OPERATING SYSTEM

ASSIGNMENT #1

20K-1873

**Q1**

1. **At Home:**

Mobile phone, Computer, Laptop, Internet, CCTV camera, Credit cards, Air Purifiers, Google Assistant/Alexa.

1. **At Office:**

Laptop, Projector, Printers, Face Recognition/Finger prints machines, Servers and Internet.

1. **During Compute:**

Vending Machines, Power Bank, ATM, Recycle Plastic Machine, Traffic Lights, Auto-Pilot mode.

**Q2**

1. **At Home:**

Mobile Phones: Android/IOS: Client-Server

Laptop: Windows/Mac/Linux: Client-Server

1. **At Office:**

Super Computers: Android/Mac: Clustered Systems

Printers: Cloud Computing: Software as a Service.

1. **At Computing:**

Vending machine: Real Time Embedded Systems: RTOS

Traffic Lights: Real Time Embedded Systems: RTOS

**Q3**

1. **At Home:**

Gaming Pc’s, Controllers of PS4 and XBOX uses Multicore and Symmetric Processes as they need to load high Graphics and maintain the game quality(throughputs).

1. **At Offices:**

Webservers and Websites using different types of Databases uses Multicore and Symmetric Processes as they need to control the incoming requests from both clients and workers. Also using load balancer.

1. **At Computing:**

Smart watches for time, heart beats, spo2 and several other functions. Uses Multiprocessors and asymmetric.

**Q4**

1. **At Home:**

Computer and Mobiles to access different

Websites and applications or platforms.

1. **At Offices:**

Printer and Projectors for Documents and presentations.

1. **At commute:**

Different social media platforms and Billboards for advertisements.

**Q5**

1. **At Home:**

Uses online banking facilities(E-Banking) to pay bills and transfer money.

1. **At offices:**

Uses different automated process to create weekly reports and check accounts of their customers.

**Q6**

API used mostly are **GOOGLE ASSISTANT** while using **map/directions.** Second is usage of **SIRI** and **BIXBY** to perform automated process such as Call Ali.

**Q7**

* Arduino is based on microcontroller and Raspberry is on microprocessor, CPU Architecture is 8bits and Raspberry has 64bit, lastly processing speed is up to 16mhz but it has 1-4 mhz.
* IOS is in Swift and Android is in java/kotlin, IOS API’s are more secure than Androids, lastly there are more GUI options than IOS which have less and restricted.
* Emulations are written in high level but simulation in machine, Emulation is slower to simulation and they are least reliable as to simulators.

**Q.8**

They are depended to OS because different OS have different System calls and API therefore the developers need to make app that are suited to the OS otherwise the result won’t be sufficient. Moreover, they are also in need of GUI in that case the favorable OS is windows and less app are developed for IOS due to security. For Linux in that case most of the app are not ported on them.

**Q.9 (Smart Buildings)**

**Architecture:** Made of some Cool features like Door sensors, Fingerprints and Biometrics on the Gates. Parking Sensors and digitalize identity for the residents for security purposes. No guards and Sweeper but machines designed to do all these purposes.

**Computing Environment:** Distributed as wellclustered system with Microprocessors and both symmetric and asymmetric process. Identity verification and cameras are distributed system using machine learning.

**Communication:** The OS uses the API’s of the newly installed devices in order to keep track of them as well as, since the devices are interconnected therefore the data transferred is synchronized as well as secured and the user can see them using the GUI provided by the OS.