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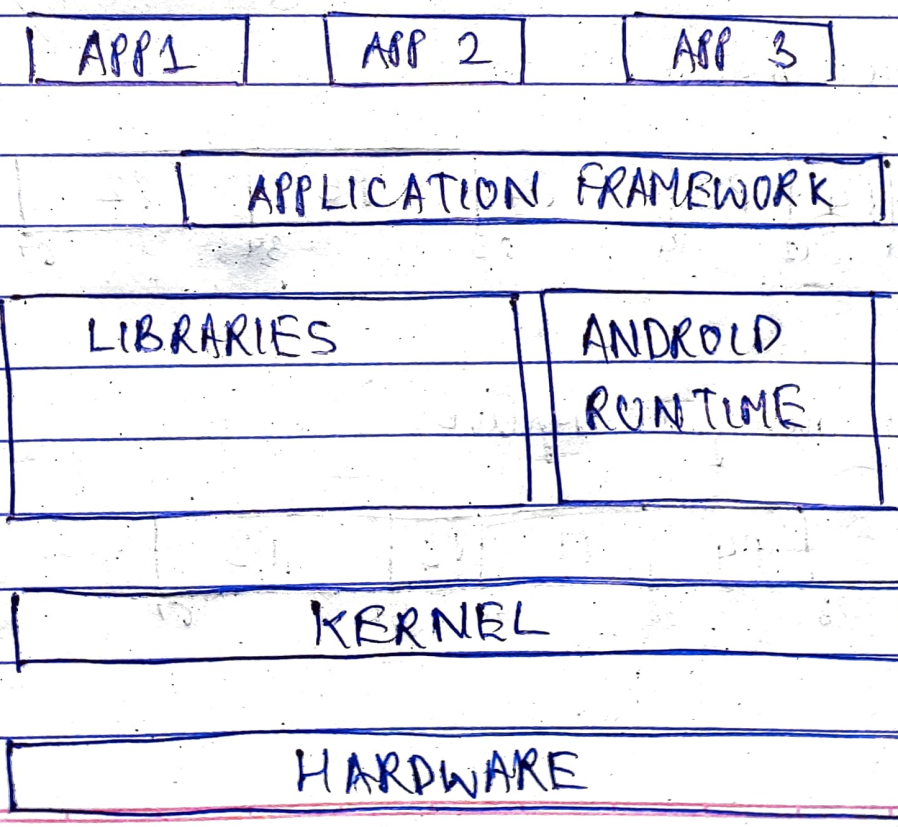
1.) → Android is an open source operating system for mobile devices by Google & the open handset alliance. It is mostly used for smartphones, like Google's own google pixel as well as by other manufacturers like HTC & Samsung. It has also been used for tablets such as galaxy & iball tab.

→ Arocand 1.3 million android smart phones are sold on daily basis. Most mobile phones run android making it popular mobile OS. It is also the most popular OS mobile OS in general. It supports multi-tasking & 2-D & 3-D graphics.

→ Android versions are typically named with version number & a popular dessert name.

→ Android architecture is divided into four main layers & five sections.



1)

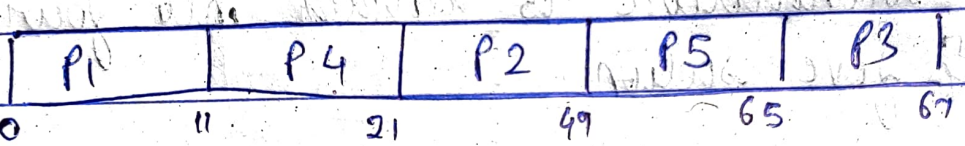
→ Android's kernel is based on Linux kernel. As of 2018, Android targets version 4.4, 4.9 or 4.14 of Linux kernel. Android's variant of the Linux kernel has further architectural changes that are implemented by Google outside typical Linux kernel development cycle, such as inclusion of components like device trees & different out of memory handling

→ Android's home screen, also called "launcher", is a collection of arrangable icons and mini applications called widgets.

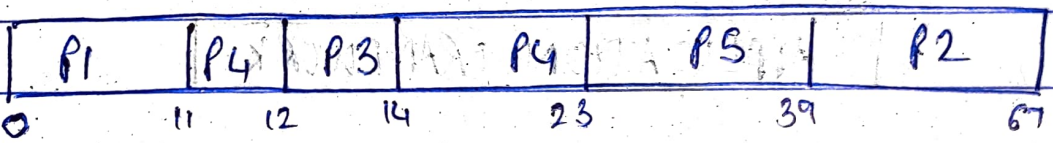
2)

a) (i) FCFS scheduling

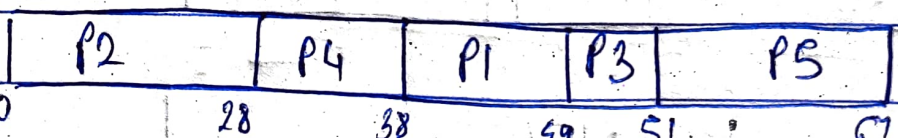
0	2	5	9	12
P1	P4	P2	P5	P3



(ii) SJF pre-emptive

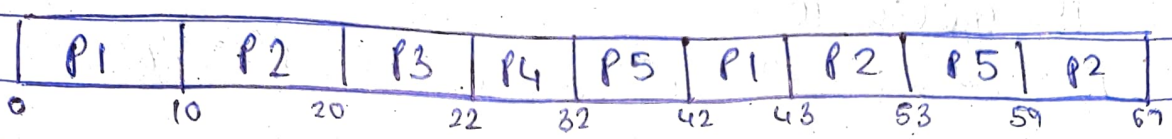


(iii) Priority non pre-emptive



2.) (a.)

(iv.) Round Robin (q = 10ms)



b.) * For FCFS (CT-AT)

Turnaround time, P1 = 11, P2 = 449, P3 = 55 - 11, P4 = 219, P5 = 056

* For SJF

Turnaround time, (CT-AT) P1 = (11-0), P2 = (67-5), P3 = (14-12) P4 = (23-2), P5 = (39-9)

∴ P1 = 11, P2 = 62, P3 = 2, P4 = 21, P5 = 30

* For Priority,

Turnaround time, P1 = 49, P2 = 28, P3 = 51, P4 = 38, P5 = 67

* For Round Robin,

Turnaround time, (CT-AT) P1 = (43-0), P2 = (53-5) P3 = (22-12), P4 = (32-2), P5 = (59-9).

P1 = 43, P2 = 48, P3 = 10, P4 = 30, P5 = 50

c.) * For FCFS

Waiting time, P1 = 0, P2 = 016, P3 = 053, P4 = 90, P5 = 40

* For SJF

Waiting time, (TAT - BT)

P1 = (11-11), P2 = (62-28), P3 = (2-2), P4 = (21-10), P5 = (30-16)

P1 = 0, P2 = 34, P3 = 0, P4 = 11, P5 = 14

* For priority.

waiting time, P1 = 38, P2 = 0, P3 = 49, P4 = 28, P5 = 51

* For Round Robin

waiting time (TAT - BT)

2.)

c) P1 = (43 - 11), P2 = (48 - 28), P3 = (10 - 2), P4 = (30 - 10)
P5 = (50 - 16)
P1 = 32, P2 = 20, P3 = 8, P4 = 20, P5 = 34

d) SJF pre emptive algorithm results in minimum average waiting time