LTAT.05.003
Software Engineering

Lecture 01.3:
Homework Assignment 1

Dietmar Pfahl

email: dietmar.pfahl@ut.ee

Fall 2019
Lab 1 Assignment

Joostes Marss AS

Customer: Home Improvement International (HII)

POS System

To do:
- Interviews to identify roles and requirements (user stories)
- List of 20 functional user stories
- List of 10 non-functional user stories (5 performance & 5 usability)
A Requirement in NL

• The software should enable locking and unlocking of apartment doors.

Good / Bad requirement?
User Stories

As a tenant, I can unlock the doors to enter my apartment.

who - what - why

role (benefactor)
capability (action/means)
business-value (motivation/rationale/end)

• Similar to NL requirements, but focus on the user benefits, instead on system characteristics (alone).
• Unfortunately, third element (business-value) is often ommitted
• Preferred technique in agile methods.
‘Normal’ User Story

<Actor/Role> As an end user

... 

<Action> I want to narrow down people search results by location

... 

<Value> so I can find the right person more quickly

A good User Story is:

- Independent
- Negotiable
- Valuable
- Estimable
- Small
- Testable

INVEST
‘Normal’ User Story

<Actor/Role> As an end user

... 

<Action> I want to narrow down people search results by location

... 

<Value> so I can find the right person more quickly 

Acceptance test:

Given I am on the search screen
And 'Paula' is on the same indexed page with 'Tartu'
When I search for 'Paula'
Then I see 'Tartu' in the location section of the search results
‘Non-Functional’ User Story

<Actor/Role> As an end user
...

<Action> I want error messages be shown always at the same place of the screen
...

<Value> so I can easily detect them

A good User Story is:
- Independent
- Negotiable
- Valuable
- Estimable
- Small
- Testable

INVEST
‘Device’ or ‘System’ User Story

<Actor/System>  As a web crawler

... 

<Action>  I need a URL dictionary without duplicates or dead links

...

<Value>  so that the crawling process is faster

A good User Story is:

- Independent
- Negotiable
- Valuable
- Estimable
- Small
- Testable

INVEST
‘Technical’ User Story

<Actor/Role> N/A

<Action> Implement Smart Distance Algorithm for multi-paragraph web-pages

<Value> so that relevant and random connections between search entities could be distinguished

A good User Story is:
- Independent
- Negotiable
- Valuable
- Estimable
- Small
- Testable

INVEST
Improving agile requirements: the Quality User Story framework and tool

by

Garm Lucassen, Fabiano Dalpiaz, Jan Martijn E. M. van der Werf, and Sjaak Brinkkemper

in

Requirements Eng (2016) 21:383–403
DOI 10.1007/s00766-016-0250-x
Conceptual Model of User Stories

<Role>

<Action>

<Value>

<Role>

User Story

Epic

Format

Clarity

Quality

Dependency

Means

Subject

Action Verb

Direct Object

Indirect Object

Adjective

1

0..*

1

0..*

0..*

0..*

End

1

0..*

1

0..*

1..*

has
Quality User Story Framework
(13 Criteria – extending INVEST)
Quality User Story Framework (13 Criteria – extending INVEST)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
<th>Individual/set</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Syntactic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well-formed</td>
<td>A user story includes at least a role and a means</td>
<td>Individual</td>
</tr>
<tr>
<td>Atomic</td>
<td>A user story expresses a requirement for exactly one feature</td>
<td>Individual</td>
</tr>
<tr>
<td>Minimal</td>
<td>A user story contains nothing more than role, means, and ends</td>
<td>Individual</td>
</tr>
<tr>
<td><strong>Semantic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conceptually sound</td>
<td>The means expresses a feature and the ends expresses a rationale</td>
<td>Individual</td>
</tr>
<tr>
<td>Problem-oriented</td>
<td>A user story only specifies the problem, not the solution to it</td>
<td>Individual</td>
</tr>
<tr>
<td>Unambiguous</td>
<td>A user story avoids terms or abstractions that lead to multiple interpretations</td>
<td>Individual</td>
</tr>
<tr>
<td>Conflict-free</td>
<td>A user story should not be inconsistent with any other user story</td>
<td>Set</td>
</tr>
<tr>
<td><strong>Pragmatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full sentence</td>
<td>A user story is a well-formed full sentence</td>
<td>Individual</td>
</tr>
<tr>
<td>Estimatable</td>
<td>A story does not denote a coarse-grained requirement that is difficult to plan and prioritize</td>
<td>Individual</td>
</tr>
<tr>
<td>Unique</td>
<td>Every user story is unique, duplicates are avoided</td>
<td>Set</td>
</tr>
<tr>
<td>Uniform</td>
<td>All user stories in a specification employ the same template</td>
<td>Set</td>
</tr>
<tr>
<td>Independent</td>
<td>The user story is self-contained and has no inherent dependencies on other stories</td>
<td>Set</td>
</tr>
<tr>
<td>Complete</td>
<td>Implementing a set of user stories creates a feature-complete application, no steps are missing</td>
<td>Set</td>
</tr>
</tbody>
</table>
User Story Example – Wrong or Right?

I want to see an error when I cannot see recommendations after I updated an article.
User Story Example – Wrong or Right?

I want to see an error when I cannot see recommendations after I updated an article.

Not well-formed -> The role is missing
User Story Example – Wrong or Right?

As a User, I am able to click a particular location from the map and thereby perform a search of landmarks associated with that latitude longitude combination.
User Story Example – Wrong or Right?

As a User, I am able to click a particular location from the map and thereby perform a search of landmarks associated with that latitude longitude combination.

Not atomic -> two stories in one
User Story Example – Wrong or Right?

As a care professional I want to save a reimbursement—add save button on top right (never grayed out).
User Story Example – Wrong or Right?

As a care professional I want to save a reimbursement—add save button on top right (never grayed out).

Not problem-oriented -> Hints at the solution
User Story Example – Wrong or Right?

As a User, I am able to edit the content that I added to a person’s profile page.
User Story Example – Wrong or Right?

As a User, I am able to edit the content that I added to a person’s profile page.

Not unambiguous -> what is content?
User Story Example – Wrong or Right?

As a care professional I want to see my route list for next/future days, so that I can prepare myself (for example I can see at what time I should start traveling).
User Story Example – Wrong or Right?

As a care professional I want to see my route list for next/future days, so that I can prepare myself (for example I can see at what time I should start traveling).

Not estimatable -> it is unclear what ‘see my route list’ implies
User Story Example – Wrong or Right?

As an Administrator, I am able to add a new person to the database.

As a Visitor, I am able to view a person’s profile
User Story Example – Wrong or Right?

As an Administrator, I am able to add a new person to the database.

As a Visitor, I am able to view a person’s profile

Not independent -> viewing relies on first adding a person to the database
Example User Stories violating one or more quality criteria (1)

<table>
<thead>
<tr>
<th>ID</th>
<th>Description</th>
<th>Violated qualities</th>
</tr>
</thead>
<tbody>
<tr>
<td>US₁</td>
<td>I want to see an error when I cannot see recommendations after I upload an article</td>
<td><em>Well-formed</em> the role is missing</td>
</tr>
<tr>
<td>US₂</td>
<td>As a User, I am able to click a particular location from the map and thereby perform a search of landmarks associated with that latitude longitude combination</td>
<td><em>Atomic</em> two stories in one</td>
</tr>
<tr>
<td>US₃</td>
<td>As a care professional, I want to see the registered hours of this week (split into products and activities). See: Mockup from Alice NOTE—first create the overview screen—then add validations</td>
<td><em>Minimal</em> there is an additional note about the mockup</td>
</tr>
<tr>
<td>US₄</td>
<td>As a User, I want to open the interactive map, so that I can see the location of landmarks</td>
<td><em>Conceptually sound</em> the end is a reference to another story</td>
</tr>
<tr>
<td>US₅</td>
<td>As a care professional I want to save a reimbursement—add save button on top right (never grayed out)</td>
<td><em>Problem-oriented</em> Hints at the solution</td>
</tr>
<tr>
<td>US₆</td>
<td>As a User, I am able to edit the content that I added to a person’s profile page</td>
<td><em>Unambiguous</em> what is content?</td>
</tr>
<tr>
<td>US₇</td>
<td>As a User, I am able to edit any landmark</td>
<td><em>Conflict-free</em> US₇ refers to any landmark, while US₈ only to those that user has added</td>
</tr>
<tr>
<td>US₈</td>
<td>As a User, I am able to delete only the landmarks that I added</td>
<td><em>Well-formed, full sentence</em></td>
</tr>
<tr>
<td>US₉</td>
<td>Server configuration</td>
<td></td>
</tr>
<tr>
<td>ID</td>
<td>Description</td>
<td>Violated qualities</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>US₁₀</td>
<td>As a care professional I want to see my route list for next/future days, so that I can prepare myself (for example I can see at what time I should start traveling)</td>
<td><em>Estimatable</em> it is unclear what see my route list implies</td>
</tr>
<tr>
<td>EPₐ</td>
<td>As a Visitor, I am able to see a list of news items, so that I stay up to date</td>
<td><em>Unique</em> the same requirement is both in epic EPₐ and in story</td>
</tr>
<tr>
<td>US₁₁</td>
<td>As a Visitor, I am able to see a list of news items, so that I stay up to date</td>
<td><em>US₁₁</em></td>
</tr>
<tr>
<td>US₁₂</td>
<td>As an Administrator, I receive an email notification when a new user is registered</td>
<td><em>Uniform</em> deviates from the template, no “wish” in the means</td>
</tr>
<tr>
<td>US₁₃</td>
<td>As an Administrator, I am able to add a new person to the database</td>
<td><em>Independent</em> viewing relies on first adding a person to the database</td>
</tr>
<tr>
<td>US₁₄</td>
<td>As a Visitor, I am able to view a person’s profile</td>
<td></td>
</tr>
</tbody>
</table>
Next Lecture

• Date/Time:
  • Friday, 13-Sep, 10:15-12:00

• Topic:
  • Requirements Engineering I → 1st Homework!

• For you to do:
  • Have a look at the course wiki
  • Make sure you know to which lab group you have been enrolled + start forming project teams

  **MOST IMPORTANTLY: Go to the labs next week!**