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Seminar session – 2

Software Engineering Project Management – Requirements

(seminar is being recorded)

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Outline

- Announcements
- The importance of …..
- Gherkin and Cucumber
- Behave
- Seminar 2 reading and questions
- QA & Next Week

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Announcements

- Forums & Posts
- Peer Review forms

The importance of …

- Requirements
  - 70% errors introduced, 3.5% fixed, 1x cost to fix in the requirements gathering phase (Feller, 2019)
- Why?
  - Lack of requirements engineering/ management
  - Poor communication/ interpretation
  - Poor implementation
  - Relation of requirements to implementation
- How do we ensure solution satisfies **all** requirements?

Gherkin & Cucumber

- Gherkin is an English-like language used for specifications BUT
  - It is structured AND
  - It maps closely to executable tests
- Structure:
  - Feature Definition
  - Documentation
  - Background
  - Scenario Definition
  - Steps

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Example

Feature: Write blog

As a blog owner I can write a new blog post

Scenario: Write blog post

Given I am on the blog homepage

When I click "New Post" link

And I enter "My first blog" as the Title

And I enter "Test content" as content

And I click the "Post" button

Then I should see the blog I just posted. (Ye, 2013)

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Behave

- Behave is a cucumber-like unit test framework
- Needs a specific structure (see screenshot)
- Features specified in feature file
- Steps stored in steps.py files
- Run via behave instruction

```python
from behave import *

@given('we have behave installed')
def step_impl(context):
    pass

@when('we implement a test')
def step_impl(context):
    assert True is not False

@then('behave will test it for us!')
def step_impl(context):
    assert context.failed is False
```

```
pi@raspberrypi:~/features/steps $ behave
Feature: showing off behave # ../tutorial.feature:1

  Scenario: run a simple test          # ../tutorial.feature:3
    Given we have behave installed     # tutorial.py:3 0.002s
    When we implement a test           # tutorial.py:7 0.002s
    Then behave will test it for us!   # tutorial.py:11 0.002s

1 feature passed, 0 failed, 0 skipped
1 scenario passed, 0 failed, 0 skipped
3 steps passed, 0 failed, 0 skipped, 0 undefined
Took 0m0.006s
pi@raspberrypi:~/features/steps $
```

Code from
https://behave.readthedocs.io/en/stable/tutorial.html

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Seminar 2 – Reading & Questions

Read the Behaviour Driven Development (2020) pages and then use the Gherkin language to create a Gherkin sequence that addresses **ONE** of the following examples:

- Using a new coffee making machine.
- Interfacing with a new SatNav system.
- Using a computer running the Linux operating system.
- Getting familiar with a new vehicle.
- Creating a batch or shell script.

Your response should consist of at least three scenarios describing different roles such as administrator, user, driver and so on. Be prepared to share your scenarios at this week's seminar. You can test your Gherkin scripts in the Behave engine.

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Demo

- Student groups to share their solutions to the formative questions:
- e.g.
- **Feature**: Making a Proper Cup of Tea
- As a tea lover I can make a fresh pot of tea
- **Scenario**: Make a Pot of Tea
- **Given** I have a scoop of fresh tea leaves
- **When** I boil the kettle
- **And** I put the fresh, loose tea in the pot
- **And** I pour the boiling water on the leaves
- **And** I leave the tea to 'stew'
- **Then** I should be able to pour a proper cup of tea from the pot.

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Further Info & Questions

- Next session (unit 4): Select two data structures and explain why you selected them (and read Abeykoon et al (2020)) - give examples of their use – explanations can be presented as slides
- **Before next session**: convert at least 15 requirement 'headers' into Gherkin format
- Set up a meeting with the other team and exchange requirements
- Office Hours: Weds 1 – 2 pm

  Fri 6 - 7pm
- Any questions?