Purpose: This program explores the use of LINQ to produce simple reports.

In this assignment, you will use the **Parcel** class hierarchy developed for Program 1A (either your solution or your instructor's) in a simple test program. Primarily, you will be displaying reports generated using LINQ. To start, you need to create enough test data to produce useful results for the queries that follow. You will need at least 8 **Address** objects with different zipcodes to be used as origin and destination addresses with your parcels. You'll also need to create several instances of each concrete class to add to the list of **Parcel** objects being maintained. All test data may be hard-coded using magic numbers. Use LINQ to create a result variable for each report specified below then display each report, labeling each in the output.

Reports - You <u>must</u> use LINQ to Produce

- Select all Parcels and order by destination zip (descending)
- Select all Parcels and order by cost (ascending)
- Select all Parcels and order by Parcel type (ascending) and then cost (descending)
- **Hint**: Do not hard code the Parcel types. Instead, explore use of the *GetType*() method combined with *ToString*() to retrieve the class name from each object as a string.
- Select all **AirPackage** objects that are heavy and order by weight (descending)
- **Hint**: You'll need to use **is** and/or **as** with downcasting for this one.

Be sure to add appropriate comments in your code for each file, including your name, program number, due date, course section, and description of each file's class. Each variable used in your program needs a comment describing its purpose. These requirements are expected for every program and are listed in the syllabus. Preconditions and postconditions are now required, as well. So, for each constructor, method, get property, and set property a pair of comments describing the precondition and postcondition must be provided. Please review the PowerPoint presentation (under Course Documents) for further details about preconditions and postconditions.

As with our labs, I'm asking you to upload a compressed ZIP archive of the entire project. The steps for doing this will vary somewhat based on the ZIP utility being used. Before you upload this .ZIP file, it's a good idea to make sure that everything was properly zipped. Make sure your code is present and you can run your file.

Once you have verified everything, return to the *Assignments, Programs* area of Blackboard. Click on "Program 1B" and then click on *View Assessment* and the assignment description will appear. Click *Add Content* button to browse the system for your file. Click on *Insert Content* icon (+) at right-end of nav-bar, and then choose *Insert Local Files* from the submenu.

Browse to the location of your .ZIP file and select it. Note, multiple files may be attached by repeating the Insert Content sequence. For this assignment, we just need the "Prog1B.zip" file. Make sure everything is correct in the form and then click *Submit* to complete the assignment and upload your file to be graded.