ECS769P Advanced Object - Oriented Programming

Lab 2: Inheritance (in-lab assessment in week 5)

Exercise 1: Exam Report (basic exercise)

Complete the Employee/Senior Employee examples introduced in the lecture. Try to write the code yourself without looking at the notes. Successfully compile and run the programs.

Exercise 2 Parcel delivery cost calculation (core exercise)

A Courier company provides a number of delivery options within the UK, each with specific cost associated. “Standard” parcel delivery cost is calculated as £2.6 per kg. “Two-day delivery” option adds a flat fee £4 on top of the standard delivery price and “Next day delivery” option adds an additional £3.5 per kg on top of the standard delivery price.

Design and Implement a program that calculates the cost of parcel delivery. You must consider the inheritance hierarchy in your design.

Notes:

- Parcel information should include name, address, city, and postcode for both sender and recipient.
- Data validation should be considered.
- Separate header file, source code file and main program.
- Consider Class encapsulation and information hiding.
- Use appropriate data types.

Exercise 3 Bank Accounts (challenging exercise)

Design and Implement a simple program that represents customer’s bank accounts. Customer should be able to check balance, deposit money to the accounts and withdraw money from the accounts. The bank provides “Current accounts” and “Savings accounts”. “Current accounts” allow £100 overdraft. “Savings accounts” do not allow overdraft but offers 0.5% interest rate. The program should be able to calculate the interest the customer earned.

Notes:

- Interest earned can be simply calculated as (balance)*(interest rate).
- You must consider the inheritance hierarchy in your design.
- Data validation should be considered.
- Separate header file, source code file and main program.
- Consider Class encapsulation and information hiding.
- Use appropriate data types.