

## HMI Module - 5

### Q1. Explain Application framework from mobile ecosystem.

Ans:

- Application frameworks often run on top of operating systems, sharing core services such as communications, messaging, graphics, location, security, authentication, and many others.
- Application frameworks are used to create applications, such as a game, a web browser, a camera, or media player.
- Although the frameworks are well standardised, the devices are not.
- The largest challenge of deploying applications is knowing the specific device attributes and capabilities.
- Example: For creating an application using the Java ME application framework, we need to know what version of Java ME the device supports, the screen dimensions, the processor power, the graphics capabilities, the number of buttons it has, and how the buttons are oriented.
- List of application frameworks:
  1. React Native:
    - It is preferred cross platform for iOS and Android App Development.
    - It allows mobile app developers to build high performance apps in shorter development cycles and faster development time.
    - It also gives smooth animations as the code is converted in native views before performing.
  2. Flutter:
    - It is Google's mobile UI framework for crafting high quality natives interfaces on iOS and Android.
    - It works with existing code and is used by developers and organizations around the world and is free and open source.
    - It helps to quickly and easily experiment, build UIs, add features and fix bugs faster.
  3. Ionic:
    - It is an open source platform.
    - Its main advantage is that mobile developers can use a set of default UI elements like forms, filters, action sheets and navigation menu in their design.
    - It focuses on developing applications instead of concentrating on UI elements.
  4. Xamarin:
    - Developers can used C# for Android, iOS and universal for Windows apps.

**Q2. Describe Mobile 2.0 in brief.**

**Ans:**

- The term is derived following the same principles of Web 2.0.
- Mobile 2.0 has made many things possible which earlier were not possible: users can connect not only with voice but also control various devices online.
- The Web is transformed into a more agile and user focused medium, which can easily deliver information to masses.
- Social media connectivity has become easier due to Mobile 2.0, access has become easier, interlinked.
- Wireless connectivity has improved significantly; texting, listening, capturing and viewing have become more easier.
- All the multimedia features allow to convey rich multimedia content.
- Characteristics of Mobile 2.0:
  - Social networking has become easier.
  - The users are the generator of the content and the website is run by the content created by its users and contributors.
  - Syncing various platforms, applications and devices to supply a very immersive and rich user experience.
  - Always available and always connected.

**Q3. List and explain various elements of mobile design.**

**Ans:**

- The elements of design are the following:
  1. Context:
    - Context is how users can derive value from something that they are using or will be using.
  2. Content:
    - Keep the content to a minimum and it must be relevant as per user requirements and it should be supported on all types of devices.
  3. Navigation:
    - Should be easy and simple.
    - Minimize the level of navigation to keep it simpler.
    - Use clear and concise labeling for navigation, use distinct colors for an easy navigation process.
    - Create proper sequencing as per the functionality of the app.
  4. Layout:
    - Must have a general theme and smooth lay out.
    - The theme and layout should be kept in mind from the start till the end of designing the application.
  5. Color:
    - It is an important element for mobile design.
    - It connects with the type of emotion portrayed.

- Should be visually pleasing for the users.
6. Graphics:
- It is an important element while designing an app.
  - Based on the location where the app will be used, the type and application, the graphics can be selected.
  - It should provide a rich experience.

**Q4. Explain mobile design tools.**

**Ans:**

- Mobile design requires understanding the design elements and specific tools.
- The closest thing to a common design tool is Adobe Photoshop, though each framework has a different method of implementing the design into the application.
- Some frameworks provide a complete interface toolkit, allowing designers or developers to simply piece together the interface, while others leave it to the designer to define from scratch.

Mobile Framework	Design Tool	Interface Toolkits
Java ME	Photoshop, NetBeans	JavaFX, Capuchin
BREW	Photoshop, Flash	BREW UI Toolkit, uiOne, Flash
iPhone	Photoshop, Interface Builder	iPhone SDK
Android	Photoshop, XML-based themes	Android SDK
Palm webOS	Photoshop, HTML, CSS, and JavaScript	Mojo SDK
Mobile web	Photoshop, HTML, CSS, and JavaScript	W3C Mobile Web Best Practices
Mobile widgets	Widgets, Photoshop, HTML, CSS, and JavaScript	Opera Widget SDK, Nokia Web Runtime
Mobile web apps	Photoshop, HTML, CSS, and JavaScript	iUI, JQTouch, W3C Mobile Web App Best Practices