Analytics: the spice to automation testing
Presented by Antoine Aymer
Redefining our target

- Functional suitability
- Reliability
- Maintainability
- Compatibility
- Localization
- Accessibility
- Usability
- Performance
- Portability
- Security
The emergence of user experience

Ensure end-user satisfaction
- 2018: 5.85
- 2017: 5.00
- 2016: 4.84

Increase the quality of software or product
- 2018: 5.81
- 2017: 5.09
- 2016: 4.94

Detect software defects before go-live
- 2018: 5.81
- 2017: 5.03
- 2016: 4.67

Contribute to business growth and business outcomes
- 2018: 5.79
- 2017: 5.01
- 2016: 4.67

Increase quality awareness among all disciplines
- 2018: 5.73
- 2017: 4.93
- 2016: 4.52

Implement quality checks early in the lifecycle
- 2018: 5.70
- 2017: 4.97
- 2016: 4.76

Reduce the overall Application cycle times by reducing waste
- 2018: 5.56
- 2017: 4.92
- 2016: 4.49

Protect the corporate image and branding
- 2018: 5.53
- 2017: 4.98
- 2016: 4.63

How much of our testing is on target?
Every business is impacted

Virginia's online voter registration system crashed
October 17th 2016

“We understand the frustration experienced by voters and we apologize the system was unable to handle the overwhelming demand from voters.”

Glastonbury Festival website crashed
October 9th 2016

Delta’s catastrophic systems outage
August 8th 2016

“I apologize for the challenges this has created for you with your travel experience.”

Delta CEO Ed Bastian
How to adjust our testing

Precision: repeatability

Accuracy: on target

https://en.wikipedia.org/wiki/Accuracy_and_precision
Know your users

Custom drink feature removed[1]

=> 1 star feedback ratings

Parallel Kingdom[2]

Regular users generate 2.5x daily revenues

Logos © respective owners

[1] example from App Quality book
[2] example from Tale of Two Apps
## Ways to collect data

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<th>What</th>
<th>Technique</th>
<th>Tool(s)</th>
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<td>Device details</td>
<td>Research, App Store, Mobile Analytics</td>
<td>API calls, published</td>
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<td>GUI elements and layout</td>
<td>Static Analysis, Dynamic Analysis</td>
<td>Code Quality utilities, Test Automation Tools</td>
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<td>Run-time environment</td>
<td>Queries, Mobile Analytics</td>
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<td>Run-time behaviours</td>
<td>Instrumentation, Logging, Mobile Analytics</td>
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<td>Network traffic</td>
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<td>Test results</td>
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<td>App Store Data</td>
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<td>In-app analytics</td>
<td>Integration of Mobile Analytics Library</td>
<td>Development tools</td>
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Feedback cycle
Topology for in-app analytics

Mobile Apps sending Analytics data → Data Collector → Database

Filter(s)

Overview of Mobile Analytics
Each step may be delayed

Analytics WebServer
8 Heatmap Tests that reveal visitor behavior

1. **The Link Test** – Are visitors clicking on dead ends?
2. **The Distraction Test** – Are irrelevant elements distracting visitors?
3. **The Information Test** – Is there missing information from your page?
4. **The Device Test** – Does your page work on different screen sizes?
5. **The Depth Test** – Is all your content easily reachable?
6. **The Engagement Test** – What are your site visitors really looking for?
7. **The Fold Test** – Does your page have what it takes to keep your visitors?
8. **The Header Test** – Is your page header helping or hurting your site?

Source: https://www.hotjar.com/heatmaps
Why do reviews matter?

Reviews affect the app ranking and the app store conversion. They are also critical for Search Engine Optimization.

Reviews have multiple dimensions which can be used to help measure the user experience.

Turn users’ input into innovation
Incorporating reviews into devtest

- Actionable or to be archived?
- Map reviews with features (or user stories)
- Gather more information (via app stores)
- Score and reprioritize features
- Perform testing (based on reviews)
- Perform testing (based on reviews)

Scoping the boundaries
Creating test ideas
Making it real

<table>
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<th>Devices With Issues</th>
<th>Devices Without Issues</th>
<th>Devices Tested</th>
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<td>7</td>
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User Conference on Advanced Automated Testing
Test Recommendation Engine

Events

Mobile Analytics

Test Recommendation Engine

Body of known tests

Select tests and determine execution-order of these tests
Getting involved

Design events to gather data to validate ideas, assumptions & verify quality-in-use

Review and assess the results of our work. Also use the results to design tests for the current and future releases.

Feedback cycles between testing and mobile analytics for the app
The dark side

75% of battery consumed by non-core features

30% of battery used when screen is off

Emotions: the missing ingredients