output, and controlling peripheral devices such as disk drives and printers.

❖ Purpose of using OS

Two of the purposes of the operating system are to make the computer efficient and convenient to use. Sometimes, these two purposes are in contradiction with one another. It may be appropriate to "waste" resources in order to support convenience. Convenience for the programmer or user may save far more time than efficient operation under the covers. For example, the operating system is responsible for managing the virtual memory allocated to a process. The programmer may know more about her program's data access patterns, and may be able to judge better than the operating system how to manage the virtual memory for her process, resulting in more efficient operation of the computer system. However, by giving the operating system responsibility for managing virtual memory, several good results are achieved:

(a) The programmer can still write the program, even if she doesn't know all the architectural details of the computer system she is using.

(b) The programmer can write one program that may be compiled for a number of different platforms, leaving the system-dependent details of the VM system up to the operating system.

(c) The program is much faster and cleaner to write.

The main purpose of using OS are given below:

- To provide an environment for a computer user to execute programs on computer hardware in a convenient and efficient manner.
- To allocate the separate resources of the computer as needed to solve the problem given. The allocation process should be as fair and efficient as possible.
- As a control program it serves two major functions: (1) supervision of the execution of user programs to prevent errors and improper use of the computer, and (2) management of the operation and control of I/O devices.

2.FOUR (4) steps that are necessary to run a program on a completely dedicated machine

ANSWER:

FOUR (4) steps that are necessary to run a program on a completely dedicated machine

a) Reserve machine time
b) Manually load program into memory
c) Load starting address and begin execution
d) Monitor as well as control execution of program from console

3. Main differences between OS for personal computer and mainframe

ANSWER:

Main differences between OS for personal computer and mainframe:

Generally, operating systems for batch systems have simpler requirements than for personal computers. Batch systems do not have to be concerned with interacting with a user as much as a personal computer. As a result, an operating system for a PC must be concerned with response time for an interactive user. Batch systems do not have such requirements. A pure batch system also may have not to handle time sharing, whereas an operating system must switch rapidly between different job

4.FIVE (5) major activities of an OS in regard to process management

ANSWER:

FIVE (5) major activities of an OS in regard to process management

- The creation and deletion of both user and system processes
- The suspension and resumption of processes
- The provision of mechanisms for process synchronization
- The provision of mechanisms for process communication

- The provision of mechanisms for deadlock handling

5.FIVE (5) services provided by an OS

ANSWER:

FIVE (5) services provided by an OS

1. Program execution

   The operating system must have the capability to load a program into memory and execute that program. Furthermore, the program must be able to end its execution, either normally or abnormally / forcefully.

2. File system manipulation

Programs need has to be read and then write them as files and directories. File handling portion of operating system also allows users to create and delete files by specific name along with extension, search for a given file and / or list file information. Some programs comprise of permissions management for allowing or denying access to files or directories based on file ownership.

3. I/O operations in Operating System

   A program which is currently executing may require I/O, which may involve file or other I/O device. For efficiency and protection, users cannot directly govern the I/O devices. So, the OS provide a means to do I/O Input / Output operation which means read or write operation with any file.

4. Security

   Protection includes in ensuring all access to system resources in a controlled manner. For making a system secure, the user needs to authenticate him or her to the system before using (usually via login ID and password.

5. Error detection

Errors may occur within CPU, memory hardware, I/O devices and in the user program. For each type of error, the OS takes adequate action for ensuring correct and consistent computing.