**Internal Package Handling Program**

I used a WPF application to create the program for this assessment. I chose WPF as it allows for structured presentation, nice flow of code and good event handling from UI to code.

Tests:

The unit tests in this program check the validity of an additional or edited Department and the validity of all properties of both departments and parcels, they also test for case sensitivity. These tests are done using the NUnit extension for Visual Studios.

Classes:

The Department class holds properties for each department, the name of the department, the weight and value limits of the parcels handled by said department, as well as the number of packages currently being handles by it.

The Parcels class holds the properties for each Parcel, all details about both Sender and Recipient of each parcel. There are properties for Value, Weight, Department, and a Boolean property to say whether the parcel has been signed off by the Insurance Class.

The Insurance class contains a simple method that is called when a parcels value is over €1000 as stated in the assessment brief, it returns true if the parcel has a value of €1000 or more.

Departments:

Adding and removing departments using this program is easy, the user simply clicks the “Edit Departments” button on the “MainWindow” and a second “Department Info” window is shown. This window contains all current departments and displays each department’s details on the right when they are selected from the list. The details are then editable, once the user is happy with the details, they click the “Edit” button and those details are changed for that department, similarly with the remove and add buttons, for removing a department the user selects the department from the list, clicks the “Remove” button and it is removed from the list of departments. To add a department the details should be entered in the boxes on the right and the user clicks the “Add” button. If a user has already selected a department from the list, this departments details will be edited if the user clicks “Edit” and if the user clicks “Add” an error message will appear that this department already exists and details will have to be changed in order to add a new department, this prevents 2 or more departments with the same information. This window has a “Close” button which will close that window and return the user to the main window, and a “Clear” button, which will empty all the textboxes once clicked.

The department adding, removing and editing functions are temporary in this program to allow for repeat testing and so only the departments requested in the brief appear upon use. This could be changed for a real thing, by making the changes to the actual list of departments rather than a temporary duplicate list and saving the changes before the program is closed (using a “Save” button). Such a method has been written into the code and commented around.

Parcels:

The main window of this program contains a sort by function, by using this a user can sort the current parcels by weight, value, Sender A-Z and Recipient A-Z, the user just clicks the dropdown list, chooses their preferred sort method and clicks the “Load” button. If no sort by type is selected and the “Load” button is clicked, all the packages will be displayed in and unordered list. When the user selects a parcel from the list, all information about the selected parcel will appear on the right side of this window.

All code is commented and each piece’s function is explained.