

COMP1811 Lab 11

Title: Inheritance and Polymorphism

Aim

To get familiar with best practices on exception handling and testing

Attempt all exercises during your lab session and ask your tutor if you are stuck. **Remember check your code with others in your group before you leave and find positive ways in which both yours and theirs could be improved.**

Exercise 1

Implement an example for Polymorphism. Assume you have an abstract class `Vehicle` that provides the structure for the methods `accelerate()` and `brake()`. Declare two child classes `Motorcycle` and `Bus` that inherit from `Vehicle`. Implement the methods and write some test code. The methods should return a string that indicates in which class the method has been called.

Exercise 2

Inheritance - Create a class `Person` that takes the `firstname`, `lastname` and `age` as parameters in the initialisation. Add a method to the `Person` class that prints the name and age of the person. Create a class `Student` that inherits from `Person`. Create an instance of `Student` with the parameters required by the parent class and test if the method to print name and age that is implemented in the parent class is executed as expected. The mechanism to implement this is inheritance.

Exercise 3

Apply the concepts that were discussed in the lecture to your coursework. Think about your design. What classes do you need? Would it make sense to apply inheritance and/or polymorphism to your code? Think about alternative implementations. You can do this last task individually or in your coursework groups. Start defining the classes that you need.