·Explain the role of the operating system in terms of managing memory, peripherals and hardware interfaces

OS

• Device configuration: controls peripheral devices connected to the computer

• File management: transfers files between main memory and secondary storage, manages file folders, allocates the secondary storage space, and provides file protection and recovery

• Memory management: allocates the use of random access memory (RAM) to requesting processes

• Interface platform: allows the computer to run other applications.

Time-slicing: with a multi-user system, a time-slice is the set amount of processing time each user gets.

With a single-user system, a time-slicing is the set amount of processing time each program gets

Interrupt handling

• An interrupt handler is a function in of the OS or a device driver, whose execution triggered by the reception of an interrupt.

6.1.7 Outline OS resource management techniques: scheduling, policies, multitasking, virtual memory, paging, interrupt, polling

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• Scheduling is the method by which work is assigned to resources that complete the work

• Policies: the policies what is to be done while the mechanism specifies how it is to be done.

• Multitasking, in an operating system, is allowing a user to perform more than one computer task (such as the operation of an application program) at a time.

• Virtual memory is a feature of an operating system that allows a computer to compensate for shortages of physical memory by temporarily transferring pages of data from random access memory to disk storage.

• Paging

• Interrupt is a signal to the processor emitted by hardware or software indicating an even that needs immediate attention

• An interrupt alerts the OS to a high-priority condition requiring the interrupstion of the current code the processor is executing.

• Polling is the process where the computer or controlling device waits for an external deivce to check for it readiness or state, often with low-level hardware.

6.1.8 Discuss the advantages of producing a dedicated operating system for a device

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• Security: a dedicated operation ensures a higher level of security

• Customisability: dedicated operating systems custom made to do a specific function at maximum efficiency

• Modify priorities: can make running some devices easier to use or better suited to their audience. By having a custom OS you can eliminate certain aspects of the OS which are not needed, reducing the size of the OS, therefore reducing the amount of secondary memory and RAM being used.

6.1.9 Outline how an operating system hides the complexity of the hardware from users and applications.

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Abstraction leads to simplicity

• Users and applications do not see the hardware directly, but view it through the OS.

• This is used to hide certain hardware details from users and applications

• Due to this abstraction, users cannot see changes in the hardware. Can be used is to make related devices appear the same from the user's point of view.