Becoming a Pro

IN Mobile Applications Testing

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

- Device Model
- OS Version
- Screen Resolution
- Form Factor
- Emulators vs. Physical Devices

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

- Network density
- How the app behaves on specific devices
- How real-world users interact with the app
- Different battery states on the devices
- Multiple networks (Wi-Fi, 4G, 3G, etc.)

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

- applications can be deployed, tested, and managed
- saves businesses from setting up on-premise test environments
- capability to support complex apps
- provides real-time testing results

Mobile App Testing on Cloud

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

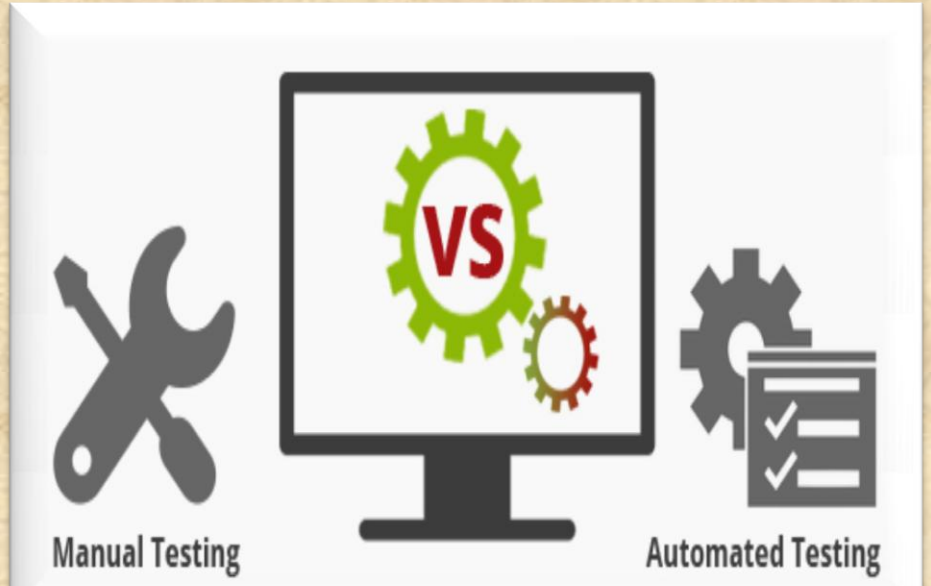
- testing mobile apps in real network environments
- network simulation tools are available
- test mobile apps in various network speeds, bandwidths variations
- testing the app in a full internet connectivity scenario and other factors

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

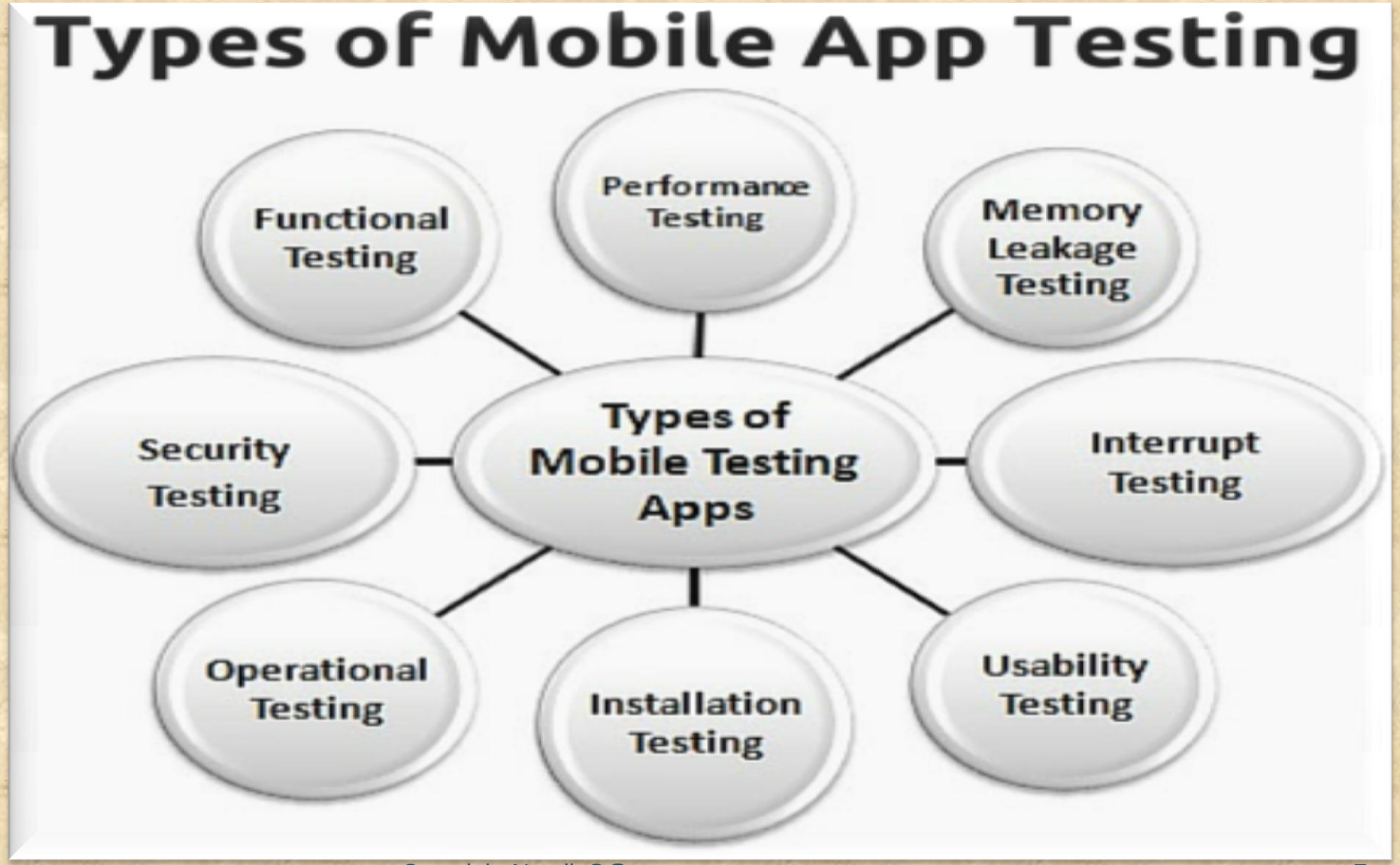
Automated testing is highly effective in consistently repeating a test procedure in regression testing as well as testing during the development stages.

However, test automation requires significant amount of initial investment.



Mobile Test Industry Standards :

Testing Strategies for Mobile Apps



Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

FUNCTIONAL TEST

- Verifying that all documented requirements are implemented.
- Verifying that all features work as expected.
- Validating texts, logos, images, text captions and other UI elements.
- Validating localization and globalization.
- Evaluating ease of navigation and screen transitions.
- Examining response speed.
- Evaluating the intuitiveness of the touch interface.

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

PERFORMANCE TEST

- Performance with low battery power
- Performance while network out of coverage area
- Performance during poor bandwidth
- Performance while changing internet connection mode
- Performance while transferring heavy file
- Testing from Application's server and client side

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

Memory Leakage TEST

- Verifying if program runs for an extended time and consumes additional memory
- Verifying if memory is allocated frequently for one-time tasks
- Verifying where the program can request memory — such as shared memory that is not released
- Verifying where memory is very limited, such as in an embedded system or portable device
- Verifying where the leak occurs within the operating system or memory manager
- Verifying when a system device driver causes the leak

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

INTERRUPT TEST

- Battery low
- Battery full- when charging
- Incoming phone call
- Incoming SMS
- Incoming Alert from another mobile application
- Plugged in for charging
- Plugged out from charging
- Device shut off
- Application Update reminders
- Alarm
- Network connection loss
- Network connection restoration

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

USABILITY TEST

To ensure that the buttons should have the required size and be suitable to big fingers.

To ensure that the buttons are placed in the same section of the screen to avoid confusion to the end users.

To ensure that the icons are natural and consistent with the application.

To ensure that the buttons, which have the same function should also have the same color.

To ensure that the validation for the tapping zoom-in and zoom-out facilities should be enabled.

To ensure that the keyboard input can be minimized in an appropriate manner.

To ensure that the application provides a method for going back or undoing an action, on touching the wrong item, within an acceptable duration.

To ensure that the contextual menus are not overloaded because it has to be used quickly.

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

INSTALLATION TEST

- Verify application gets installed properly
- Verify user can uninstall application successfully
- Verify app updates are properly installed
- Verify aborting installation does not affect other features
- Check app behavior on trying to install it on non-supported version/device.
- Verify app is installed properly from app store and from side loading

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Testing Strategies for Mobile Apps

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Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

SECURITY TEST

Data flow -- Can you establish an audit trail for data, what goes where, is data in transit protected, and who has access to it?

Data storage -- Where is data stored, and is it encrypted? Cloud solutions can be a weak link for data security.

Data leakage -- Is data leaking to log files, or out through notifications?

Authentication -- When and where are users challenged to authenticate, how are they authorized, and can you track password and IDs in the system?

Server-side controls -- Don't focus on the client side and assume that the back end is secure.

Points of entry -- Are all potential client-side routes into the application being validated?

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps EXTRA

FUNCTIONAL VS Non-FUNCTIONAL TEST

FUNCTIONAL	NON- FUNCTIONAL
Unit Testing Smoke testing / Sanity testing	Load and Performance Testing
Integration Testing (Top Down, Bottom up Testing)	Ergonomics Testing
Interface & Usability Testing	Stress & Volume Testing
System Testing	Compatibility & Migration Testing
Regression Testing	Data Conversion Testing
Pre User Acceptance Testing (Alpha & Beta)	Penetration Testing
User Acceptance Testing	Operational Readiness Testing
White Box & Black Box Testing	Installation Testing
	Security Testing

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

PLATFORM/OS TEST

- Different OS ->Android, IOS, Windows
- Different browsers -> Firefox, Google Chrome, IE, Safari
- Different Screen Size and resolution
- OS versions and memory size
- Hardware capable of interrupt handling without getting hanged
- Multilingual Support
- Different Time Zones Support

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps EXTRA

ACCESABILITY TEST (What is SCREEN READER ?)

Mobile Accessibility is critical to reaching all audiences. A product is accessible when a person with a disability can have an experience equivalent to that of a person without a disability

Users who are blind will use a screen reader to navigate and access information on mobile devices.

The screen readers are included in the device operating system and can be turned on in the device settings.

When Screen Reader is turned on, the gestures and keyboard shortcuts change.

In the 2014 Webaim survey shows that 82% of Screen Reader users will use a mobile device

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps EXTRA

ACESSABILITY TEST (SCREEN READER)

Web Content Accessibility Guidelines (WCAG)

- A person who is blind using a screen reader or a talking browser can navigate your information and interact with it.
- A person with low-vision can magnify the screen and understand the content.
- A person who is deaf or hard-of-hearing can read captions in multimedia presentations.
- A person with a dexterity limitation can use the alternative input devices for all interaction, or can use speech recognition software.
- A person with ADHD or dyslexia can use and understand the content and complete tasks
- Please refer to this link to learn more https://www.w3.org/TR/WCAG20/

- Screen reader testing on mobile
- Zooming site/application
- Color ratios
- Readability of the site
- Navigation

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

Security Test EXTRA

Workshop : ANSWER THESE QUESTIONS

1. *What do you consider to be the biggest security issues with mobile phones?*
2. *How seriously are consumers and companies taking these threats?*
3. *What can be done about these threats?*

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

Security Test EXTRA

- Attacks on mobile devices range in volume and severity, but all have the potential to cause chaos at both a device and network level.

Just like in the conventional fixed Internet world, attacks come in all shapes and sizes – such as:

- Phishing (criminals attempt to trick users into sharing passwords etc)
- Spyware (tracks user's activity, perhaps selling data to advertisers)
- Worms (a program that copies itself onto multiple devices via network connections)
- Trojans (a program that looks genuine but hides malicious intent)
- Man-In-The-Middle Attacks (where a criminal intercepts and manipulates messages between two devices or device and computer).

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

Security Test EXTRA

The Mobile Code Security Stack

- The mobile code security stack can be broken up into four distinct layers.
- Each layer of the mobile code security model is responsible for the security of its defined components and nothing more.
- The upper layers of the stack rely on all lower layers to ensure that their components are appropriately safe