Mobile Testing Basics

How to test a mobile application

What is a Mobile Application?

A mobile application, is a type of application software designed to run on a mobile device, such as a smartphone or tablet computer.

Types of Mobile Applications

Native Mobile Application

- Good performance
- High Cost
- Installed physically on the device
- Examples:

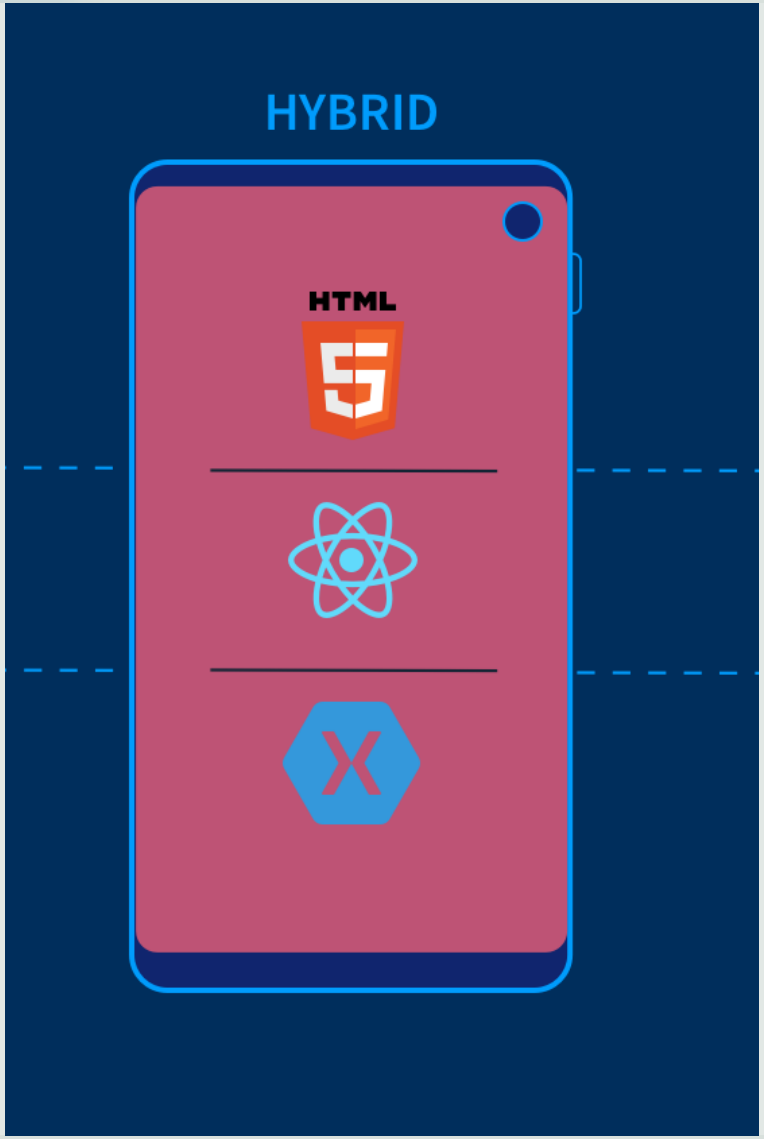
  Google maps, Facebook, LinkedIn

Browser-based Application

- Accessed through a mobile browser
- Low cost
- Easy to develop
- Browser Compatibility testing is required

Hybrid Mobile Application

- A combination of native app and web app
- A website inside an app
- Easy to develop
- Can work offline



Types of Mobile Devices

Basic Phones

- Used for telephone and SMS only
- Provide few built-in apps and games
- Installation of apps or browsing is not possible

Feature Phones

- Limited support for apps
- Internet access via a built-in browser
- May have additional hardware such as camera

Smartphones

- Several Sensors
- Application installation is possible

Tablets

- Similar to smartphones but larger
- May support longer battery life

Wearables

- Used with a smartphone or tablet
- Provides support for special types of apps

Mobile Testing Challenges

- Multiple platforms and devices
- Different UI designs and UX expectations
- Multiple network types
- Resource-starved devices
- Diverse users
- High feedback visibility
- Marketplace publishing approval
- Unavailability of new devices

Mobile Analytics Data

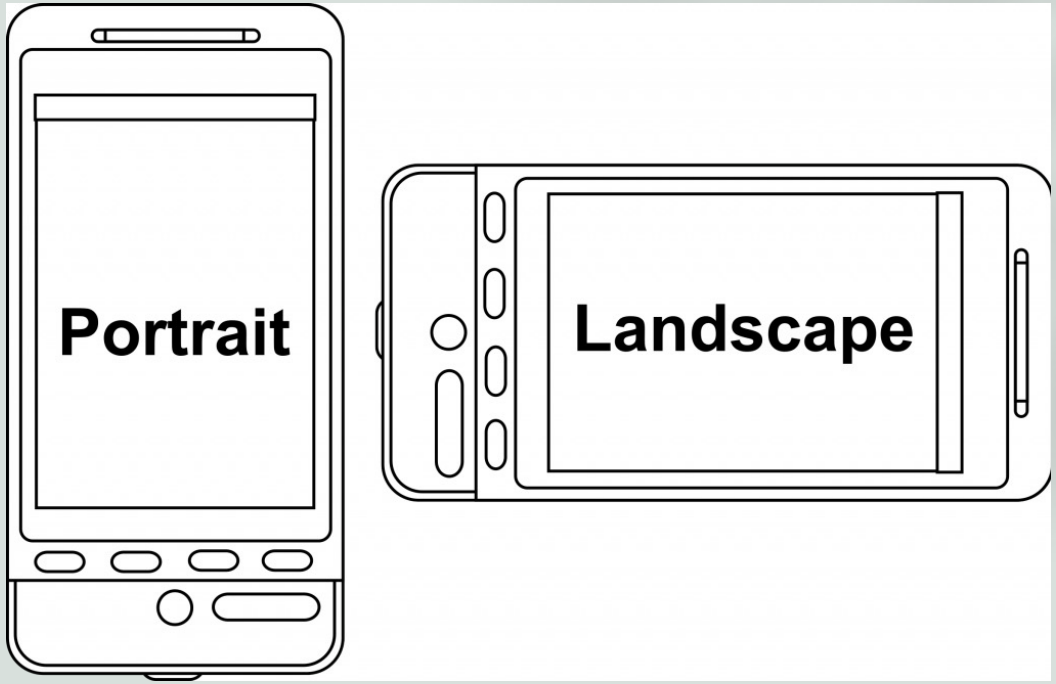
Mobile Testing
Test Scenarios & Types

Testing Various Input Methods

- Appropriate keyboard is opened
- Appropriate camera is turned on by default
- Scanning QR Codes works correctly

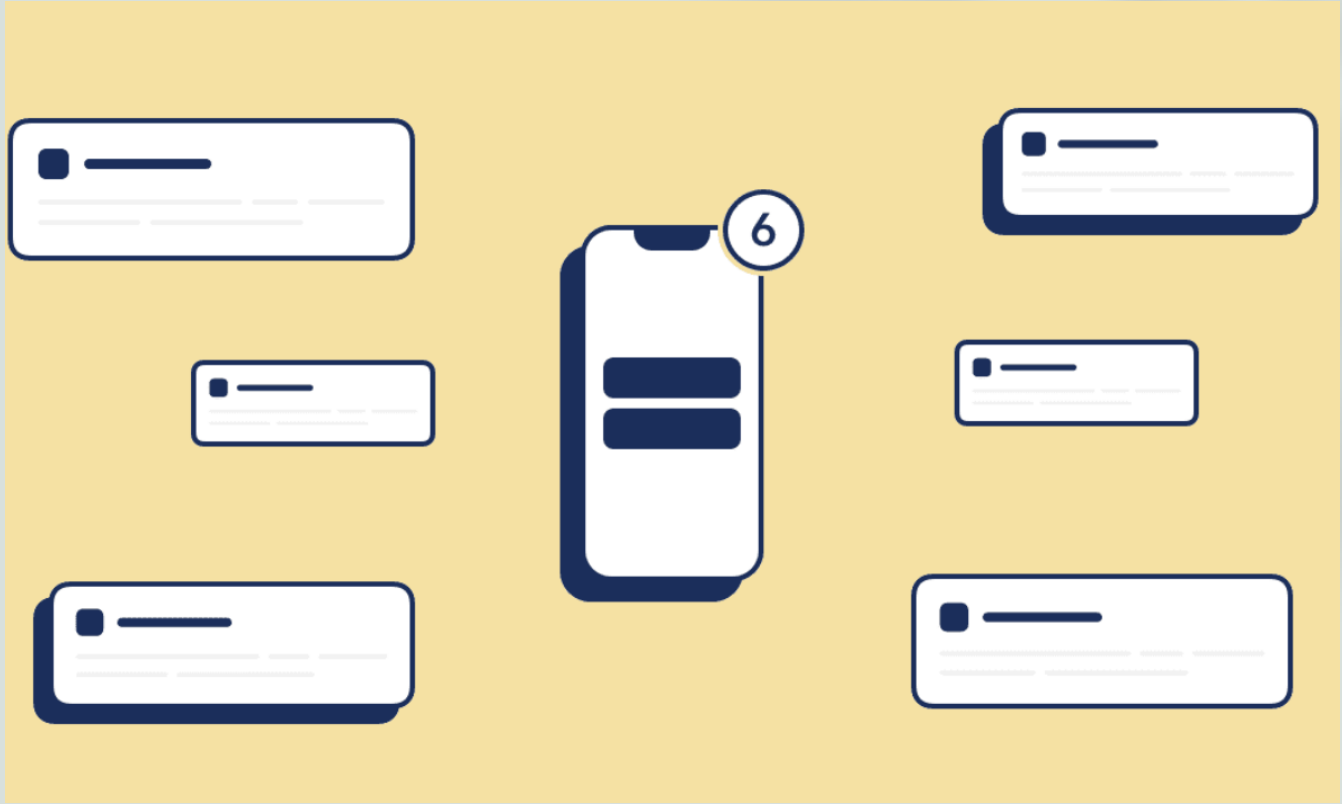
Testing for Screen Orientation

- Input fields should retain already captured data
- Output data fields display the same data
- The app maintains its state
- Try to test changing the orientation more than one time



Testing for Typical Interrupts

- Device Interrupts:
  - Voice call
  - Message
  - Charger connected
  - Low memory
- User interrupts
  - App switching
  - Setting device into don't disturb mode
- Interrupts Scenarios:
  - Answer a phone call while using the app
  - Receive many notifications after returning from do-not-disturb mode



Testing for Access permissions for Device Features

- The app is able to work with reduced permissions
- Only relevant permissions are requested
- Why does the app need each permission and how will it behave if the permission is rejected

Testing for power consumption and State

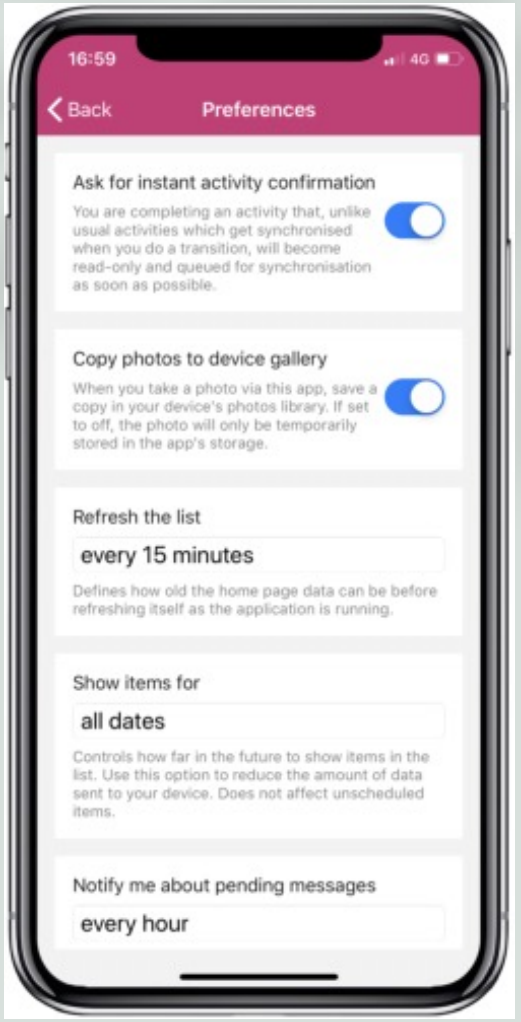
- Power consumption while the app is active
- Power consumption while the app is in the background

Testing for Notifications

If notifications allow access to the app, then the corresponding page of the app must be opened

Testing for User Preferences provided by operating system

- The application adheres to the set preferences by behaving accordingly



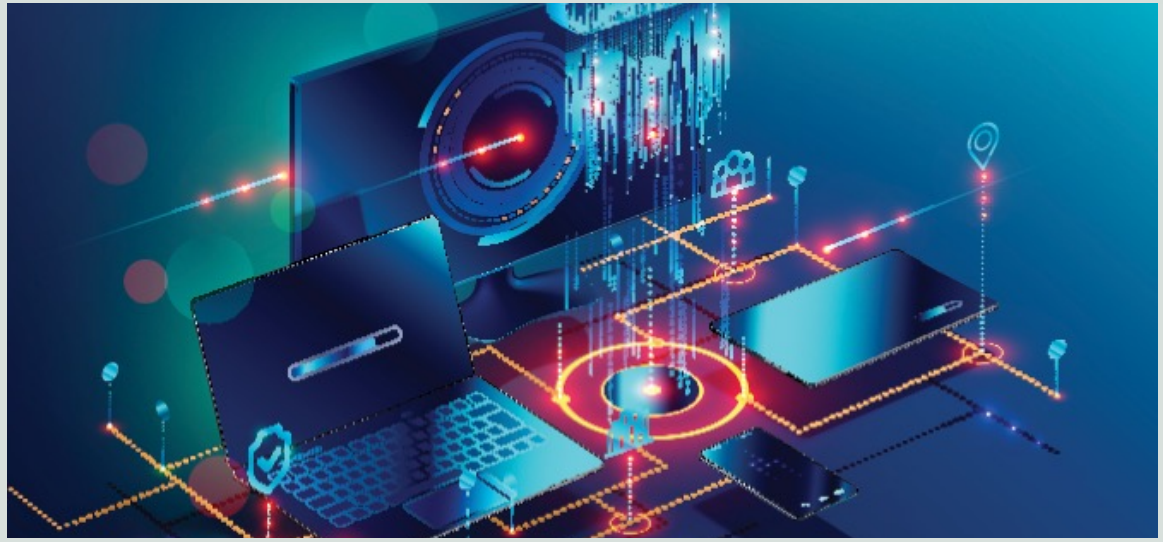
Testing for Interoperability & Co-existence

-Data transfer between the system under test and the utilized app is correct

-Conflicting behaviors. An app might turn-off GPS to save energy, while another app turns it automatically

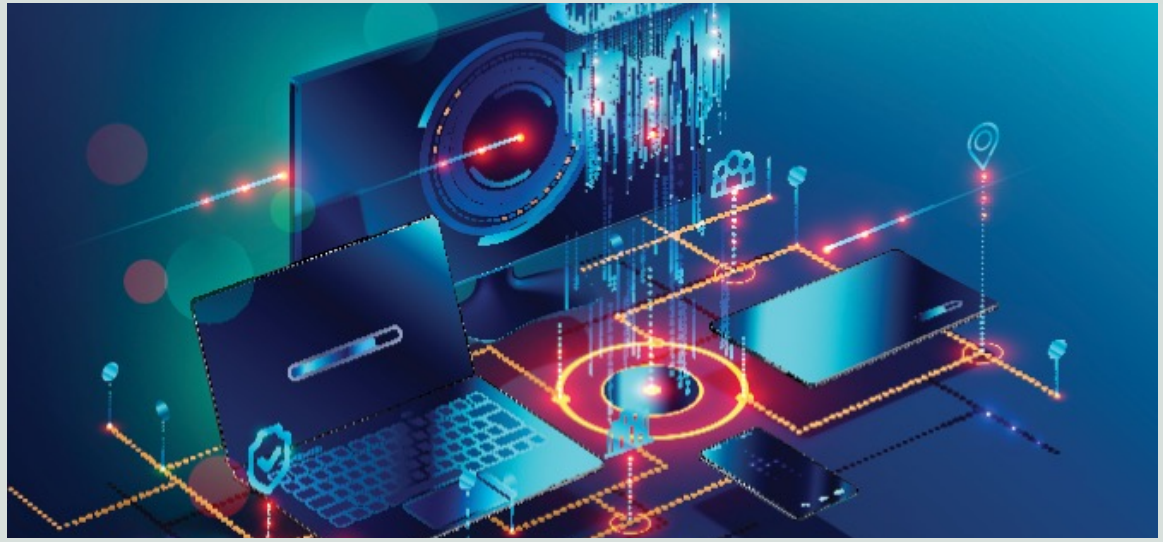
Testing for various connectivity methods

- Correct app functionality with different connectivity methods
- Switching between connectivity methods doesn’t cause any unexpected behavior
- Clear information is given to the user if functionality is restricted due to limited or no network connection



Installability Testing

- Installation, update, and de-installation of the application
  - Application store
  - Sideloading (Copy & Install)
  - Desktop applications (iTunes)
- Deinstallation with & without “Retain app data” option should be tested



Performance Testing

- Performance testing should include chronometry of most important workflows
- The tester should compare the chronometry with similar apps

Usability Testing

- Learnability testing should be considered
- Application should be self-explanatory & intuitive
- It also should allow user mistakes