Lab 4.3 - Code Coverage

# Introduction

A set of unit tests have already been written for you, but they could be better - in particular, they could exercise more of the code which has been written.

# Starter projects

There is a starter project for this lab, available in C#, Java and JavaScript versions.

# Goals

Set up a code coverage analyser in your IDE, and measure the code coverage that is achieved when the unit tests are run.

Examine the areas where code coverage is below 100%

Determine what you could do to increase the code coverage, ideally to 100%. Would more tests help?

Try implementing your changes, re-running the tests, and re-measuring the code coverage.

Keep going until you get the coverage % as high as you can.

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| Java notes |
| Code coverage is already built into Eclipse. You can activate it by running the project using:  Coverage As > JUnit Test  However, if there is no suitable code coverage tool available in your environment, then try these:   * Eclemma / Emma (Eclipse) <https://www.eclemma.org/> * IntelliJ (JetBrains) <https://www.jetbrains.com/help/idea/code-coverage.html> * NetBeans <http://wiki.netbeans.org/TutorialCodeCoveragePlugin> |

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| C# notes |
| The free versions of Visual Studio do not include code coverage tools built-in. You need to follow these steps to install a coverage tool.   * **Tools** menu > **Extensions and Updates** > **Manage extensions** * Online > Visual Studio Marketplace > search for **dotcover** * Install the JetBrains tool **DotCover** * Restart Visual Studio * In the Extensions menu, you may need to agree to start a trial of the **dotCover** product * To generate code coverage statistics while running the project's unit tests, use: ReSharper menu **>** Unit Tests **>** Cover all unit tests from solution   Note: If you have issues installing DotCover, try the “Fine Code Coverage” extension. |

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| JavaScript notes |
| Install the code coverage package named **nyc**  **npm install nyc --save-dev**  Add an npm task to package.json  **"coverage": "nyc npm run test"**  To run the code coverage tool in the terminal (while running all the unit tests in the project), use:  **npm run coverage** |