Assignment No. 11
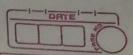Study Assignment

Title : Study assignment on process scheduling algorithms in Android and Tizen.

objectives:

1. To understand Android os -To understand Tizen os -To understand Concept of process management.

2. Problem statement :- Study assignment on process scheduling algorithm in Android and Tizen :

3. Outcomes : After completion of this assignment Students will able to :- Knowledge of Android and tizen os - Study of process management in android and tizen os - Application of android and tizen os.

4. Software requirements :- Android SDK

5. Hardware Requirement :- M/c Lenovo Think centre M700 Ci3, 6100, 6th Gen, H81, 4GB RAM, 500 GB HDD.

6. Theory concepts :-

Android os :- Android is a mobile operating system developed by Google, based on a modified version of the linux kernel and other than open source software and designed primarily for touchscreen mobile devices such as smartphones and tablets. In addition, Google has further developed Android TV for televisions, Android Auto for cars, and Android Wear for wrist watches, each with specilized user interface. Variants of Android are also used on game console, digital cameras, PCs and other electronic.

Some android versions:-

- Gingbread (2.3)
- Honeycomb (3.0)
- Ice cream Sandwitch (4.0)
- Jelly Bean (4.3/ 4.2/4.1)
- Kitkat (4.4)
- Lollipop (5.0)
- Marchngallow (6.0)
- Nougat (7.0)
- Oreo (8.0)

Advantages:
1. Support 2D &3D graphics
2. Support multiple languuge.
3. Java support.

Disadvantages:
1. slow response
2. Heat
3. Advertisement etc.

Tizen OS :-

- Tizen is a mobile operating system developed by Samsung that runs on wide range of Samsung devices, including smartphones, tablets, in-vehicle infotainment (IVI) devices, smart television, smart camera's, Smart watches Blu-ray players, smart home appliances robotic, vacum cleaners.
- In 2010 Samsung was developing the Samsung linux platform (SL) for the Limo foundation.

- On January 1, 2012, the LiMo Foundation was renamed Tizen Association. The Tizen Association works closely with the Linux Foundation, which supports the Tizen open Source project.
  • April 30, 2012 : Tizen 1.0 released.
  • February 18, 2013 : Tizen 2.0 released.
  • May 20, 2017 : Tizen 3.0 released.

Android vs Tizen Operating system :
  • Easy and Convinient Navigation: Scrolling and navigation becomes smooth with Tizen.
  • Fast & lightweight :- Tizen operating system is easy to operate and fast as compared to Google's Android Wear.
  • Battery consumption: Samsung's devices with Tizen OS consumes less power than Android devices according to mobile experts.

Advantages of using Tizen OS :
  • It is open source operating System.
  • The Tizen OS is so flexible to offer many applications and adpt too; with little changes.

Process sheduling Algorithms in android and Tizen os :-
- Normal sheduling ;
  Android is based on Linux and uses the Linux kernel's sheduling mechanisms for determining sheduling policies. This is also true for java code and threads. The Linux's time sliced sheduling policy combines static and dynamic priorities. Procsres can be given an initial priority from 19 to -20 (very low to very high priority).

- Real time sheduling:
The standard Linux kernel provides two real-time sheduling policies, SCHED_FIFO and SHED-RR. The main real-time policy is SCHED-FIFO. It implements a first-in, first-out scheduling algorithm. When a SHED-FIFO task starts running, it continues to run until it voluntarily yeilds the processor, blocks or is preempted by a higher-priority real-time task.

- Thread sheduling
    * - Niceness values
        • Control Groups (cgroups) Niceness Values
        • a thread with a higher niceness value will run less often than those with a lower niceness value (this sound paradoxical).

- Priority Based Pre-emptive Task Scheduling for Android operating System:
The key concept present in any operating system which allows the system to support multitasking, multiprocessing etc. in Task sheduling. Task sheduling is the core which refers to the way the different processes are allowed to share the common CPU.

- Dynamic priority pre-emptive sheduling earliest-deadline first sheduling: a job: priority is inversely proportional to its absolute deadline. The difference between deadline monotonic sheduling.

Conclusion:- Thus, I have studied conceps of process scheduling of Android and Tize OS.