Mobile Test Automation

and

The Survival Tips That Actually Work

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World is Agile!

- **Lines of Code** → Doubles every 2 years
- **Defects per Line of Code** → remains the same for the last 10 years

World is Mobile!

- **90% Data** today, produced in last 2 years.
- **20 billion** connected devices by 2020.

Many People LOVE Test Automation

86%
Have automation

11% | 12% (2015)
Don't have automation in their projects

4% | 2% (2015)
Don't know if they have automation

Source: QA Intelligence State of Testing Survey

All in All, Mobile is just the Context!

is **Context!**

is **Testing!**

Things you shouldn't forget in Mobile Test Automation

“Carry” Principle

Mobile Phone is always carried

“1 meter” Principle

Mobile Phone is always 1m away

“On” Principle

Mobile Phone is always turned on

“Privacy” Principle

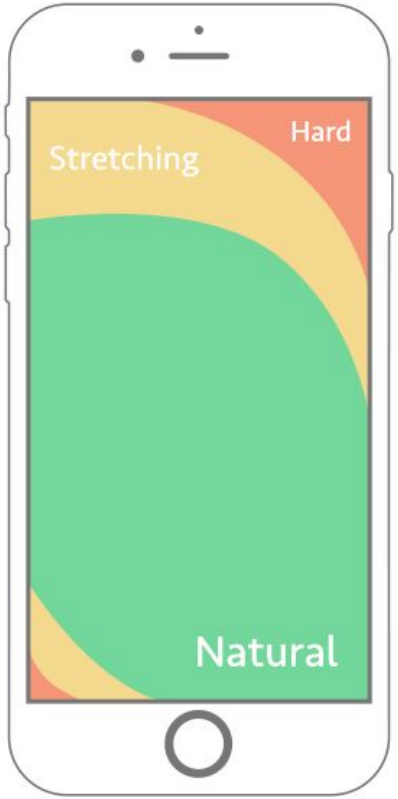
Mobile Phone is not given to anyone

- **50%** of users are **deleting** a Mobile App, for a **Single BUG**!
- **50%** of apps are downloaded and used **just once**!

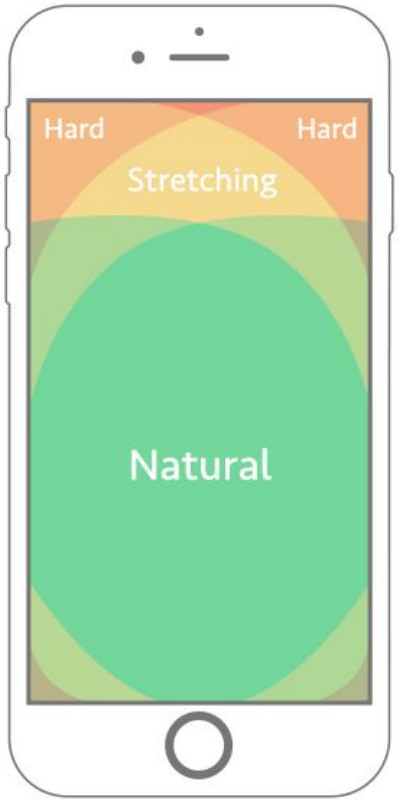
More than 14.000 Android Devices

- Up to **3 Primary Devices**
  (100% of the Test Suite)
- Up to **5 Secondary Devices**
  (20-40% of the Test Suite)
- Up to **10 Market Devices**
  (5-10% of the Test Suite)

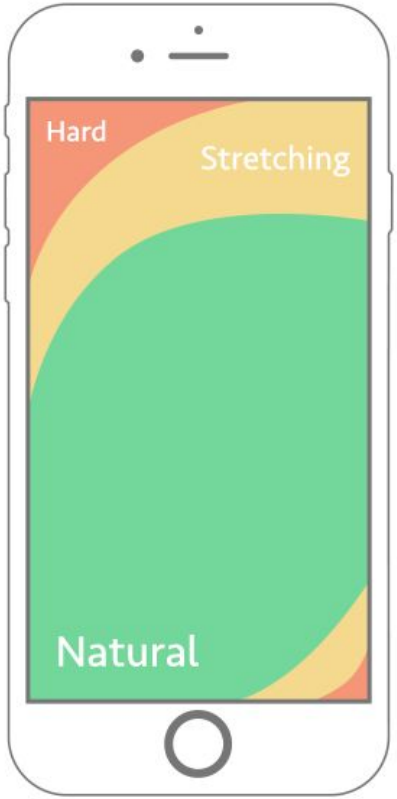
- one handed—49%
- cradled—36%
- two handed—15%



Left Hand



Combined



Right Hand

Fat Fingers .com

Gestures

Tap

Double tap

Rapidly touch surface twice with fingertip

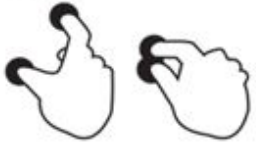
Drag

Move fingertip over surface without losing contact

Flick

Quickly brush surface with fingertip

Pinch



Touch surface with two fingers and bring them closer together

Spread

Touch surface with two fingers and move them apart

Press

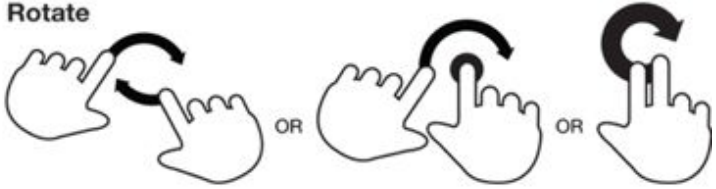
Touch surface for extended period of time

Press and tap

Press surface with one finger and briefly touch surface with second finger

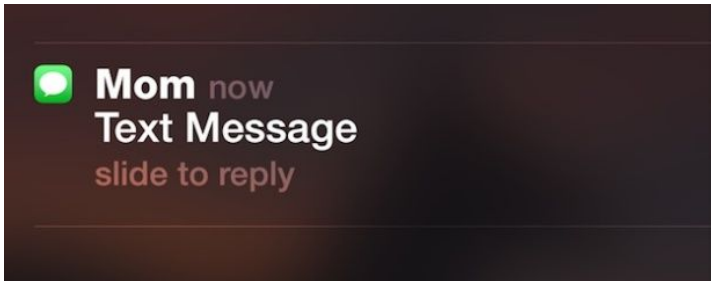
Press and drag

Rotate



Mobile Challenges ➡ Force Touch, 3D Touch should be also Tested!

Mobile Challenges ➡ Operator/Carrier Issues, Interruption Testing!



Heisenbug is a classification of an unusual software bug that disappears or alters its behavior when an attempt to isolate it is made.

Pinterest

By Pinterest

Open iTunes to buy and download apps.

View More by This Developer

View in iTunes

This app is designed for both iPhone and iPad

Free

Category: Social Networking
Updated: Feb 13, 2017
Version: 6.19

Description

Pinterest is the world's catalog of ideas. Find and save parenting hacks, style inspiration and other ideas to try!

Just some of the things you can do with Pinterest:

• Find everyday ideas you love—what to make for dinner, what to put on your walls, what to wear and more ideas for every part of your life.

• Save ideas for later—organize ideas you save by topic, so they're always easy to find.

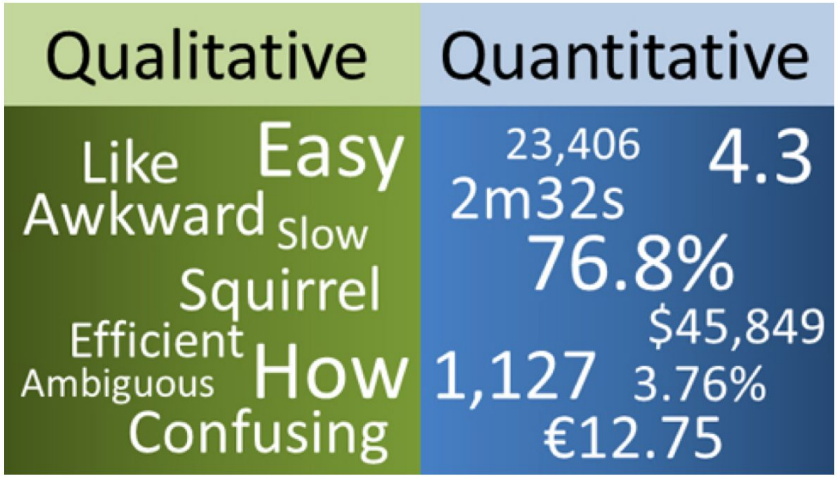
• Collaborate with friends—save ideas together for your next group trip, party or project.

• Search for an idea even if you don't know what it's called—built-in search guides help point your search in the right direction.

• Save ideas you find around the web—just use the Pinterest's Save button on your mobile browser.

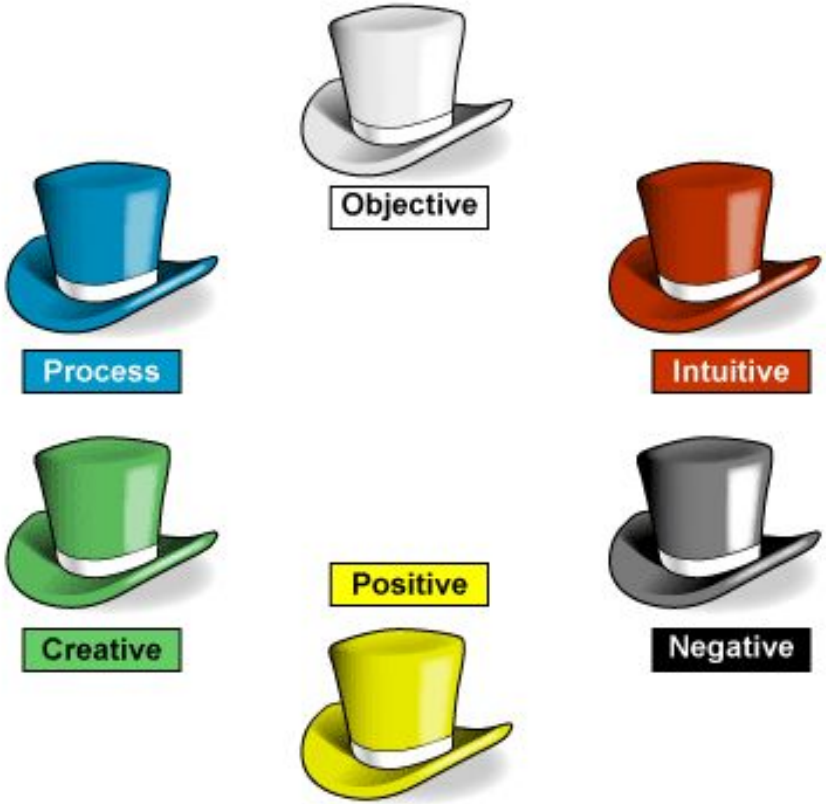
Pinterest Web Site ▸ Pinterest Support ▸

How Good is too Good!

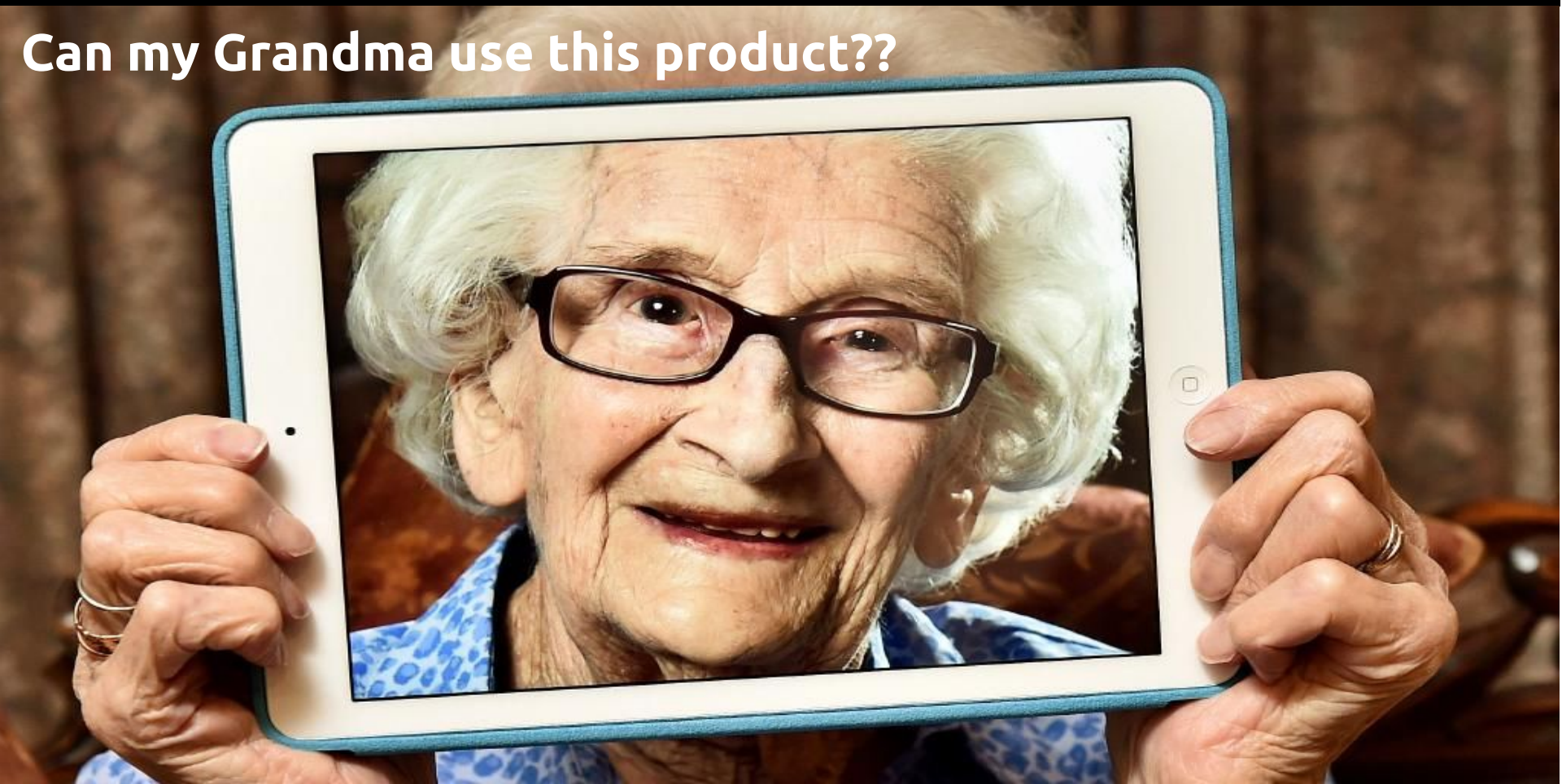


Subjective **Objective**

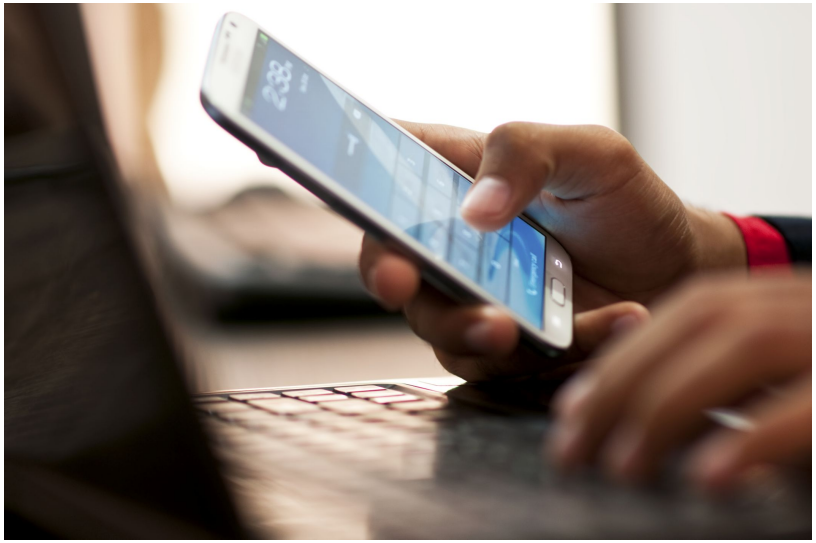
But still we know that numbers are also, Relative!!!


Objective
Process
Intuitive
Creative
Positive
Negative

Can my Grandma use this product??

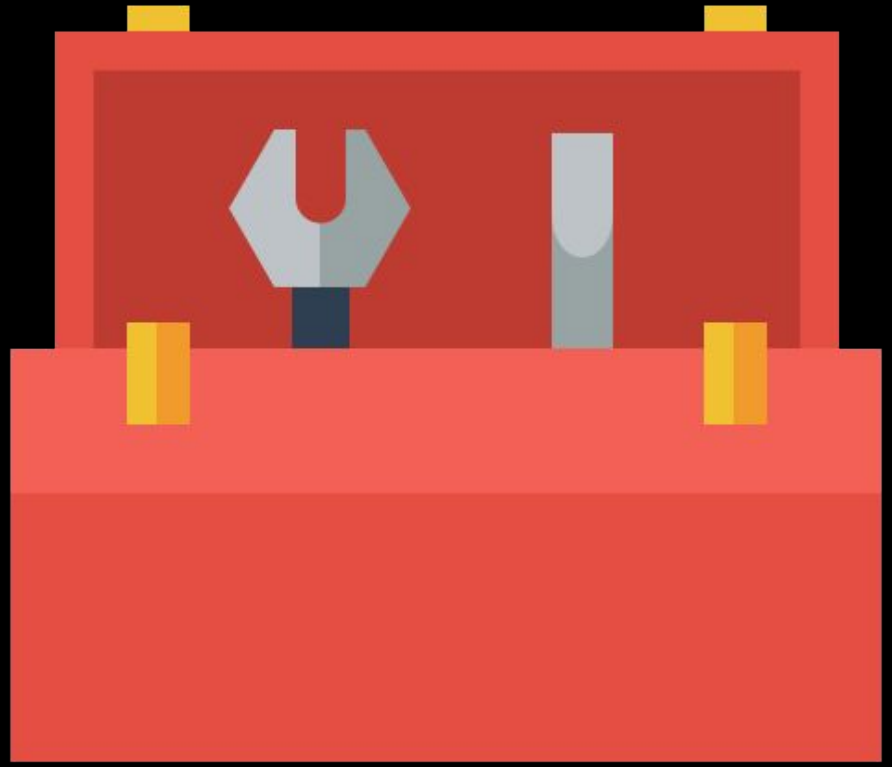


Mobile Challenges ➡ Usability Testing is on the rise!

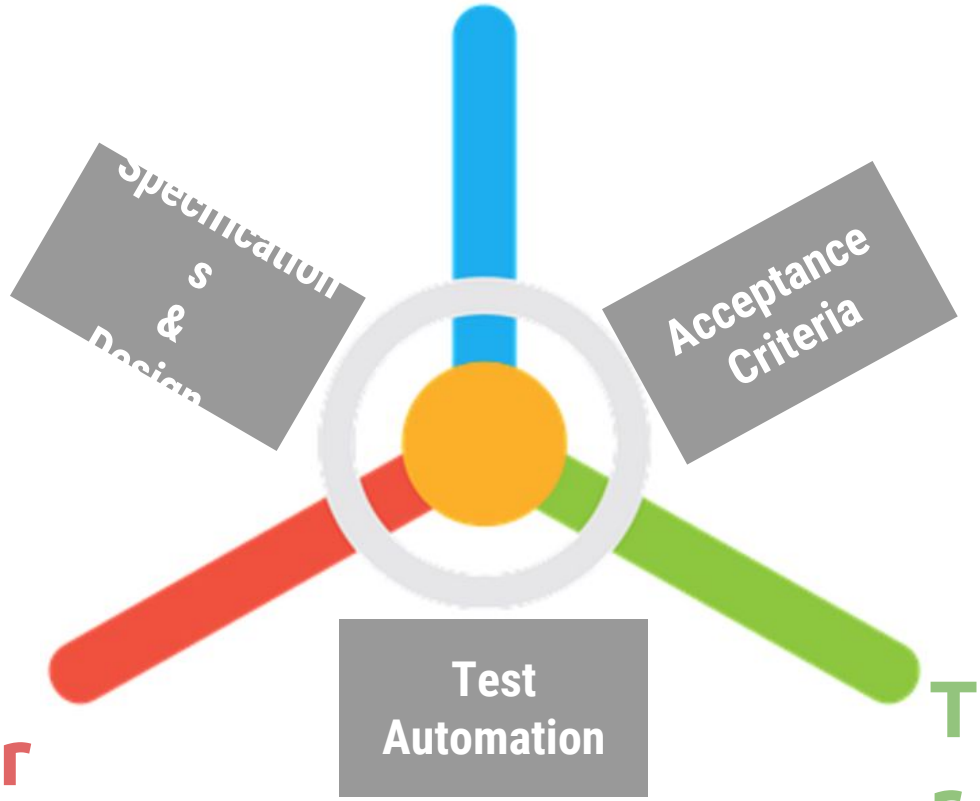


Testing on the Move...

Tips for Mobile Test Automation



Business Analyst



Developer

Teste
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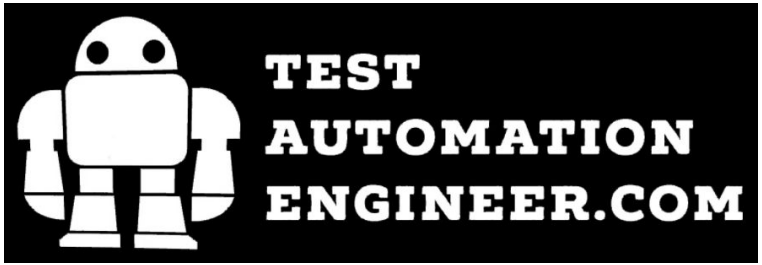
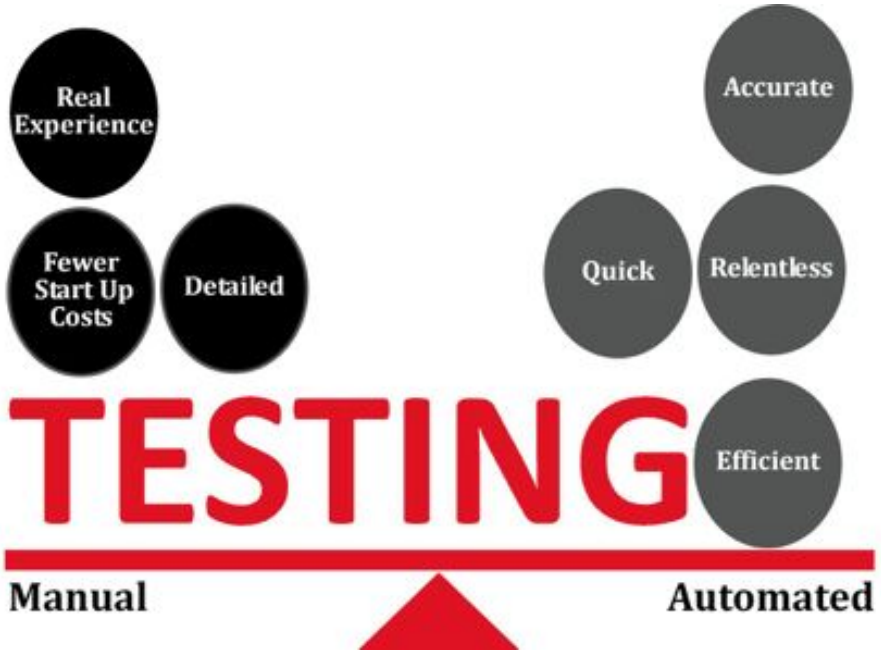
Test Automation Engineers are on the Rise!



- They are not Developers!
- They are not Testers! (I mean manual testers)
- They don’t want to call themselves Testers / Test Engineers
- They are not the most loyal employees! (I mean generally…)
- They get bored quite easily
- They rarely accept criticism
- They are not the best diplomats
- They like generating jargons
- They like over-complicated solutions more than the simple ones

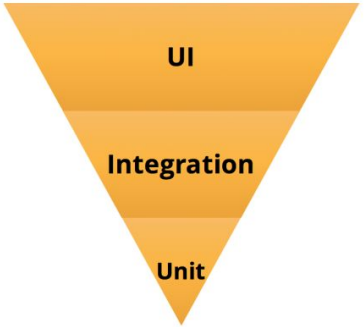
Be Careful about Test Automation Decision!

1. Bug Detection vs. Confidence Building
   (**Purpose**)
2. Test Execution Period
   (**ROI**)
3. Test Execution Time
   (**Cost**)
4. Maturity of the Test Object or the Test Code
   (**Maintenance Effort**)
5. Real User Feedback
   (**User Experience/Observation**)
6. Technical Skills & Technologies Used
   (**Test Automation & SW Development**)



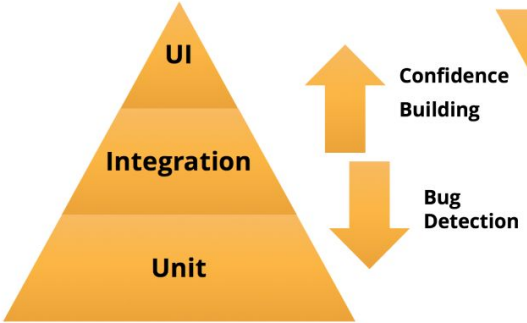
Traditional Testing

[Finding Bugs]



Agile Testing

[Preventing Bugs]

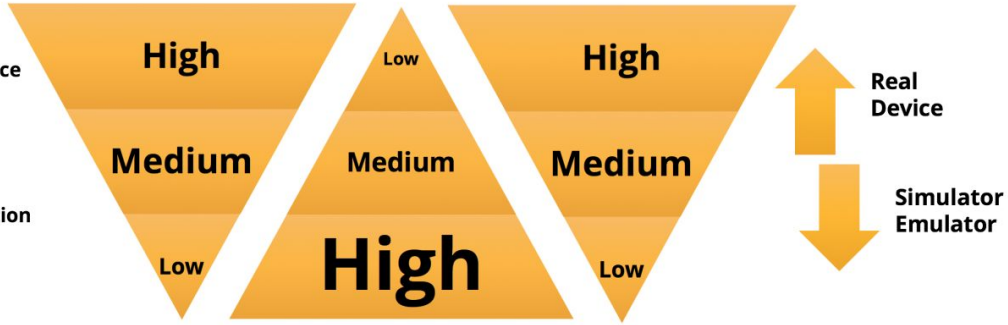


Business Logic Coverage

Code Coverage

Execution Time

Maintenance Cost



Manual

Automated

WHAT WE HAVE LEARNT WRONG!

MISPERCEPTIONS

Everything should be automated

Test Automation is always better than *or* should replace Manual Testing

Quality is always Quantitative

Test Automation is Software Development

Test Efforts will immediately drop

Tools are not good and we need to buy many mobile devices

MISPERCEPTIONS

WHAT WE HAVE LEARNT SO FAR...

COMMON SENSE

Data-Driven, Keyword-Driven, Model-Based; All is done for maintainability

There is a limit for test automation, even with the most maintainable test code

More automated test cases does not mean you are better testing

Separation of the test code and page specific code (e.g. locators)

Running the test code in parallel & in isolation (e.g. Selenium Grid, Docker)

There is no one way of writing test code, even for the most basic stuff.

COMMON SENSE

WHAT WILL WE SPEAK ON...

FUTURE

Test Code Quality Matters

- **Code Size (lines of code, LOC) (Less)**
- **Repeated Code (Low)**
- **Cyclomatic Complexity (Low)**
- **Call to Page Objects, Assertions (More)**
- **Locators, Static Wait Calls (Accurate, Less)**
- **Comment Frequency (Easy to Read/Analyze) (More)**
- **Number of Function Calls (Less)**
- **Number of Nested Levels (Decisions) (Less)**
- **Number of Conditions (Less)**
- **Level of Indentation (code blocks) (Accurate)**
- **Coupling (Low) (Degree of modules rely on each other during execution)**
- **Cohesion (High) (Degree of which a module is focused on single task)**

SMART CRITERIA for Better Test Automation!

Small *Maintainable* *Analyzable* *Rapid* *Timely*

Select your Tools Wisely!

TestObject
Test more. Worry less.

appium

Ranorex

experitest

cucumber

MONKEY TALK

obile Checker by W3C

appsee

FitNesse

hp

perfecto mobile
The MobileCloud Company

MOB4HIRE

sikuli script

TestComplete by SMARTBEAR

TEST STUDIO

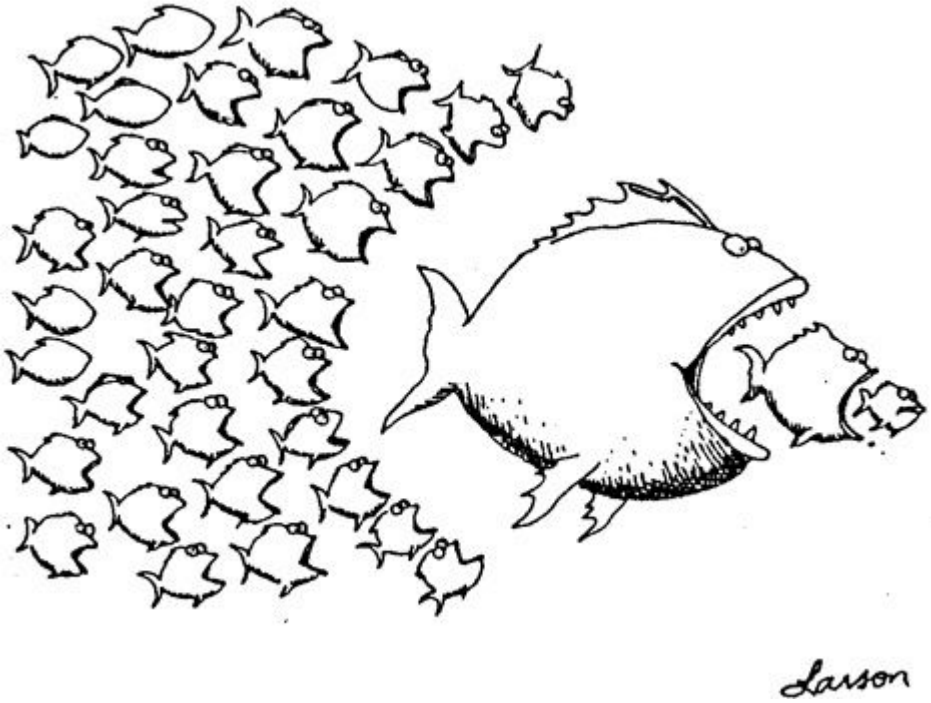
jamo solutions

APPLAUSE WINNING APPS GET IT

eggPlant built by TestPlant

Quality (Test Budget) not always flow from top…

You should know When to spend it, When to save it and, How to ask for it!



Aristotle

Final Takeaways...

- On a routine manner, review people's test code.
- On a routine manner, ask people to review your test code.
- Learn Software Testing Concepts.
- Collaborate with Testers in your department.
- Do not automate to show-off.
- Try to use widespread technologies and solutions.
- Base your test code on **SOLID / GOOD** test design
- Learn how to configure mobile devices & how they behave.
- Capture their characteristics & differentialities.
- Try to understand the app store & the ecosystem.

Thanks for listening...