

Crime stats system

Assignment brief:

You have been given some code that is currently being developed as part of a **Crime Stats** application specifically analysing recent **Crime in USA cities**. Not all the requirements have been implemented. It is your task to implement these and raise the coding standards of all the code.

Create a **project solution** (named **<Your Name><Student Number>Resit** e.g. **JamesBrown3048614Resit**). Create a package named **resit**. Add **StartApp.java** to the solution and the **crimeUSA.csv**. **Ensure your name and student number are placed in the Javadoc comments of all the classes you create.** The StartApp has been partially written with a menu.

The application will run (start) from the StartApp.java, initially reading in the data from the **crimeUSA.csv** file and then perform a number of menu driven operations.

Part 1 – Data mapping, storage and read from file - 50%

Using your knowledge of OOP you should add/update the code based on the following:

1. Analyse the data in the **crimeUSA.csv** and create a class (**CityCrime.java**) to represent the data in the csv file, include the following ...
 - I. Each **State name** should be recoded as its abbreviation as detailed in the supplied **StatesAbbreviations.csv** file, e.g ALABAMA as AL etc.
 - II. Include a method to return as an *int* the total number of violent crimes (calculated from total of murder, robbery, assault)
 - III. Include a method to return as an *int* the total number of possession crimes (calculated from total of burglary, larceny and car theft)
2. Validation rules :

No field should be empty and no numeric fields should be less than zero. Any records (city stats) that break these rules should not be included and stored in the arraylist in the system (see Part 1 – 4 below).
3. Conduct a unit test for the **CityCrimes** class.
4. In the **StartApp.java** class read and store the data in this arraylist :

```
public static ArrayList<CityCrime> cityCrimes = new ArrayList<CityCrime>();
```

[CONTINUED OVER]

Part 2 – Functions – 50%

Having read the data from the csv file complete the menu driven functions as outlined below. An example of the expected format is shown for each function (note: actual answers based on csv data provided are not necessarily the example output shown).

1. Display all City crime stats to screen. Example output...

```
City           : Abbeville
State          : AL
Population     : 2990
Murder         : 0
Robbery        : 0
Assault        : 10
Burglary       : 23
Larceny        : 66
Car theft      : 3
Violent crime   : 10
Possession crime : 92
```

```
City           : Adamsville
State          : AL
Population     : 4889
Murder         : 0
Robbery        : 13
Assault        : 29
Burglary       : 38
Larceny        : 228
Car theft      : 23
Violent crime   : 42
Possession crime : 289
etc...
```

2. Display all crime stats for a selected City. Example output...

```
Enter option ...
2
Enter city
Riverton
City           : Riverton
State          : NJ
Population     : 2741
Murder         : 0
Robbery        : 0
Assault        : 0
Burglary       : 6
Larceny        : 31
Car theft      : 0
Violent crime   : 0
Possession crime : 37
```

[CONTINUED OVER]

3. Display the total murders in a selected state

```
Enter state to view total murders
NY
Total murders 596 in NY
```

4. Calculate and display the highest overall crime stats

```
Enter option ...
4
City with highest crime stats 204451 is New York
City                : New York
State               : NY
Population          : 8165001
Murder              : 596
Robbery             : 23511
Assault             : 26908
Burglary            : 22137
Larceny             : 115363
Car theft           : 15936
Violent crime       : 51015
Possession crime    : 153436
```

5. Display each **state** (in alphabetical order) with the total number of car thefts. Example output...

```
Enter option ...
5
States and car theft
AK          1898
AL          9599
AR          5377
AZ          48322
```

6. File write - export/write to a new file (RobberyStats.csv) in the format Robbery, City. Descending order by robbery stat for each city. Format of the csv file shown below (include the header).

```
Robbery, City
23511, New York
15863, Chicago
14353, Los Angeles
11371, Houston
10971, Philadelphia
etc...
```

[CONTINUED OVER]

When complete compress (zip) the entire ***Eclipse solution*** and upload to **Resit** (Resit assessment) on CANVAS. Remember to record and then upload a short commentary walk-through of your code with your solution (upload that too

Now : check the uploads to ensure you have submitted the correct files (in the correct area).

[END]