

Testnet thema-avond

Workshop mobile app testing



Content

- Introduction
- Assignments
- Groups, teams and roles
- First tour - Hello, world of mobile apps
- Theory to test mobile apps
- Second tour - Explore within a perspective
- Summary and conclusion

Time schedule

Nr.	Part	Time (min.)
1	Introduction	5
2	Assignments and examples	10
3	Groups, teams and roles	5
4	First tour - Hello world of mobile apps	15
5	Theory to test mobile apps	20
6	Second tour - Explore within a perspective	30
7	Summary and conclusion	5
		90 minutes (without break)

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Introduction

- Link with the first presentation
- Setup of the evening
- Goal of our workshop
- Who are we?

Who are we?



Raymond Nankoe



Antoin Boerboom



Marc van 't Veer



Ruud Teunissen



Kees Blokland



Marco van Harn



Julian Baars



Jesse Huisman

Main goal

- To be able to setup a test/experiment for a mobile app that gives insight in the quality
- Getting insight in the choices which have to be made to test within a short time frame in the complex, dynamic and diverse mobile environment in which the app has to function (right focus based on risks)

Secondary goals

- **Experience** how to test an app
 - **Experience** how to test an app from a different perspective
 - **Experience** that its about other perspective then functionality
 - **Experience** the test cycle for a mobile app
 - **Experience** specific test types for mobile apps
 - **Experience** that mobile app testing is complex and extra training helps
 - **Experience** how a mobile app testing phase can be coordinated
-
- Recognizing mobile app risks
 - Being able to translate risks to test cases
 - Understand which requirements for a test approach

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Assignments

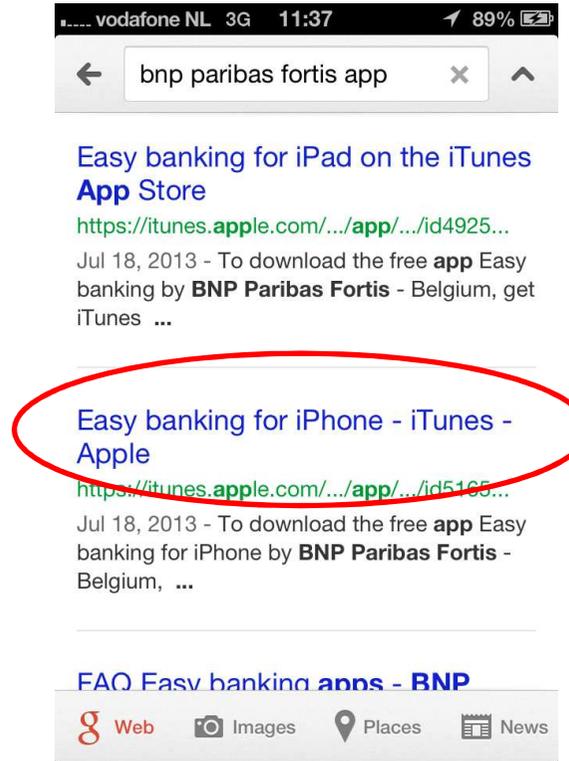
- Pre-conditions
 - Time box (stopwatch on beamer)
- Assignments
 - First tour - Hello, world of mobile apps
 - Second tour - Explore within a perspective
- First a few examples
 - BNP Paribas
 - e-Book from a public library

Example – Easy banking BNP Paribas Fortis

- Apps are linked to countries



Example – Easy banking BNP Paribas Fortis



Example – Easy banking BNP Paribas Fortis

Accountinformatie

 Veilig

Apple ID-overzicht

Apple ID:	marc@niobe.nl	Bewerk >
Betaalgegevens:	MasterCard **** * 7124	Bewerk >
Rekeningadres:	dhr. Christian Marc van 't Veer De Genestetstraat 25 2612 RL Delft (015) 2140473	Bewerk >
Land/regio:	Nederland	Wijzig land of regio >
Computerautorisaties:	4 computers zijn geautoriseerd om artikelen af te spelen met deze Apple ID.	Trek alle machtigingen in

Example – ebook app of the public library

The image displays two views of the 'de Bibliotheek' website. The background shows the desktop website with a navigation bar containing 'HOME', 'ZOEKEN', 'E-BOOKS', 'MUZIEK', 'JEUGD EN JONGEREN', 'LITERATUUR', 'THEMA', and 'OVER'. The main content area is titled 'E-books lezen bij de Bibliotheek' and provides information on how to access e-books via different devices: tablets/smartphones, e-readers, and laptops/computers. It includes links for account creation, introductory videos, and guides.

The foreground shows a mobile app interface for 'e-books' with the 'de Bibliotheek' logo. The primary function is 'Inloggen' (Login), which prompts the user to enter their email address or library number. Below the login field are buttons for 'Inloggen' and 'Annuleren'. There are also links for 'Registreren?' and 'Help?'. A secondary login option for social media accounts is partially visible at the bottom.

Rent and read eBooks the way
you want in the form you want it

Example – eBook app of the public library

- Account procedure of 6 steps (via a website), to read in an app
- Password difference between my library and the eBook account
- Selected e-books don't show up in the app
- Synchronizing app with website via a restart of the app
- Different file format for app, e-reader and online
- Unclear what you should do to use the e-reader (pdf format)
- A book can only be downloaded once (also when it doesn't show up)

- Extra info about eBooks problems
 - <http://dcr.bibliotheek.nl/binaries/content/assets/bibliotheek.nl/handleidingen-e-books-ssp/april-2014/handleiding-e-books-lezen-via-de-app-.pdf>
 - <http://thebookonista.com/index.php/2014/01/ebooks-lenen/>
 - <http://rsnijders.info/vakblog/tag/ebooks/page/2/>

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Groups, teams and roles

- Forming group and teams:
 - Multiple group of 15 participants
 - Each group has a different colored card
 - Within the group make teams of 3 (see number on card)
- Roles
 1. Observer: what does the interaction look like, outstanding observations
 2. Guide: provide guidance to the tester
 3. Tester: performer, monkey, end-user
- Facilitators
 - There are multiple facilitators available

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Yahoo Weather – Apple design award 2013

- “This mobile app offers beautiful photos to match the user’s location, time of the day, and the current weather conditions. It also includes an interactive radar, satellite, heat, and wind maps, along with sunrise and sunset”
- Characteristics
 - Feels it knows the local weather
 - Local pictures (even adding it your self)
 - Animation
 - Extended weather forecast
 - Many weather details (UV-index, maps, sunrise/sunset)

First tour - Context

- Starting next week you get 2 weeks to test a new mobile app
- You don't know the app
- You haven't seen any specifications, the usage of the app is your specification
- You don't know if there are any specifications
- The mobile app is build by an external supplier
- There is no plan
- The assignment: "Test the app and let me know the quality"

First tour - Hello, world of mobile apps

- Application Under Test (AUT)
 - Yahoo Weather app
 - Website: <http://weather.yahoo.com>
- Assignment
 - Available time: 15 min.
 - Divide roles (observer, guide, tester)
 - How would you test this app?
- Results
 - Get to know the app
 - Search for differences between the app and website

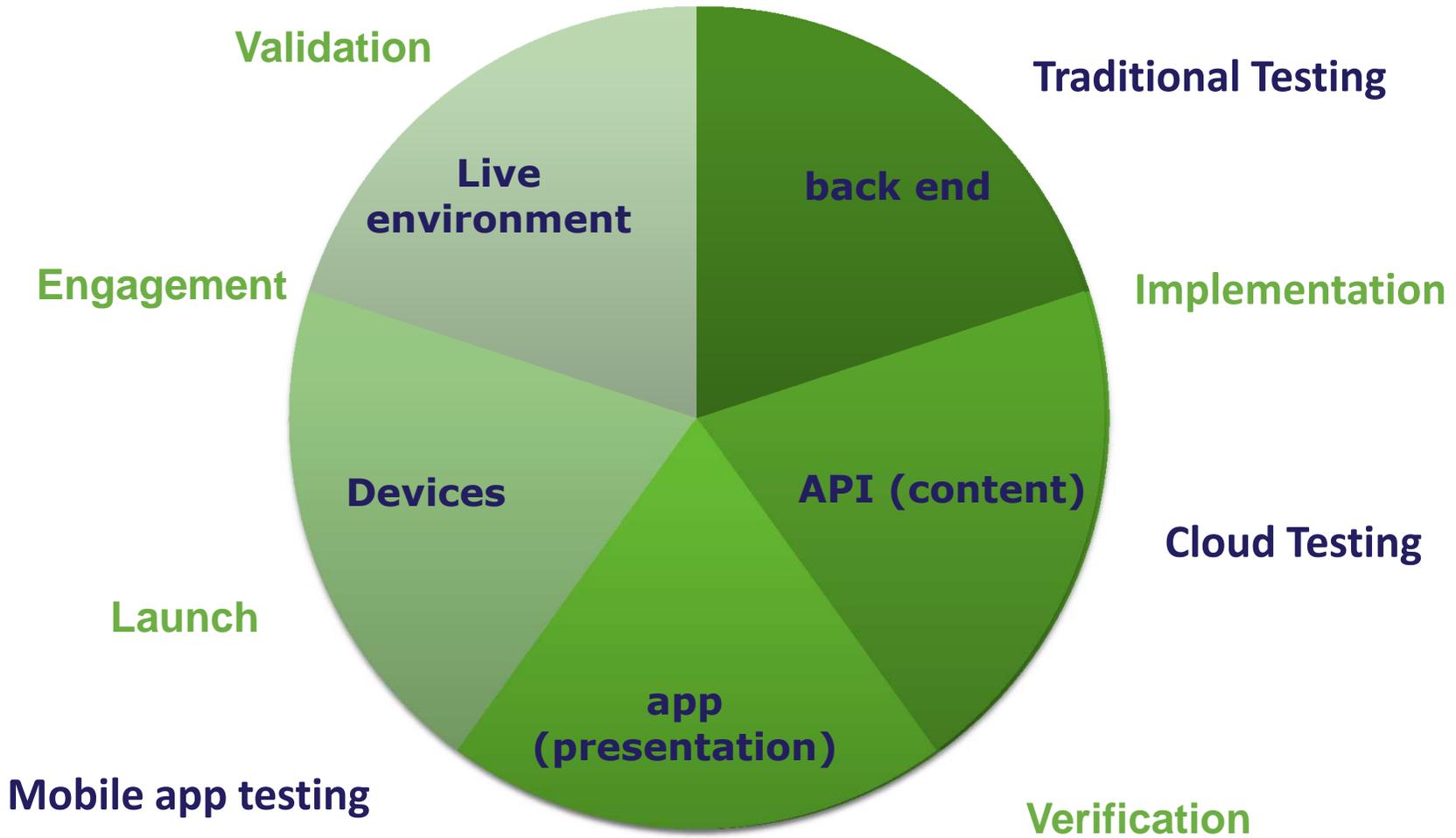
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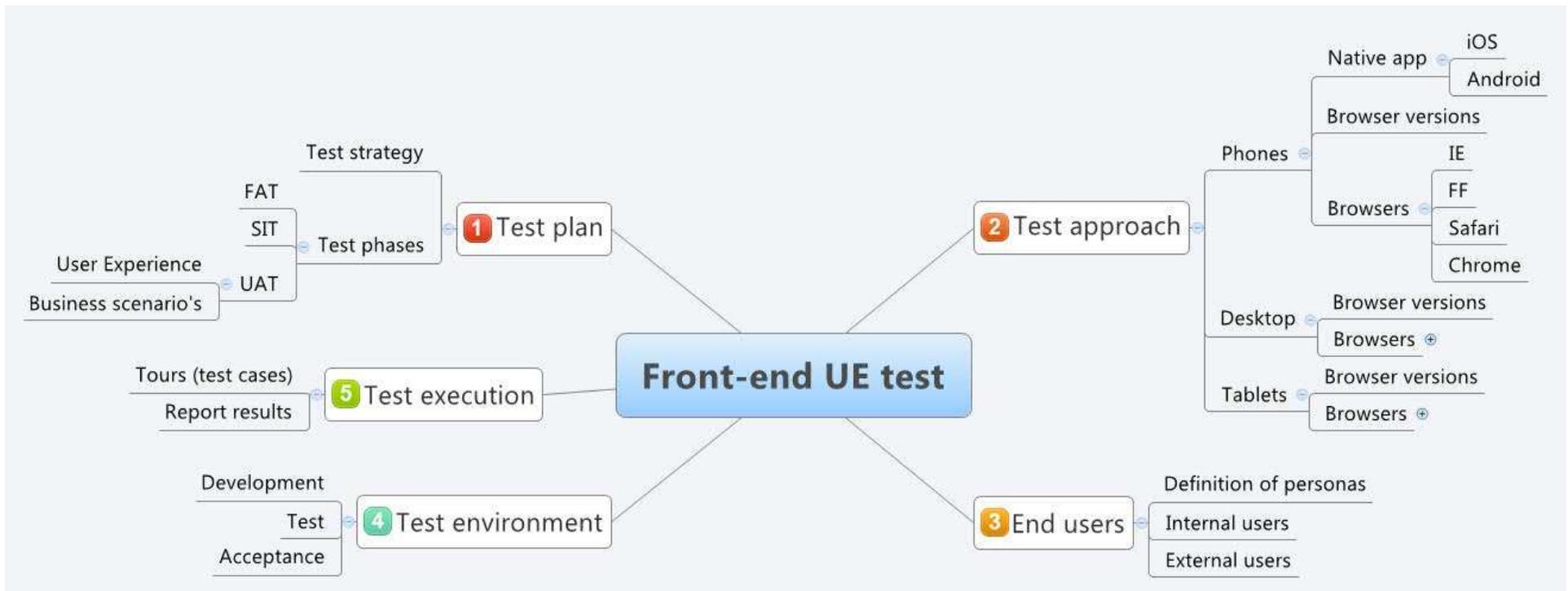


The world of mobile apps

Testing in Production



Mobile app testing overview



Mobile app strategy

- Goal is to have a strategy that validates whether the app can perform on the defined platforms and have a minimum of crashes (robust) in the fragmented and dynamic mobile world
- Enablers
- Risks

Mobile app strategy – Enablers

- Make the app testable
 - Have an unit test framework
 - Test interactive
 - Test automated
 - Has a continues improvement cycle
-
- Easy to say, hard to do
 - Testability is a big topic / research specialism
 - Introduce a unit test framework is changing development process
 - Interactive means change the way you test and where you test (with physical/simulation/RDA devices)
 - Introduce test automation is a big project on its own



Test approach



Simulators



Real devices



BYOD



Emulators



Device Anywhere



Crowd sourcing

Mobile apps risks

- Apps only live 60 days on a device because the “first impression” is not a big success moment
 - *End user* (don't search for it, no added value, can't find it, can't install it, don't know how to use it, can't give feedback)
 - *Distribution* (not accepted in the app store)
 - *Test environment* (no actual devices in actual user conditions)
 - *Strategy* (wrong target group with different usages)
- A tester should **confirm** whether “it works”, “it functions as expected” and if “it meets the needs of your users” so that **users come back again and again**

Tester's knowledge - general

- Web/front-end testing
- E2E / integration / API testing (cloud services)
- Domain knowledge
- Exploratory testing
- User Acceptance / User eXperience / beta testing
- Testing in production
- Usability / non-functional testing
- Helpdesk / customer service
- Agile testing (in combination with waterfall)
- Security testing
- Load, stress, and performance testing
- Automated testing

Tester's knowledge - mobile app

- Knowing your device
 - Capabilities of a device (what is possible?)
 - Master all the input options (touch screen, sensors,..)
 - Look at the device guidelines and reviews
 - Explore (many) physical devices
- Knowing the (type of) app that is going to be tested
 - Install variants of an app and try it out
 - Explore an app in real environment conditions
- Knowing the mobile app domain

Perspectives - I SLICED UP FUN

- Input
- Store submission
- Location services
- Interruptions
- Communication
- Ergonomic
- Data
- Usability
- Platform
- Function
- User Scenario's
- Network conditions



[Click here](#) to see the I SLICED UP
FUN workout of Jonathan Kohl

Example of the perspectives

- **Location services**

The way the device can determine its location. This can be a single technology like GPS, Wi-Fi routers, cell towers but also a blend of this.

- **Interruptions**

How is the app handling all kinds of interruptions, like error messages, low battery, loss of signal, calendar event reminders, system notifications, messages from other apps.

- **Network conditions**

Mobile apps don't have a constant, reliable, consistent and fast web connection. Move fast and slow in different directions, switch between cellular and Wi-Fi, move between high buildings, use different providers, watch for dead spots.

Perspectives overview

Time	Test level	Perspectives											
		Input	Store submission	Location services	Interruptions	Communication	Ergonomic	Data	Usability	Platform	Function	User Scenario's	Network conditions
Upfront tests	Supplier Development Test		+							+	+++	++	
Upfront tests	System Integration Test	+			+			+++			++	++	+
Upfront tests	End User Experience Test	+	+	+	+	+	+	+	+++	++	+	++	+
Upfront tests	User Acceptance Test		+	+		+		+	+	++	+	+++	
Upfront tests	Production Acceptance Test									+++			
Installation													
In production tests	Production Test	+	++								++	++	+

What does a plus or more plusses mean? (1 or more methods)

Tours

- Test cases
 - A tour is a specific type of exploratory testing
 - The tour takes a predefined time (session based)
 - In other words a tour is a plan of attack.
 - The combination of the number of perspectives and tours on the different test levels determines the test coverage and depth of testing.
- Example tours
 - Type of user (for example a senior, a student, a mother and a technophobe),
 - Consistency tour (evaluate within app pages and with platform guidelines) and the feature tour (functionality).



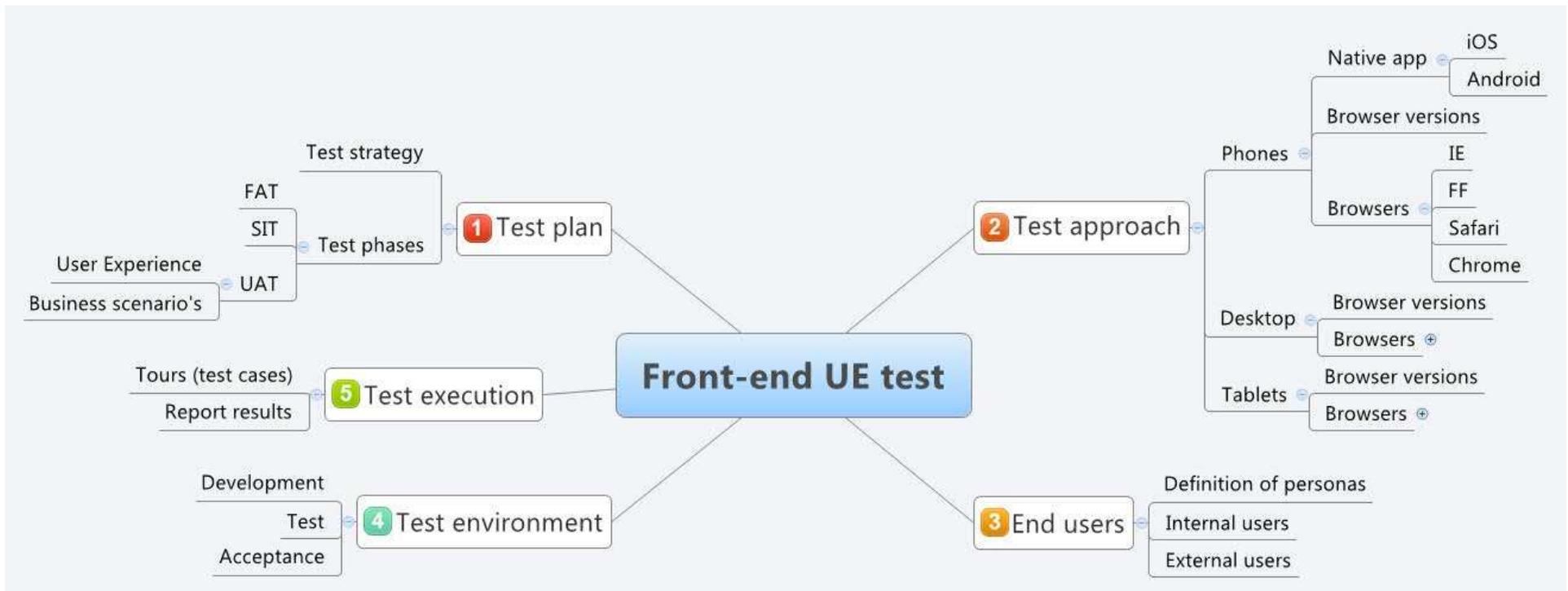
Tour template

- What?
 - Describe the scope of the test tour. What will be tested and what not?
- How?
 - Describe how the test will be executed. Define risks if foreseen.
- Evaluation question for the purpose of the tour
- Background information
 - Track and trace
- Conditions
- Points of interest?
- What to look for?

Tour versus Perspective

	Accessible	Accessories	Connectivity	Gesture	Low battery	Multi-screen
Tour						
Perspective						
Input		X		X		
Store submission						
Location services						
Interruptions						
Communication						
Ergonomic						
Data						X
Usability	X					X
Platform					X	
Function				X	X	
User Scenario's			X		X	X
Network conditions			X		X	

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Second tour - Explore within a perspective

- Application Under Test (AUT)
 - Yahoo Weather app
 - Website: <http://weather.yahoo.com>
- Assignment
 - Available time: 2 x 15 min.
 - Test from a perspective (I SLICED UP FUN)
 - Read the tour and perspective definition
 - Use the tour example, perspective and tour definitions to execute, discuss and repeat the tour with the roles
- Results
 - Get to know the app
 - Search for differences between the app and website



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Summary and conclusion

- What have we done this evening, how far have we gotten
- If you would like to learn more about mobile app testing...

Mobile app testing



Polteq supports its customers:

- with executing and managing test projects
- with implementation and optimization of test processes
- with practical training and certification courses

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