King Saud University

**Department of Computer Science**

**CSC227:Operating Systems**

**Tutorial No. 1.1**

1. What abstracts the hardware? Why? Give an example of such abstraction.

* OS and application programs abstract the hardware of a computer.
* This abstraction helps in controlling and coordinating the use of hardware among various application programs for various users.
  + OS Example: Windows, Linux
  + Applications: Compilers, Editors.

1. What are the two main objectives of Operating System design

* Resource allocation, for example, CPU time, memory space, I/O devices.
* Control program, which is controlling user programs to prevent errors and improper use of computer.

1. What is the difference between:

(i) mono-programming and multi-programming.

* In a monoprogram machine a single job occupies the system from start until end. In such a case CPU sits idle when there is a need of user action.
* A multiprogram machine increases CPU utilization by organizing jobs so that CPU always has something to execute.

(ii) mono-processor and multi-processor.

* In a monoprocessor machine there is only one processor which is responsible for the execution.
* In a multi processor machine there are more than one machine that may share the execution.

(iii) CPU-scheduler and job-scheduler.

* CPU scheduler assigns CPU to a process.
* Job scheduler selects job for execution.

What is the definition of the following terms:

1. Processor

The processor (also called Central Processing Unit, or CPU) is the part of the computer that actually works with the data and runs the programs.

1. Program

A sequence of instructions that a computer can interpret and execute.

1. Process

A process is a running instance of a program, including all variables and other state.

1. Time sharing

A way of sharing out computer facilities between a number of people who want to use the computer at the same time.