

# Assignment 1

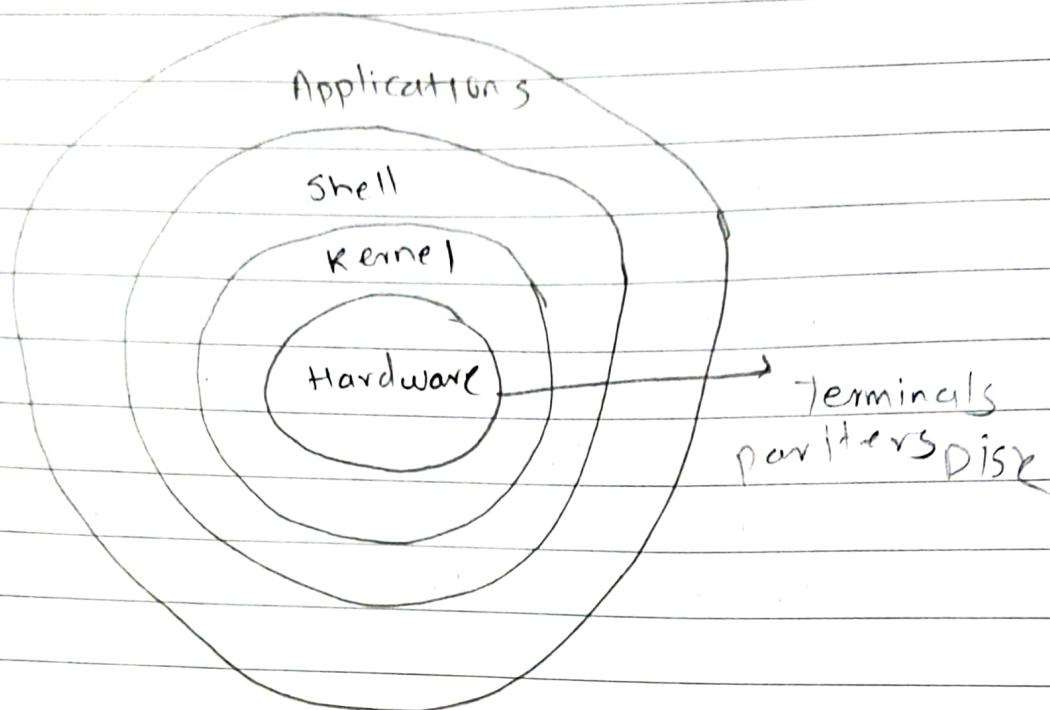
## Devops

Shubham Zende  
113220266 1-sep

Q1 How is Linux different from other operating systems such as windows ios and ~~linux~~ unix? Explain.

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- ① Linux is an open source operating system, which means its source code is freely available and can be modified by anyone.
  - ② This sets it apart from closed-source systems like windows & macos
  - ③ Linux & unix share similarity due to their origins, but Linux is a clone of unix & is more accessible due to its open-source nature.
  - ④ windows & macos are more commercially oriented & have large user bases.
  - ⑤ windows & Linux offers a wider range of customization and flexibility compared to windows & macos
  - ⑥ Each system has its own software ecosystem.
  - ⑦ windows has extensive software support, macos is known for its user experience & creative tools
  - ⑧ Linux offers a vast array of free & open-source software through package managers

Q 2



The linux architecture is largely composed of elements such as the kernel, system library, Hardware layer, system & Shell function

- 1) kernel:- The core of the operating system that interacts with hardware & manages system resources.
- 2) System libraries:- libraries of function & procedures used by various applications and the kernel itself
- 3) System Tools:- Utilities for managing the system, configuring settings and performing tasks.



4) Shell:- The interface between the user & the system, allowing users to execute commands.

5) Graphical Server: Manages graphical display & user interface.

6) Applications: Software application that @ utilize the underlying system resources

### \* Features of Linux OS

① open source:- Linux is developed collaboratively and its source code is accessible to everyone, promoting transparency & customized

② multitasking & multiuser:- Linux supports multiple user & processes running simultaneously, efficiently sharing resources

③ Security: Built-in security features like user permissions, encryption, firewalls enhance system security.

④ Stability & Reliability: Linux systems are ~~known~~ known for their stability & uptime, making them suitable for critical tasks.

⑤ compatibility: Linux can run on various hardware architectures & supports a wide range of their system.

Q3 → ① Package :-

- A package in the context of software development & distribution, refers to a collection of files & metadata that make up a software application or library.
- These packages are created to simplify the installation, management & removal of software on a computer system.
- They typically contain executable files, libraries, configuration files, documentation and other necessary resources.

② Package management:-

- It is the process of handling software packages on a computer system.
- It involves tasks such as installing, updating, upgrading, and removing dependencies between packages to ensure that all required components are available & compatible.

③ RPM:-

- Full form of RPM is Red hat package manager.
- RPM is package format and package management system used primarily in Red Hat-based linux distributions like



\_/\_/\_

Fedora and centos

- RPM package have a rpm File extension

#### ④ yum

- Full Form of ~~yo~~ yum is yellowdog updatem modified.
- yum is command-line package management utility for RPM-based linux distributions
- It serves as a high-level interface to RPM.
- Yum command make it ~~conv~~ convenient to install, remove, update and Query Software packages.

#### ⑤ Commentary on RPM & yum with Example..

- RPM & yum are integral components of Red Hat-based linux distributions.
- They streamline the distributions management, making it easier for both users & system administrator. there are few examples of how RPM & yum work together
- RPM serves as underlying package format & tool, where as yum builds-upon RPM's capabilities making software management more user-friendly & efficient.

- Example:-

Installing an RPM package with yum:-  
yum install package-name rpm

- updating packages with yum:-  
yum update.

- searching for packages with yum:  
yum search keyword.

⑥ Difference bet<sup>n</sup> RPM & yum

RPM

YUM

- |  |  |
|--|--|
| ① RPM stands for Red hat package.                                | ① YUM stands for yellowdog updatel modified.                           |
| ② It is a package Formal and low-level package management tool.  | ② It is a higher level package management utility built on top of RPM. |
| ③ It is difficult to manage RPM is term of package installation. | ③ It is easiest way to manage RPM package.                             |
| ④ It doesn't use the online repository to perform any actions.   | ④ It relies entirely on the online repository to do all the work.      |



Q4

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- ① The unix philosophy is a set of principle that emphasize simplicity, modularity and reusability in software design. These principles have been developed over decades of experience by UNIX programmes and can be applied to many different platform & language.
- ② Unix Culture values collaboration, sharing of knowledge & code. This has led to the development of many powerful and flexible software tools that are widely used today.  
Eg:- C programming language, the shell
- ③ The unix approach to programming emphasises creating small, focused tools that can be combined and customised various ways. This allows developers to create complex systems from simple components and to adapt to changing requirements & environment.
- ④ By studying unix culture & philosophy developers can gain a deeper understanding of the history & evolution of software development as well as the field. This can help them become more effective & responsible & contribute to more diverse tech community.

Q5

→ command chain 1 Test comparison & manipulation

1 diff File1.txt File2.txt

2. cmp File1.txt File2.txt

comm - 12 < (sort File1.txt) < (sort File2.txt)

cut -d " " -F 2 -s File.txt

cut - (1-10 File2.txt

6) sort File1.txt > sorted-File1.txt

sort File2.txt > sorted-File2.txt

diff -u sorted File1.txt sorted File2.txt

comm - 13 < (sort File1.txt) < (sort File2.txt)

grep "pattern" File2.txt

13 sed -n '10,20p' File2.txt > lines\_10\_to\_20.txt

14 wc -l File1.txt

15) wc -w File2.txt

16) head -n 15 File1.txt

17) tail -n 10 File2.txt

18) split -l 100 File1.txt . split-File1

Command chain 2: File manipulation & comparison

1) cp File1.txt backup-File.txt

2 mv File2.txt new\_location

3 mkdir new\_directory

4 touch new\_File.txt

5 rm old\_File.txt

6 Is -l

7 Is -a



8 ls -lh

9 26 - 12

10 tar -cvf archive.tar file 1.txt file 2.txt

11 du -h

12 df -h

13 ps aux

14 top

15 g zip file.txt