

**Mobile Computing: Assignment Presentation**  
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**Topic: Evolution of Mobile Communications**

**First Generation (1 G):** Followed AMPS, TACS, NIT standards. Provided only voice and followed analog technology. The speed was in the range 1kbps to 2.4kbps. Followed Circuit Switching technique for communication

**Second Generation (2 G):** Followed GSM Standard. Provided the following services

- Digital Voice
- International Roaming
- Conferencing
- Call Forwarding

The speed ranged from 14kbps to 64kbps  
Frequency ranged from 900MHz, 1800MHz  
Followed Circuit switching technique

**Third Generation (3 G):** Followed UMTS standard. The data transfer happened through packet switching.

Services Provided:

- Wireless voice telephony
- High speed internet access
- Video calls, chatting
- Mobile TV

The speed ranged from 384 kbps to 2Mbps  
The Frequency ranged from 800MHz to 2.5GHz

**Fourth Generation (4 G):** It is an IP based network system, whose goal was to provide high speed, high quality and low cost services for voice and data. 4G introduced a new physical radio interface known as Evolved UMTS Terrestrial Radio Access (E-UTRA) and a new packet-switching based core network called Evolved Packet Core (EPC). Speed ranged from 100Mbps to 1 Gbps, with the help of IP telephony and WiMAX (Worldwide Interoperability Microwave Access)

**Fifth Generation (5 G):** Initiated in the year 2015. The Physical and Data Link Layer defines 5G wireless technology indicating it as an Open Wireless Architecture (OWA). The higher bit rate loss is overcome by using Open Transport Protocol (OTP). The purpose of the application layer is for quality of service management over various types of networks. The speed ranges from 1 to 10 Gbps and frequency is in the range 3 to 300GHz.

**Sixth and Seventh Generation (6G and 7G):** 6G is proposed to integrate 5G with satellite networks for global coverage. Satellite communication may consist of telecommunication satellite networks, earth imaging satellite networks and navigation satellite networks. 6G aims to provide network position identifiers, multimedia and internet connectivity and weather information service to the mobile users. 7G on the other hand aims to acquire space roaming. The world is trying to become completely wireless, demanding uninterrupted access to information anytime and anywhere with better quality, high speed, increased bandwidth and reduced cost.

