SWEN90016

Software Processes & Project Management

Quality

Plan, Assurance, Control/ Monitor

2022 – Semester 1

Tutorial Week 9

1. Testing in Agile

2. Testing in formal - checklists for your team

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What is the role of QA in Agile?

a. After development there is separate testing done by the Agile team

b. As there is fast development cycles there is no time for testing

c. Agile aims to adapt to changes quickly & minimize testing time

d. Testing is always done during each sprint

e. Must use Continuous Integration tools between development and testing automate testing

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The User Story describes the requirement …
The Acceptance Criteria provides the definition …
*of when that User Story is **done.***

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Every new feature is tested during the sprint.

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Testers & developers work closely together. Testing is done by the whole team.

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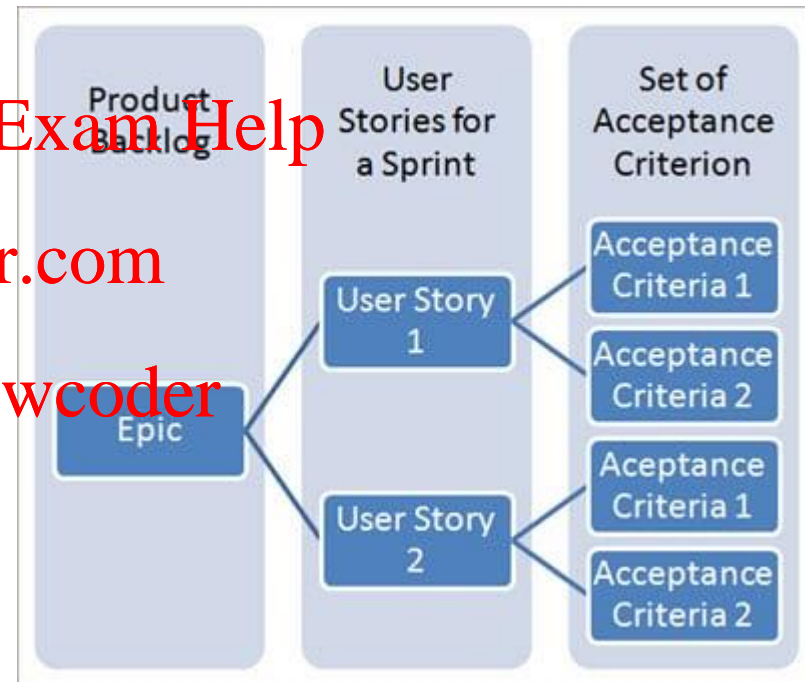Every sprint has its own User Acceptance testing phase.

Sprint Review

A small piece of working software is delivered to the client at the end of the sprint.

Client does User Acceptance test.

User Story: As a Customer… I want to be able to split my payments… So I can pay using multiple debit cards.

Create Acceptance Criteria for these scenarios:
- *User selects 'split payment' on the payment page*
- *User chooses different types of payment options*
- *User specifies the amount they want split to each option*
- *Automatically calculate the total amount paid by the split payments is the correct total payment*

Create 3 Acceptance Criteria for this User Story

https://www.softwaretestinghelp.com/user-story-acceptance-criteria/

SWEN90009 & BDD advice: **Acceptance Criteria** use this text format:
Given[condition], **When** [something happens], **Then** [result]

Examples:

- *Given a User wants to pay, when they click the 'split payment' button on the payment page, then multiple payment card options are displayed.*

- *Given a User wants to split a payment, when they select multiple payment card options, then the selected cards allow an amount to be specified.*

- *Given a User wants to confirm a split payment, when they specify the amount for each card, then the payments page verify if total payment is correct amount*

- *Given a User wants to receipt a split payment, when the payments page processes each payment card successfully, then the user knows payment is done*

https://www.softwaretestinghelp.com/user-story-acceptance-criteria/

Another example

User story: As a user, I want to be able to recover the password to my account, so that I will be able to access my account in case I forgot the password.

Scenario: Forgot password

Given: The user has navigated to the login page

When: The user selected *forgot password* option

    And: Entered a valid email to receive a link for password recovery

Then: The system sent the link to the entered email

Given: The user received the link via the email

When: The user navigated through the link received in the email

Then: The system enables the user to set a new password

https://www.softwaretestinghelp.com/user-story-acceptance-criteria/

Agile QA desk-audit hurdle:

Invite multi skilled audience to desk audit: a business analyst, another developer and a tester

Review the code at the developer's desk, before the code is allowed to be committed into the shared *git* repository, GITHub.

Once the code is committed into GITHub, it's test suite is run immediately by the Continuous Integration tool

CI tool displays run code's pass/fail status

Sprint Review QA evaluation:

- Build small piece of working software with minimal features

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- Showcase the product chunk to the stakeholders **early**

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- Fail **fast** and as cheaply as possible, & get timely feedback

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- Capture the *technical debt item* in the Product Backlog, (optionally in FDD format: <action>, <result>)

  FDD: Estimate (a verb) the final payment amount (an object)

- The Product Owner sets the priority of the *technical debt item*

What
Where
Who
When
Why

Write QA requirements as User Stories for the Product Backlog

As the Agile Scrum team:

a. *We want Quality Assurance guidelines, so that our Sprint has a strong Quality Management focus*

As a Quality Assurance **Design** team:

b. *We want to create a QA checklist, so that key categories and attributes are assessed at defined times*

As the System Administrator:

c. *I want a password policy guideline, so that our application has helpful processes*

I want a password policy checklist, so that our application is highly secure

Formal Approach

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A tool

Quality Attributes	Definition According to McCall et al.
Correctness	The extent to which a program satisfies its specifications and fulfils the user's mission objectives.
Reliability	The extent to which a program can be expected to perform its intended function with required precision.
Efficiency	The amount of computing resources and code required by a program to perform its function.
Integrity	The extent to which access to software or data by unauthorised persons can be controlled.
Usability	The effort required to learn, operate, prepare input, and interpret output of a program.
Maintainability	The effort required to locate and fix an error in an operational program.
Testability	The effort required to test a program to ensure that it performs its intended function.
Flexibility	The effort required to modify an operational program.
Portability	The effort required to transfer a program from hardware and/or software environment to another.
Reusability	The extent to which a program (or parts thereof) can be reused in other applications.
Interoperability	The effort required to couple one system with another.

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Checklist for software requirements specification artifact

Organisation and Completeness

- [ ] Are all internal cross-references to other requirements correct?
- [ ] Are all requirements written at a consistent and appropriate level of detail?
- [ ] Do the requirements provide an adequate basis for design?
- [ ] Is the implementation priority of each requirement included?
- [ ] Are all external hardware, software, and communication interfaces defined?
- [ ] Have algorithms intrinsic to the functional requirements been defined?
- [ ] Do the requirements define all of the known customer or system needs?
- [ ] Is the expected behaviour documented for all anticipated error conditions?

Correctness

- [ ] Do any requirements conflict with or duplicate other requirements?
- [ ] Is each requirement written in clear, concise, unambiguous language?
- [ ] Is each requirement verifiable by testing, demonstration, review, or analysis?
- [ ] Is each requirement in scope for the project?
- [ ] Is each requirement free from content and grammatical errors?
- [ ] Is any necessary information missing from a requirement? If so, is it identified as "to be decided"?
- [ ] Can all of the requirements be implemented within known constraints?
- [ ] Are any specified error messages unique and meaningful?

Quality Attributes

- [ ] Are all performance objectives properly specified?
- [ ] Are all security and safety considerations properly specified?
- [ ] Are other pertinent quality attribute goals explicitly documented and quantified, with the acceptable tradeoffs specified?

Traceability

- [ ] Is each requirement uniquely and correctly identified?
- [ ] Is each software functional requirement traceable to a higher-level requirement (e.g., system require-

A tool

Sample tool for controlling bug fixing, during PM maintenance phase

Sample Spreadsheet

Test feature ID	Feature title	Test scenario ID	Test scenario title	Severity	Automation status	Ste	Expected Result	Test Data	External ID	Component
TS_HealthCheck_001	A client should be able to login	TC_HealthCheck_001	Client can login successfully from desktop		Done					
		TC_HealthCheck_002	Client can login successfully from API		Done					
TS_HealthCheck_002	A client should be able to logout	TC_HealthCheck_003	Client can logout successfully		Done					
TS_HealthCheck_003	A partner should be able to login	TC_HealthCheck_004	Partner can login successfully from desktop		Done					
TS_HealthCheck_004	A partner should be able to logout	TC_HealthCheck_006	Partner can logout successfully		Done					
		TC_HealthCheck_007	Partner can access the client list		Done					
		TC_HealthCheck_008	Partner can access the todos		Done					
		TC_HealthCheck_009	Partner can access the goals		Done					
		TC_HealthCheck_010	Partner can access the eSignature		Done					
		TC_HealthCheck_011	Partner can access the uploaded documents		Done					
		TC_HealthCheck_012	Partner can access the fact finds		Done					
		TC_HealthCheck_013	Partner can access the tax		Done					
		TC_HealthCheck_014	Partner can access the onboarding		Done					
		TC_HealthCheck_015	Partner can access the rooms		Done					
		TC_HealthCheck_016	Partner can access the opportunities		Done					
		TC_HealthCheck_017	Partner can access the analytics		Done					

Quality process activities.

a. Design an appropriate formal quality checklist for the group assignment

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b. Describe the expected outcome of using this checklist?

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Done!
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