Programming Fundamentals 2

BSc (Hons) in Applied Computing, Computer Forensics, Year 1
BSc(Hons) in Physics with Modern Technology, Year 2
Semester 2, Academic Year: 2022-2023

Repeat Assignment – August 2023

1. Grade for this repeat assignment is 100%. Note that no matter what marks you got for various parts of the module, if you need to repeat this module, this is the only assignment that you need to complete.

2. The assignment brief for this assignment will be an enhanced version of Assignment 2 as per the original spec (here) (existing brief will score max 50 marks)

3. Additional requirements include adding:
   A. 22 marks: Add in a 'Vehicle Tax' field into the Vehicle class. A vehicle tax can be one of
      o Low;
      o Medium; or
      o High

You should write a TaxUtility class that uses an ArrayList of Strings (using the three values above). (**Hint** : Use the FuelTypeUtility class already given to help you in Assignment 2 and the different Utility classes from assignment 1. The tax utility should be used to validate the user input etc. You should also write a Test class for this new utility based on other utility tests given previously here.

Marks breakdown –

- add in new field + updating constructors, toString, equals, setters, getters **(5 Marks)**,
- VehicleTaxUtility Class + VehicleTaxUtilityTest (test)Class **(8 Marks)**
- Updating VehicleTest (given for Assignment 2) to incorporate the new field**. (5 Marks)**
- Update VehicleApi and Driver to incorporate the new vehicleTax field in Vehicle. **(4 Marks)**

   B. 5 marks: Javadoc on VehicleApi class.

   C. 11 marks: Update the Manufacturer class to have the following additional fields and validation:
      a. manufacturerPhoneNumber (String) – must only contain numbers.
      b. manufacturersCountry(String) – max 30 chars
      c. developerLatitude (double) – values between -90 and 90.

    d. developerLongitude (double): values between -180 and 180 inclusive.

    e. Ensure that you have getters, setters for each new field and that the toString uses these new fields.

D. 12 marks: Updating ManufacturerAPI and Driver (to incorporate new Manufacturer fields)

    i. Ensure that all fields are updated when updating a manufacturer.

    ii. Add a listing method that lists all Vehicles from manufacturers in a given country.

    iii. Update the driver to ask for these new fields in the add and the update menu options.

This completed assignment should be worked on using GitHub Classroom and also uploaded onto Moodle . Completed code to be submitted by 18:00 Thursday, 31st August 2023.

You will be asked to attend for interview on your work on Tuesday morning 5th September 2023. A schedule will be posted on September 1st. This interview is to ensure that the work is your own according to the rules we have implemented all semester. **Attendance is mandatory.**