Date: Nov 8th 2016

IMPORTANT: All code should be in one solution file and uploaded to Moodle.

Question 1: Calculations/Methods/Files (25 marks/33%)

a) Write a program which calculates a taxi fare based on distance, time, number of passengers and pieces of luggage. The rates are as follows.
   - Price per km: €1.25
   - Price per minute: €0.25
   - Price for each passenger: €1
   - Price for each piece of luggage €0.5
   - Tax 13.5%

```
Taxi Fare Calculator

Enter km travelled >> 10
Enter minutes taken >> 15
Enter number of passengers >> 1
Enter pieces of luggage, 0 for none >> 2

Cost of Taxi     EUR  18.25
Tax              EUR   2.46
Total Cost       EUR  20.71
```

b) Introduce a method to the program so that the fare is calculated in a method and the fare is returned
c) Have the above repeat until a sentinel value is entered so that a number of taxi fares can be calculated
d) Write the list of taxi fares to file.

Marking Scheme

Comments/Readability/Output	3	
Appropriate types	2	
Part A	5	
Part B	5	
Part C	5	
Part D	5	
Total		25

TURN PAGE FOR QUESTION 2

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Question 2: Classes (50 marks/67%)

a) Create a class called Employee which contains auto implemented properties for the First Name, Last Name, Employee ID, Salary, Department. Override ToString() to display Employee Information.   Create 4 Employee objects and display.

b) Add a method PayRise which takes a % increase and changes the Salary. Add some code to give all employees a pay rise. Make Salary readonly (hint: do not use the readonly property).

c) Add a static variable which stores a count of Employees, this variable is updated in the Constructor.

d) Implement IComparable and code the CompareTo method so that Employee objects can be sorted by Last Name. The Main() method should request that the Array of Employees is sorted.

e) Add holiday/vacation functionality to employee. To do this create a Holiday class with properties StartDate and EndDate. Add an array of these to the Employee class. Add a method to the Employee class which books a holiday checking that an employee has available days.

```
Employee emp215
Tom Jones
Works in the Sales department on a basic salary of EUR 30000.00

Employee emp145
Mary Smith
Works in the Finance department on a basic salary of EUR 35000.00

Employee emp215
Tom Jones
Works in the Sales department on a basic salary of EUR 33000.00

Employee emp145
Mary Smith
Works in the Finance department on a basic salary of EUR 37450.00
```

```
You have successfully booked 2 days holiday
You have 5 days remaining
```

```
Sorry not enough holidays left.
You have 7 days and are requesting 12
```

Comments/Readability/Output	3	
Appropriate types	2	
Part A	10	
Part B	10	
Part C	5	
Part D	10	
Part E	10	
Total		50