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Abstract

[Draw your reader in with an engaging abstract. It is typically a short summary of the document.   
When you’re ready to add your content, just click here and start typing.]

401IT – Operating Systems

[Assignment Title]



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401IT – Operating Systems

# Introduction

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# Operational Management of Operating Systems

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## Process and service management

There are two types of functions that run on a computer, these being ‘Processes’ and ‘Services’. We first must identify the definition and differences between these two to understand how they are managed.

A Process is a program that requires initiation manually and is unnecessary to the function of the system. Processes are made of attributes to help the OS manage and control it. These being stored in the Process Control Block (PCB). Multiple Processes can run concurrently, a Process ID (PID) is places on each process to help the OS identify the Processes running, this is one of the attributes stored by the PCB. The PCB also stores:

1. Process States
2. Priority levels
3. Input Output Information
4. File Descriptors
5. Account Information
6. Memory Management Information

(ref)

Processes may vary on the different operating systems but some examples for the different systems may be:

Linux –

* bash (command line)
* python (python script runner)
* vim (text editor)
* Search Engines

A screenshot of a computer program

AI-generated content may be incorrect.

Figure – Linux Task Manager - Processes

Windows –

* Windows Explorer (file explorer)
* Command Prompt (command line)
* Virtual Studio Code (script editor and runner)
* Word (text editor)
* Search Engines

A screenshot of a computer

AI-generated content may be incorrect.

Figure – Windows Task Manager - Processes

A service is a background process that performs necessary functions, managing hardware, all without user interaction. Services initial automatically with the startup of the operating system. These manage many things such as:

* Program Execution
* Input/Output Operations
* Memory Management
* Process Management
* File System Manipulation

(ref)

Examples of Services include:

* Print Spooler
* Radio Management Services
* Windows Update Services (Windows)
* Apache2 (Linux)

A screenshot of a computer

AI-generated content may be incorrect.

Figure – Windows Services Page and Print Spooler Service

Processes and Services can be handled and managed using both Graphical User Interfaces (GUI) and Command-Line Interfaces (CLI). The 3 prior figures provide examples of GUI management of the functions. These two interfaces provide different strengths and weaknesses in use, the GUI providing easier user experience and effects to make it easier to navigate, whilst CLI is rawer and more direct. Not being diluted with images or other effects.

A screenshot of a computer program

AI-generated content may be incorrect.

Figure – Windows CLI showing running processes

A computer screen shot of white text

AI-generated content may be incorrect.

Figure – Windows CLI showing service information

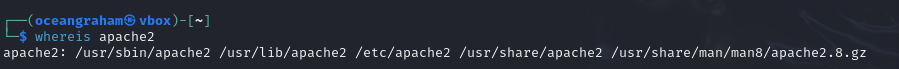


Figure – Linux CLI showing route for Apache2 Service

Figure x, x and x show the CLI and how they may be used to find and look at process and service information in an alternative way to the GUI.

## file systems

Compare FAT32, NTFS, ext4

Features: performance, security, compatibility

Show how folders/files are created or managed

## user accounts and access control

Types of user accounts (admin, standard, guest)

Permissions, groups, access rights

Password and account security

## memory management

Virtual memory, paging, RAM usage

Swap files/page files

Memory limits per user/app

# Security risks and management strategies

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## OS vulnerabilities

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## management strategies

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# References