

Feedback Questions:

1. How many hours did it take you to complete this assessment? (Please keep try to keep track of how many hours you have spent working on each individual part of this assessment as best you can - an estimation is fine; we just want a rough idea.)

It took me roughly 4 hours, about an hour on each problem. The final problem taking significantly less time as it was a continuation of problem 3.

2. What online resources you have used? (My lectures, YouTube, Stack overflow etc.)

I used nearly no online resources outside of the class Lectures as I gained a great understanding of abstract classes from the midterm Sprint.

3. Did you need to ask any of your friends in solving the problems. (If yes, please mention name of the friend. They must be amongst your class fellows.)

I did not.

4. Did you need to ask questions to any of your instructors? If so, how many questions did you ask (or how many help sessions did you require)?

I did not.

5. Rate (subjectively) the difficulty of each question from your own perspective, and whether you feel confident that you can solve a similar but different problem requiring some of the same techniques in the future now that you've completed this one

All questions were simple and straightforward, there are none that I overly struggled with and feel very confident in being able to reproduce effective results if given similar problems.

Outputs.

Problem 1

```
Michael O'brie, age: 25, gender: M  
Lynne Brooke, age: 16, gender: F, ID: HS95129, GPA: 3.5  
Bill Nye, age: 34, gender: M, subject: Science, salary: 50000.0  
Adam Sparkes, age: 25, gender: M, ID: UCB123, GPA: 4.0, year: 1, major: Software Development
```

Problem 2

```
PS E:\Java QAP 3\PointProblem> java Demo.java  
Original Point: (1.3,2.6)  
Updated Point: (3.0,4.0)  
MovablePoint: (1.0,2.0), speed= (0.9,3.4)  
After Move: (1.9,5.4), speed= (0.9,3.4)  
Updated Speed: (1.9,5.4), speed= (2.0,3.0)  
After Second Move: (3.9,8.4), speed= (2.0,3.0)  
PS E:\Java QAP 3\PointProblem>
```

Problem 3

```
Shape: Ellipse1, Area: 47.12388980384689, Perimeter: 25.132741228718345  
Shape: Triangle1, Area: 6.0, Perimeter: 12.0  
Shape: EquilateralTriangle1, Area: 15.588457268119896, Perimeter: 18.0  
Shape: Circle1, Area: 50.26548245743669, Perimeter: 25.132741228718345
```

Problem 4

```
Before Scaling:  
Shape: Ellipse1, Area: 47.12388980384689, Perimeter: 25.132741228718345  
Shape: Triangle1, Area: 6.0, Perimeter: 12.0  
Shape: EquilateralTriangle1, Area: 15.588457268119896, Perimeter: 18.0  
Shape: Circle1, Area: 50.26548245743669, Perimeter: 25.132741228718345  
  
After Scaling:  
Shape: Ellipse1, Area: 188.49555921538757, Perimeter: 50.26548245743669  
Shape: Triangle1, Area: 24.0, Perimeter: 24.0  
Shape: EquilateralTriangle1, Area: 62.353829072479584, Perimeter: 36.0  
Shape: Circle1, Area: 201.06192982974676, Perimeter: 50.26548245743669  
PS E:\Java QAP 3\ShapesProblem>
```