Faculty of Computing and Information Technology (FCIT)
Department of Computing Indus University, Karachi

NAME OF STUDENT:_____ID No: _____

ASSIGNMENT-1
Fall – 2024

Department / Faculty	Program	Semester	Course Title	Instructor	Issue Date	Due Date	Faculty Signature	Total Marks
FCIT	BS SE	4th	Offer No : 73950 Operating Systems	Mr. Muhammad Khawaja Hassan Nizami	**20/10/2024**	**30/10/2024**		**4**

Instructions

1. This paper contains **1 Question**. Attempt all questions.
2. This assignment should be completed within assigned time, after the due date, assignment will not be accepted.
3. Students of particular course will download assignment exam and submit solution which will only be accepted through CMS portal.
4. Please ensure that no part of your assignment should be copied from any other source without acknowledgement of the source and proper referencing (IEEE).
5. Please note that copy-paste is a serious nature of academic dishonesty, it is called "Plagiarism" and the penalties are attached to being found guilty of committing such offences.
6. It is allow using lecture notes, books and other sources, however needing to refer/cite properly, Reference list must be given at end of the assignment.
7. This assignment should be submitted in **PDF** file for this purpose first take image of all hand written pages and then merge using Smartphone app (from PC/Laptop put all images in word file and save as **PDF**) including assignment paper in the start of submission.
8. Assignment can be compressed or break in two parts if file size is larger than uploading limit.
9. The font size should 12 and Times New Roman should be used. All figures and illustrations should be properly titled or numbered on the left side, below.
10. Also ensure that no part of your assignment has been written by any other person, except to the extent of collaboration and /or group work.
11. Preferably neat and clean hand-written form, if a marker can't read what you've written, your answer might as well be wrong.

This table is for official use; do not write anything on it.

CLOs	CLO_1	Total
QuestionNumber	**1**	**1**
Student's Score	**----**	**----**
Maximum Score	**4**	**4**

This paper has a total of **2 pages** including this title page

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ASSIGNMENT-1

(CCC-317) Operating Systems (3)

CLOs	CLO Description	PLOs
CLO-1	To Understand the characteristics of different structures of the Operating Systems and identify the core functions of the Operating Systems.	(CO-1) C1 (PO-1)

Task: Answer the following questions (Note: Read the Book & answer your thoughts accordingly)

Question no #1: (a) Rank the following storage systems from slowest to fastest:

a. Hard-disk drives
b. Registers
c. Optical disk
d. Main memory
e. Nonvolatile memory
f. Magnetic tapes
g. Cache

(b) Explain the purpose of system programs?

(c) Explain system calls and its types. Also draw a diagram how a system call execute.

Reference Books: Operating System Concepts by Abraham Silberschatz, Greg Gagne, Peter B. Galvin 10th edition

OPERATING SYSTEM ASSIGNMENT-1

Q1 (a)

1) Magnetic Tapes
2) Optical disk
3) Hard-disk drive
4) Non-rotatile memory
5) Main Memory
6) Cache
7) Registers

Slowest

fastest

Q1 (b)

The Purpose of the system Programs is to Provide basic services to the user and the system These programs help to create an environment for efficient Program development and execution It also allows users to intreact with the system by Providing utilities such as text editors, file managers etc.

Q1 (c)

SYSTEM CALLS:

System calls Provide the interface between a running Program and the OS, allowing Programs to request

Date:

OS service. These system calls are essential for every process to intreact with the kernel and properly use the services provided by it.

TYPES OF SYSTEM CALLS:

1. PROCESS CONTROL: manages process execution e.g, fork(), exec(), exit().

2. FILE MANAGEMENT: Handles flies operations e.g open(), read(), write(), close()

3. DEVICE MANAGEMENT: Control devices via system calls eg ioctl(), read(), write().

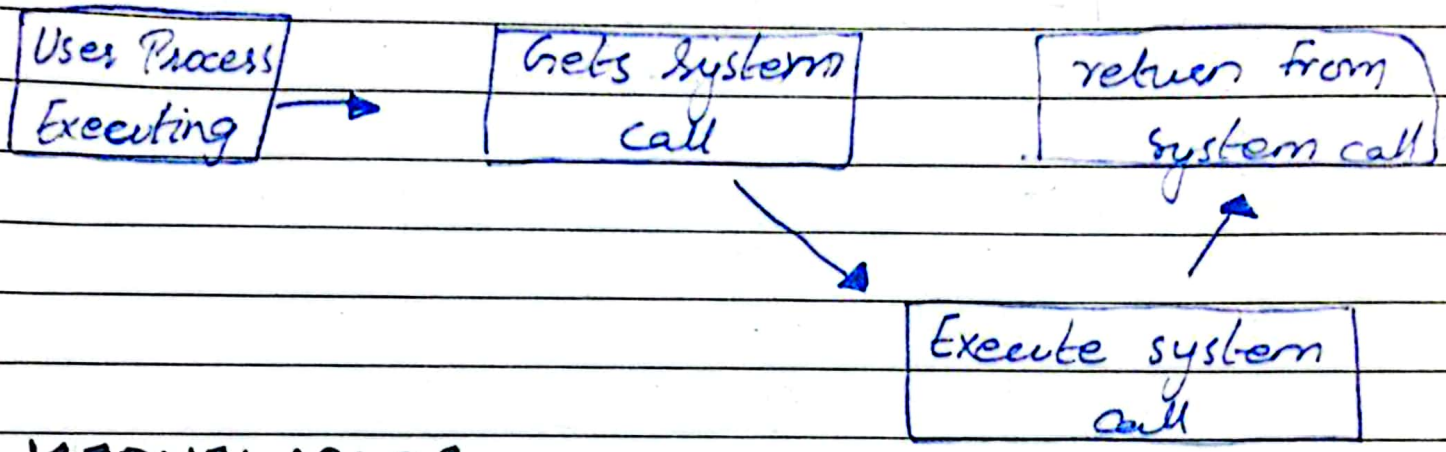
4. INFORMATION MAINTENANCE: These types of system calls deals with memory allocation and changing the size of a memory allocated to a process e.g brk(), sbrk(), munmap, mlock().

5. COMMUNICATION: facilities inter process communication eg (Pipe(), shmget(), send()

Date:

DIAGRAM OF HOW SYSTEM CALLS EXECUTE

USER MODE:



KERNEL MODE: