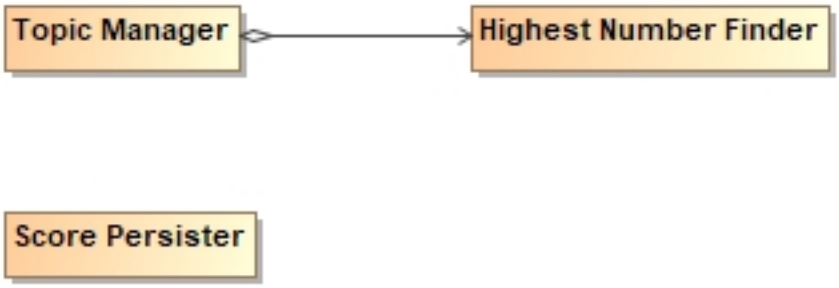
Case study

An organisation delivers several topics (subjects). Students are graded against each topic. You are required to store the top score for each topic.

We've designed the application so that it comprises of three core classes:

- A class to find the highest number from an array of integers.
- A class to find the highest score for a topic.
- A class to write the topic and score to a file on the disk.



Find the highest number in an array of integers

Intent

- We will begin to develop our application code base here
- A TDD approach will be applied through the design and implementation of this class
- Implementation class: HighestNumberFinder

Given the following specification:

- If the input were {4, 5, -8, 3, 11, -21, 6} the result should be 11
- An empty array should throw an exception
- A single item array should return the single item
- If several numbers are equal and highest, only one should be returned
- If the input were {7, 13} then the result should be 13
- If the input were {13, 4} then the result should be 13

Find the highest score for a series of topics

Intent

- This new class depends on the previously tested code - HighestNumberFinder
- The first two tests introduce dependencies between objects
- Identifying which one is the CUT
- Learn that you test the CUT not its dependents in the same test
- Learn how to spot tightly coupled code, code smells, and untestable code

- A TDD approach will be applied through the design and implementation of this class
- Implementation class: TopicManager

Given the following specification:

- If the input is [{“Physics”, {56, 67, 45, 89}}], the result should be [{“Physics”, 89}]
- If the input is [] the result should be []

Completing the requirements for Find Highest score for a series of topics

Intent

- Introduction to test doubles
- Why interfaces are so important when building tests
- A TDD approach will be applied through the design and implementation of this class
- Implementation class: TopicManager

Given the additional specification below, complete the tests and design of TopicManager

- If the input is [{“Physics”, {56, 67, 45, 89}}, {“Art”, {87, 66, 78}], the result should be [{“Physics”, 89}, {“Art”, 87}]
- If the input is [{“Physics”, {56, 67, 45, 89}}, {“Art”, {87, 66, 78}}, {“Comp Sci”, {45, 88, 97, 56}}], the result should be [{“Physics”, 89}, {“Art”, 87}, {“Comp Sci”, 97}]

Write the results of Highest Score for each topic to a File

Intent

- Introduction to Mocking
- How to write mocks
- A TDD approach will be applied through the design and implementation of this class
- Implementation class: ScorePersister

Given the specification:

- Write each topic name and its top score as s single line to a file
- There should be a comma after the topic name followed by any number of white spaces

Example expected output would be:
Physics, 89

Maths, 78