

**CSE 2102: Introduction to Software Engineering**  
**Objects, Classes and Arrays**  
**Assigned: October 26, 2022, Due: November 09, 2022**

**Part A**

Write a program to generate a salary report for a company's team of employees. The company wants to easily see which employee or employees have the highest salary, and to know how the salaries of each employee compare to the average. This program will reuse the `Employee` class implemented in Homework #5.

The new program `EmployeeReport.java` will accept from the user the filename in which the employee records are stored. The program then writes three methods, one to read the data from the input file, second to compute the statistics, and third to display the results. The program displays the following results: a) the average salary of all the employees, b) the salary of the highest paid employee, and how it compares to the average, and c) the salary of each employee and how it compares to the average.

**Input cmd:**

```
java EmployeeReport
```

The content of the file `EmployeeRecords.txt` are:

```
Jane Smith,ABC123,50000,2002  
John Doe,XYZ123,100000,2012  
Aaron Williams,GUU345,150000,2005
```

## Output

```
Please enter the file that stores employee records: EmployeeRecords.txt
Average salary per employee is $100000.0
The highest salary is $150000.0

The following had the highest salary:
Name: Aaron Williams
Employee ID: GUU345
Salary: 150000.0
Year of Hire: 2005
Their salary is $50000.0 above the average.

The rest performed as follows:
Name: Jane Smith
Employee ID: ABC123
Salary: 50000.0
Year of Hire: 2002
Their salary is $50000.0 below the average.

Name: John Doe
Employee ID: XYZ123
Salary: 100000.0
Year of Hire: 2012
Their salary is average.
```

## Part B

A software program that is written to fulfill a specific purpose may also be adapted and reused in other contexts. Recall that reuse of design, code, and testing is a significant way to reduce the development time and costs. It is also a way to improve the reliability of a software system. In order to facilitate such reuse, it is important to consider the abstract functions that the program is trying to provide. Abstractly speaking, the above program computes the average value of some attribute or a characteristic associated with a collection of similar objects. In what other scenarios can this program be adapted and reused? Identify one such scenario.

## Submission

The following deliverables must be submitted on HuskyCT by midnight on November 9, 2022.

- a) Well-documented code.
- b) At least 2 test cases that you used to test the code (submit in a separate document as a txt file or a word document). Each test case should comprise of a file that contains several employee records.
- c) Please make sure that your code compiles, we will test your code offline with specific test cases (common to all).
- d) Response to Part B should be written in a separate document.
- e) Late submissions (without any legitimate excuse) will incur a penalty of 10% per day.