FACULTY OF COMPUTING

SECP1513 TECHNOLOGY AND INFORMATION SYSTEM

SEMESTER 2 2024/2025

LECTURER'S NAME

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OPEN ENDED QUESTION CHAPTER 3 SOFTWARE

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Open Ended Question

1. **Describe system software. Discuss each of the four types of system programs.**

   System software is a program designed to run a computer's hardware and applications and manage its resources, which are memory, processors, and devices. It also provides a platform for running application software and system software is typically bundled with a computer's operating system.

   There are four types of system programs which is operating systems, utilities, device drivers, and programming language interpreters.

   1. Operating systems: A collection of programs that handles technical tasks. Its function is to manage resources, provide a user interface (user interface, Graphical User Interface), and run the application (Multitasking, Foreground, and background applications

   2. Utilities: It is a specialized program to make computing easier.Utility programs are designed to assist in system maintenance, troubleshooting, and optimization tasks. They can include tools for disk cleanup, file compression, antivirus protection, and system diagnostics.

   3. Device drivers: Device drivers serve as intermediaries between the operating system and hardware devices, allowing them to communicate and function properly. Without these drivers, a computer would be unable to interact with devices such as printers, scanners, or network cards.

   4. Programming language interpreters:These programs convert human-readable programming languages, such as Python, Java, or C++, into machine-readable code that a computer can execute. Compilers and interpreters are common examples.

2. **Define operating systems. Describe the basic features and the three categories of operating systems.**

   Operating systems is a system software that manages computer hardware and software resources, and provides common services for computer programs. The basic features of operating systems is booting which is start or restart the computer. Another basic features is the features in common with application software which are icons, pointer, windows, menus, tabs, dialog boxes, help and gesture control. Lastly, operating systems also have basic features of files and folders where files share data and programs and folders store related files.

   There are three categories of operating systems which are embedded operating systems or RTOS (real-time operating system), stand-alone operating systems and network operating systems.

3. **What are mobile operating systems? Describe leading mobile operating systems.**

Mobile operating systems is (OS) is software that allows mobile devices such as smartphones, tablets, and wearables to run applications and programs. It serves as a bridge between the device's hardware and software, handling cellular and wireless connections and enabling user interaction.

The two leading mobile operating systems are Android, created by Google, and iOS, developed by Apple. Android is recognized for its open-source platform and extensive customization options, whereas iOS is praised for its intuitive user interface and seamless integration with Apple's ecosystem.

4. **What are desktop operating systems? Compare Windows, Mac OS, Linux and Chrome OS. Discuss virtualization.**

Desktop operating systems are built for personal computers, such as laptops and desktops, and feature a graphical user interface (GUI) for interactive use. They create the environment that allows users to manage and control their computers. Examples include Microsoft Windows, Apple's macOS, Chrome OS and various Linux distributions.

1. Windows: The most widely used desktop operating system, valued for its broad software compatibility and strong gaming support.

2. macOS: Available only on Apple devices, emphasizes ease of use and smooth integration within the Apple ecosystem.

3. Linux: An open-source and highly customizable OS, is popular among developers and for server use.

4. ChromeOS: Designed for Chromebooks, is a lightweight, cloud-focused system known for its simplicity and fast performance.

Virtualization is the ability to support multiple operating systems on a single physical machine. There are software virtualization and parallels.

1. Software virtualization: Each virtual machine appears as a separate independent computer which is host operating system and guest operating system.

2. Parallels: Mac to run Windows programs in Mac OS and Mac OS X.

5. **Discuss utilities. What are the most essential utilities? What is a utility suite?**

Utilities are software programs that enhance a computer's functionality and performance. It is specialized programs to make computing easier.

The most essential utilities include troubleshooting or diagnostic programs, antivirus programs, backup programs and file compression programs

A utility suite is a collection of these utility programs bundled together.