How Do I Get Started with Mobile Testing?

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Introduction about Wellero and Theodore

Overview - Getting Started with Mobile Testing

• Why Test Mobile?
• Mobile Testing Background
• Web App vs Mobile App
• Mobile Operating Systems
• Testing Considerations
Overview - Getting Started with Mobile Testing

• Emulation vs Physical Device
• Hardware Testing
• Beginning Mobile Test Automation
Why Test Mobile

Source: BII estimates, Gartner, IDC, Strategy Analytics, company filings, World Bank 2013
Why Test Mobile
Mobile Testing

Background

• Context of Mobile Testing
• Mobile Device
  – Personalized – your phone, your apps
  – Always within arms reach
  – Checked Regularly
Mobile Testing
Background

• How many times per day does the average smartphone user check their device?
Mobile Testing
Background

• How many times per day does the average smartphone user check their device?
  • 10
  • 25
  • 50
  • 100
  • 150
  • ** 221 **
# Web App vs Mobile App Testing

<table>
<thead>
<tr>
<th></th>
<th>Web App Testing</th>
<th>Mobile App Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Categories</strong></td>
<td>Android</td>
<td>iOS</td>
</tr>
<tr>
<td><strong>OS</strong></td>
<td>Windows, Mac, Linux, Unix, others</td>
<td>Custom overlays on top of AOSP Samsung, LG, Sony, Motorola etc.</td>
</tr>
<tr>
<td><strong>Users Updates to OS</strong></td>
<td>Varies by Manufacturer and Carrier</td>
<td>typically 3 months to latest version</td>
</tr>
<tr>
<td><strong>Device</strong></td>
<td>Typically x86, x64 processors</td>
<td>Varies by Manufacturer</td>
</tr>
<tr>
<td><strong>Inputs</strong></td>
<td>Keyboard, Mouse, webcam, microphone, fingerprint scanner</td>
<td>touchscreen, soft buttons – (home, back, menu), soft keyboard, front facing camera, back facing camera</td>
</tr>
<tr>
<td><strong>Outputs</strong></td>
<td>screen, speaker</td>
<td>screen, speakerphone, headphone jack, haptic feedback</td>
</tr>
<tr>
<td><strong>Buttons</strong></td>
<td>power button, volume up/down</td>
<td>power button, volume up/down, home button</td>
</tr>
<tr>
<td><strong>Sensors</strong></td>
<td>light sensor, Accelerometer, Gyroscope, Pedometer, Compass, Hall, Fingerprint ID, Gesture, Barometer, Step detector, Step counter</td>
<td>Three-axis gyro, Accelerometer, Proximity sensor, Ambient light sensor, Fingerprint identity sensor, Home/Touch ID sensor, Backside illumination sensor</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>from network/ip address</td>
<td>GPS, A-GPS, Glonass</td>
</tr>
<tr>
<td><strong>Connectivity</strong></td>
<td>Wi-Fi or LAN, Bluetooth</td>
<td>Wi-Fi, Cellular, Bluetooth</td>
</tr>
<tr>
<td><strong>Network Consistency</strong></td>
<td>consistent</td>
<td>can be intermittent</td>
</tr>
<tr>
<td><strong>Screen Size</strong></td>
<td>varies</td>
<td>varies</td>
</tr>
<tr>
<td><strong>Screen Resolution</strong></td>
<td>Varies</td>
<td>Varies</td>
</tr>
<tr>
<td><strong>Battery</strong></td>
<td>varies 10 to 20 hours</td>
<td>varies 10 to 20 hours</td>
</tr>
</tbody>
</table>
Operating Systems

- Frequent Updates
- Changes in API’s and possible deprecation of previously used API’s
- New Hardware
- Updates to Hardware
Testing Considerations - Android

• Manufacturer Overlays

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Launcher/Overlay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samsung</td>
<td>TouchWiz</td>
</tr>
<tr>
<td>HTC</td>
<td>Sense</td>
</tr>
<tr>
<td>Sony</td>
<td>Xperia</td>
</tr>
<tr>
<td>LG</td>
<td>Optimus UI</td>
</tr>
</tbody>
</table>

• API Level Targeting

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Testing Considerations - Android

- Physical Device Considerations
  - Older devices
  - Small and large screen sizes
  - Older Operating systems
  - Physical keyboards
  - Hardware specific accessories

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Testing Considerations - Android
Testing Considerations - iOS

- Differing Screen Sizes – 4S, 5, 5C, 5S, 6, 6+
- UI / Layout
- Multiple resolutions of images
- Universal / iPhone / iPad

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Emulation vs Physical Device

• Emulation
  – Test logic and functionality as much as possible

• Physical Devices – sensors and inputs
  – Location
  – Camera
  – Microphone
  – Other input sensors
Hardware Testing

- Geo-fencing and Location Testing
- Push Notifications
- Data Connections
- Device Level Interrupts
- Multiple Apps Running

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Beginning Mobile Test Automation

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Beginning Mobile Test Automation

• Objectives of Mobile Test Automation
• Evaluate Test Strategy, tools and frameworks
• Who will be writing tests?
• Who will be maintaining tests?
• Will tests need to be run by any non-technical stakeholders?
• Try Proof of Concept
Beginning Mobile Test Automation

- **Android**
- **Robotium**
- **Espresso**
- **UiAutomation**

- **iOS**
- **UI Automator**
- **KIF**
- **Frank**
- **iOS Driver**

- **Both Android and iOS**
- **Appium**
- **Calabash**
- **Monkey Talk**
Beginning Mobile Test Automation

• Write simple login test
• Add functionality for CRUD
• Start adding additional features and hooks / helpers for your testing framework
• Refactor Tests
• Re-Evaluate Tools Periodically
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