

COSC346 Assignment 1 Report

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OOP concepts used:

Access control: some of the variables/methods that do not require Internal access have been set to Private and the rest are left as default Internal access.

Class hierarchy: most of the classes are subclasses of another class which inherit their parents' properties, upcastings and downcastings are used as well.

Accessor methods: getters and setters are used in "SpreadsheetStruct.swift" to retrieve and assign certain properties.

Constructors/Initialisers: Initialisers are used across the project, some classes have multiple initialisers and convenient initialiser is also used.

Overloading: overloading initialisers are commonly used, overloading is also used on some default operators and methods from the foundation framework.

Overriding: some subclasses' methods employs overriding in order to execute their own methods instead of their parents'.

Referencing: referencing is a huge part of this project as cells might need to have different/same memory locations, comparing references and keeping track of them is also needed.

Mutable and immutable: values that stay constant are set to "let" and values need changing are set to "var".

Coupling and cohesion: loose coupling and high cohesion is considered during the design phase of this project.

Library: containers like dictionary and structures are used.

Testing:

For testing, at the beginning I used the testing method from the skeleton code to test parsing for different grammar rules, but it is not possible to test things like retrieving value of a particular cell or comparing cell references and etc., and also this testing method requires human attention to verify each output from the console. So a new way that I used is that for each test case, there's an "if" statement, the test is on the left hand side of the condition and the correct result is on the right hand side, if everything is correct the program goes on to the next test, if the condition is not met then an "assert" call is made and the program stops executing and gives the line where the condition failed.

The testing code is cleanly separated from the core methods and it only executes when no command line argument is given.

The test is also comprehensive, it covers all grammar rules and it compares references, checks values for the cells given and etc.