**Operating System and System Administration**

**Tutorial 01 Year 02 Semester 01 2022**

**Department of Information Technology, Faculty of Computing**

1. Briefly explain the following terms in relation to the computer system.
   1. Level 01 Cache – **is also called primary cache. Handles the primary level instructions of the data sets**
   2. Register – **Smallest memory component of the processor, handles small data such as algorithms and registries**
   3. RAM – **Also called as Main memory, which handles dynamic information and data instructions.** 
      * **Volatile in nature, meaning information is lost when there is a power break.**
2. Compare and contrast the GUI and CLI based operating system.
   1. CLI
      * Not user friendly
      * Should type the terminal commands one by one (sequentially) to execute applications
      * Main component remains as Terminal
      * Faster due to lack of resource usage

GUI

* Very user friendly
* Main component remains as applications along with Icons
* Can easily execute range of applications parallelly
* Slower due to usage of many resources in comparison to CLI

1. What are the three main purposes of an Operating System?

* Providing environment for program execution and development
* Managing the resources eg – CPU, I/O devices, Memory
* Access Controlling

1. What is multiprogramming? What is the main advantage of multiprogramming?

Multiprogramming focuses on the optimal utilization of the central processing unit.

In a scenario where, main memory allocates the processes to the CPU simultaneously. Once the CPU runs the process and then comes to the point of utilizing the CPU for resource management like IO, multiprogramming allows the CPU to utilize the processor at that idle time.

1. What is time-sharing? What is the main advantage of time-shared system?
2. Briefly explain dual mode operation and how does it provide the protection to the system.
3. Compare and contrast system call and system program.
4. Briefly explain the protection mechanism for each.

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| --- | --- |
| Protection Area | Protection mechanism |
| I/O Protection |  |
| Memory Protection |  |
| CPU protection |  |

1. Which of the following instructions should be privileged?
   1. Set value of timer
   2. Read the clock
   3. Clear memory
   4. Turn-off interrupts
   5. Modifying base and limit registers