# UNIT-1: Introduction to Mobile and Mobile Programming

<u>Syllabus</u>

<u>Unit -1</u>
**Introduction to Mobile and Mobile Programming [2 HRS]**
Mobile Device (Features, Categories, History, Brands, Models and Platforms), Introduction to Mobile Programming.

## Mobile device and its features

- A mobile device is essentially a portable, handheld computer that enables users to access information, perform tasks and connect with other people and devices.
- We can carry with us while we are going out, that's why these devices are called mobile devices.
- Tablets, e-readers, smartphones, PDAs, portable music players, smartwatches, and fitness trackers with smart capabilities are all mobile devices.

## Features of mobile devices

Mobile devices have become an integral part of modern life, offering a wide array of features that enhance their functionality and user experience. Here are some of the key features commonly found in mobile devices:

### 1. Touchscreen Interface
- Respond to touch from human skin or a stylus.

### 2. Connectivity Options
- **Cellular Connectivity:** Supports various networks like 4G, 5G for calls and internet.
- **Wi-Fi:** Enables high-speed internet access in wireless networks.
- **Bluetooth:** Facilitates wireless communication with other devices like headphones and smartwatches.
- **NFC (Near Field Communication):** Allows for contactless payments and data exchange.

### 3. Operating Systems
- **iOS:** Apple's proprietary operating system, known for its security and seamless integration with other Apple products.
- **Android:** Google's open-source OS, offering customization and a wide range of devices.

### 4. App Ecosystem
- **App Stores:** Platforms like Apple App Store and Google Play Store provide access to millions of apps.
- **Pre-installed Apps:** Include essential applications like browsers, email clients, and media players.

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## 5. Cameras
- **Rear Cameras:** High-resolution cameras with features like optical zoom, night mode, and portrait mode.
- **Front Cameras:** Primarily for selfies and video calls, often featuring wide-angle lenses and beauty filters.
- **Multiple Lenses:** Devices may have wide-angle, ultra-wide, telephoto, and macro lenses.

## 6. Sensors
- **Accelerometer:** Detects the orientation and movement of the device.
- **Gyroscope:** Measures rotation and helps with motion sensing.
- **Proximity Sensor:** Detects nearby objects to turn off the display during calls.
- **Fingerprint Scanner:** Provides biometric security for unlocking the device.
- **Face Recognition:** Uses facial features for secure access.

## 7. Battery and Charging
- **Long Battery Life:** Enhanced by power-efficient processors and software optimizations.
- **Fast Charging:** Technologies like Qualcomm Quick Charge and USB Power Delivery (PD).
- **Wireless Charging:** Allows for charging without the need for cables.

## 8. Audio and Media
- **Speakers:** Stereo speakers for improved sound quality.
- **Headphone Jack:** Although less common now, some devices still include it.
- **High-Resolution Audio:** Support for formats like FLAC for better audio quality.

## 9. Storage Options
- **Internal Storage:** Ranges from 16GB to over 1TB.
- **Expandable Storage:** MicroSD card slots for additional storage (less common in recent high-end models).

## 10. Build and Design
- **Materials:** Use of premium materials like glass and aluminum.
- **Water and Dust Resistance:** Rated by IP codes (e.g., IP68) for protection against elements.
- **Form Factor:** Varied designs including foldable screens and rugged models for durability.

## 11. Performance
- **Processors:** High-performance CPUs and GPUs for multitasking and gaming.
- **RAM:** Ranges from 2GB to 16GB, affecting speed and performance.
- **AI and Machine Learning:** Enhances features like photography, battery management, and personal assistants.

## 12. Software Features
- **Voice Assistants:** AI-powered assistants like Siri, Google Assistant etc.

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- **Multitasking:** Ability to run multiple apps simultaneously.
- **Security Features:** Regular updates, encryption, and secure boot processes.

**13. Additional Features**
- **Dual SIM Support:** Allows the use of two different phone numbers.
- **E-SIM:** Embedded SIM technology for easy switching between carriers.
- **AR and VR Support:** Augmented and virtual reality applications for gaming and other experiences.

## Categories of mobile devices
- Mobile phones
- Smart phones
- Low-end mobile devices
- Mid-end mobile devices
- High-end mobile devices
- Non-phone devices
- Small personal object technologies (SPOTs)
- Tablets, netbooks, and notebooks

**Brands, models and platforms**
- Apple
- Nokia
- BlackBerry
- Samsung
- Sony Ericsson
- Motorola
- LG Mobiles

**OS uses in mobile devices**
- Android
- iOS
- Windows
- RIM OS
- Palm OS later Garnet OS
- Symbian Foundation

**Introduction to mobile programing**
- Mobile programing is a set of processes and procedures involved in writing software for mobile devices.
- There are two dominant platform iOS and Android
  - iOS for Apple product
  - Android for Google and many other product
- There are many languages used for mobile programing like java, kotlin, c#, flutter, python etc. for android platform and Objective-C, Swift etc. for iOS platform.

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**Major development Approaches**
- Native mobile application
- Cross-platform Native mobile application
- Hybrid mobile application
- Progressive web application

**History of mobile devices**
- **1926:** first successful mobile telephony service was offered to first class passengers on the vehicle route on Berlin to Hamburg.
- **1946:** first calls were made on a car radiotelephone in Chicago.
- **1956:** first automated mobile phone system for private vehicle lunched in Sweden.
- **1969:** Nordic Mobile Telephone (NMT) group was established, purpose of this group was to develop a mobile phone system.
- **1973:** Dr. Martin Cooper GM of Motorola Communication made first public mobile phone call on a device with weight 1.1Kg
- **1987:** technical specifications for GSM standard are approved.
- **1992:** world's first SMS message "Merry Christmas" was sent to Richard Jarvis, Director of Vodafone by an software developer in the UK.
- **1998:** first downloadable content sold to mobile phone was the ringtone lunched by Finland's Radiolinja, and seller was earned half a billion dollars.
- **1999:** Emoji's were invented by Shigetaka Kurita in Japan.
- **2000:** Nokia 3310 landed on Shop
- **2000:** first commercially available camera phone The Sharp J-SH04 launched in Japan
- **2003:** 3G standard started to be adapted worldwide
- **2007:** iPhone was lunched
- **2008:** Android phone lunched
- **2009:** 4G standard started
- **2010:** Samsung lunched first Galaxy S smartphone
- **2017:** Nokia 3310 revive with basic web browsing, colorful screen and camera.
- **2017-2021:** many new models of android and iPhones are lunching

**End of Chapter-1**

=========================== End Unit 1 ===============================

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