

How to test mobile Apps



What are Apps?

"App is an abbreviation for application. An app is a piece of software. It can run on the Internet, on your computer, or on your phone or other electronic device."

About.com

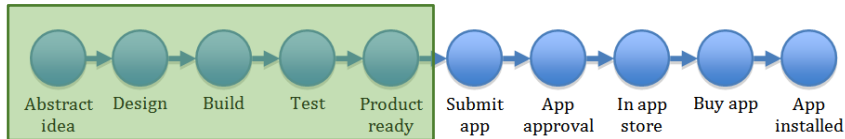
"Apps have become a meaningful abbreviation to something that just works. Apps provide a common and easily understood idea that has been widely accepted as a solution – indeed a means to get stuff done quickly and effectively."

ipadcto.com



Mobile application lifecycle

The mobile App development process:

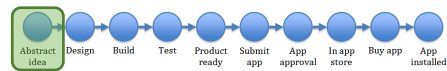


- First part occurs in all projects
- Second part is store specific
 - Incorporates extra requirements

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The beginning

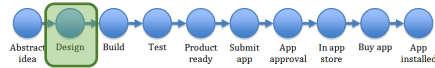


- All starts with an idea
- Followed by some research
 - Does it already exist
 - Will people like this
 - Which market group(s) to target
 - ...
- Then a decision to really start creating the App

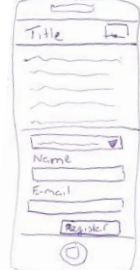
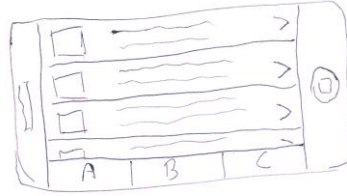


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Design



- Screen layouts
 - Portrait and landscape
- Screen flows
- Usability guidelines (store requirements)



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Build



- Functionality
- Specific coding standards
- Performance guidelines (store requirements)
- Mobile devices have:
 - Less memory
 - Limited processor capabilities
 - Smaller storage space

```
#import <UIKit/UIKit.h>
int main(int argc, char *argv[]) {
    NSAutoreleasePool * pool = [[NSAutoreleasePool alloc] init];
    int retVal = UIApplicationMain(argc, argv, nil, nil);
    [pool release];
    return retVal;
}
```

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Test



- Knowledge needed in different fields
 - Software testing
 - Telecom
 - Mobile OS/platform



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Test approach

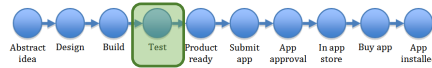


- Reviewing the design
 - Customer and store requirements
- Functional testing of the application
 - Core functionality as by design
 - End-to-end functionality
- User interface
 - Colour schemes; layout consistency
- Performance / stress
 - Low resources
 - Concurrency
- Usability
 - Ease of use

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Test approach



- Compatibility
 - Check if native device functionality works
 - HW/OS version compatibility
- Certification compliance
 - Several certification programs exist
 - True Brew Testing
 - Java Verified Program
 - Symbian Signed Test Criteria
- Submission guideline compliance
 - Different stores have different submission guidelines

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Minimal coverage



- Installation and uninstallation
- Network connectivity
 - Following offline profile
 - Using WLAN, 2G, 3G,...
 - Application performance during network connectivity problems
- Call / SMS / Alarm handling
- Performance
 - Application load time
 - During application usage
- Functionality specific test situations

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Specific test situations



- Incoming calls
- Incoming SMS
- Connection loss
- Orientation changing
- Shaking
- Touch screen
- Notifications
- Advertisements
- In App purchasing
- Energy usage
- Connecting / disconnecting charger
- Screen time out / lock screen



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Test execution



- Most phone providers provide a simulator
- Simulator used by the providers so:
 - Contains real phone functionality
 - Hooks for testability
- Also test on the real device!
 - Simulator might be outdated
 - Simulator might response different from the real thing

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Customer acceptance



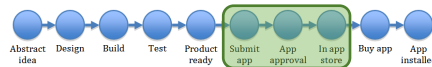
- Communicate changes
 - Store guidelines
 - Specific device requirements
- Check main flows through the App
 - On the actual device(s)
- Initiate end user acceptance



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App submission



- The binary containing the App
- Name
- Description
- Category
- Subcategory
- Copyright
- Rating
- Keywords
- Screenshots
- Support information
- Large App icon

Usability guidelines
Documentation guidelines
...

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App sales and usage



- Last step is marketing
- Get the App sold
- Make sure to keep in touch with the customers
 - Reviews of the App
 - Patches/fixes



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Summary

- Awareness of different fields needed:
 - Testing; Telecom; Mobile phones
- Test needs to think about more than the customer
 - End users
 - Store requirements
- Specific device test cases
- Simulators are of great help, but not the silver bullet

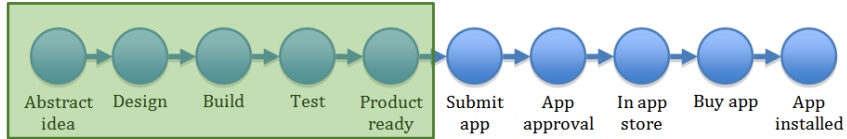


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Summary

- Test needs to be involved in all stages of the first part



- Test needs to incorporate all extra requirements of the second part
- Development is way ahead
 - Start the pursuit for quality

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Questions



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