**Mobile and Wireless Computing**

Mobile and wireless Computing is a technology that allows the transmission of data, voice, and video via a computer or any other wireless-enabled device without having to be connected to a fixed physical link.

Wireless computing is transferring data or information between computers or devices that are not physically connected and have a “wireless network connection”.

**Mobile computing technologies**

* GSM (Global system for mobile communication)
* CDMA (Code Division Multiple Access)
* WLL (Wireless in Local loop)
* GPRS (General Packet Radio Service)
* SMS (Short Message Service)

**Mobile Communication**

Mobile communication refers to the infrastructure put in place to ensure that seamless and

reliable communication goes on. These would include devices such as protocols, services,

bandwidth, and portals.

Mobile hardware refers to devices or components that ensure that the seamless and reliable communication happens.

Mobile Software refers to those computer programs that activates or runs on the hardware.

**Mobile Classification**

* PDA
* Smartphones
* Tablets, PCs and iPads

**Advantages of Mobile Computing**

* Flexibility
* Reliability
* Entertainment
* Improvement in business processes

**Threats to Mobile Computing**

* Risk of usage abuse
* Unethical practices such as fraud and unethical hacking
* Identity theft

**Current Trends**

* 5G
* 4G – Wimax and LTE
* 3G
* GPS (Global Positioning system)
* NFC (Near Field Communication)

NETWORK SECURITY

A network is a collection of devices that are connected in a way to enables resources sharing. The simplest network consists of a node and a link.

Network security is a term that describes the security tool, tactics and policies that monitor, prevent and respond to network anomalies.

Three key focuses of network security:

* Protection
* Detection
* Response

Benefits of Network security

* Trust
* Risk mitigation
* Protection of information

Tools and Techniques

* Access control
* Anomaly detection
* Data Loss Prevention
* Web security
* Wireless security

CLIENT-SERVER COMPUTING

Characteristics of Client-Server Computing

* Request and response
* Common comm. Protocol
* Limited number of requests

Advantages

* Easy to upgrade, replace, etc. nodes.
* All data is concentrated in one place

BUILDING A WEB APP

* Front-end
* Backend
* Database
* DevOps

Building a web app

* Source an idea
* Make surveys/market research – if there’s a market for it, and if there are competitors
* Define functionality
* Sketch the web app
* Plan workflow
* Wireframing
* Seek early validation
* Build the database
* Build the frontend
* Build the backend
* Host
* Deploy

PARALLEL SYSTEMS

Parallel computing is a technique that is designed with the purpose of speeding up programs execution by breaking the program into multiple fragments and processing them simultaneously (concurrently). It deals with the simultaneous use of multiple computer resources, including a single computer with multiple processors, several computers connected by a network, or a combination of both. The three models used in building parallel computers are:

* synchronous processors each with its memory
* asynchronous processors each with its memory
* asynchronous processors with a shared memory

Classification of Parallel systems

Done by Michael Flynn in 1966, they include:

* SISD
* SIMD
* MISD
* MIMD