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Computing Project

Topic 4:
Testing

Scope and Coverage

This topic will cover:

- Types of testing (reminder)
- Appropriate types of testing
- Test scripts
- Documenting tests (in YOUR project)

Learning Outcomes

By the end of this topic, students will be able to:

- Develop appropriate tests for a computing artefact.

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Key Points - 1

- The content of this lecture is not meant to replicate or replace concepts and techniques introduced in other modules associated with this programme.

- It is meant to compliment concepts and techniques introduced in other modules associated with this programme.

- This lecture should help YOU decide how YOU will test YOUR system.

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Key Points - 2

- Every text book, academic paper or website that you look at will put forward a different approach to testing.

- The approaches are not right or wrong – they are different.

- They are different because of the context within which they are to be used.

- The approach presented here is an appropriate approach for YOU to use for YOUR project.

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Types of Testing

Reminder

Testing Strategies

- Black Box Testing

- White Box Testing

Black Box Testing

- Tests the functionality of a system:

    - Test are derived from analysis and design specifications

    - Correct outputs are defined for valid and invalid inputs

    - Does not require knowledge of how the system is coded

White Box Testing

- Tests the internal structures of a system:

    - Tests are based on how the system has been coded
    - Inputs are chosen that test particular paths through the code

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Important

The Computing Project only requires student to carry out *Black Box Testing*

Appropriate Types of Testing

Types of Testing

- The following list is not exhaustive but it contains the types of tests you are expected to carry out on your system using a Black Box strategy:

    - Unit Testing

    - Integration Testing

Unit Testing

- Individual 'components' of the system are tested to ensure they are fit for purpose.

- When using an object-oriented approach, unit testing is normally carried out at class level.

Integration Testing

- Individual 'components' of a system are combined and tested to ensure they are fit for purpose.

- The integration tests are normally a combination of the unit tests.

Documenting Tests

In YOUR Project

Test Scripts

- The exercise associated with this lecture provides you with a template that should be used for test scripts for the Computing Project.

- Test scripts should be included in an appendix as evidence of testing

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Testing Section of YOUR Project

- The testing section of your project should include the following:

  - An overview of how YOU developed YOUR first unit test – this should include the test script and an explanation of each field in the test script. Screen dumps should be provided to show how the first unit test was carried out.

  - An overview of YOUR approach to integration testing along with a short evaluation of results.

Important Points

- You must use the template provided in the exercise associated with this lecture for all of your test scripts.

- Failure to use the template will result in lost marks.

- You are advised to carry out unit testing, integration testing and system testing for YOUR project.

- Failure to carry out appropriate testing will result in loss of marks.

Topic 4 – Testing

Any Questions?