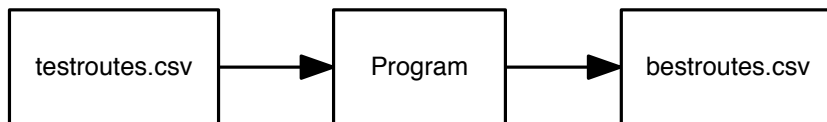


Instructions

Your project will need to read itineraries from a file, process them, and write the resulting output to a file. In today's lab, you will work on getting reading a list of itineraries from a file, storing them into objects and then writing the results out to file. We will ignore the processing that goes on in between for the moment.



The testroutes.csv file will look something like this:

```
DUB,LHR,SYD,JFK,AAL,777  
SNN,ORK,MAN,CDG,SIN,A330  
BOS,DFW,ORD,SFO,ATL,737
```

Exercises

1. Create a class to hold a route. As it contains a route and the equipment type (the **Aircraft**), perhaps call it an **Itinerary**
2. Create a Class that will contain a method to read your routes from a csv file (testroutes.csv) and store them into a list of **Itinerary** objects. What will you call this class?
3. Use your Aircraft class from your previous lab work to store an Aircraft containing the equipment type (e.g. 747, A330) into each **Itinerary**
4. Write a method to process the list of itineraries to add the home airport to the end and reverse the order of the other airports, e.g.

```
DUB,LHR,SYD,JFK,AAL
```

becomes

```
DUB,AAL,JFK,SYD,LHR,DUB
```

5. Create another method in the class that reads the testroutes.csv file that will write the list of itineraries out to a csv file called bestroutes.csv. If you have a list of **Itinerary** objects called **itineraries** then the example code below could help in writing to a file.

Writing a csv file snippet

```
1 with open(os.path.join( filename), "w", newline='') as f:
2     writer = csv.writer(f, delimiter=",")
3     for itinerary in itineraries:
4         csvrow = []
5         csvrow.append(itinerary.route)
6         csvrow.append(itinerary.cost)
7         writer.writerow(csvrow)
```

6. Add handling to deal exceptions in your file reading and writing (e.g. `FileNotFoundError` or `OSError`)
7. Write down your design for this part of the project – what are your classes and how do they interact?
8. Think about testing your code - how might you test your classes and how could you test your system?