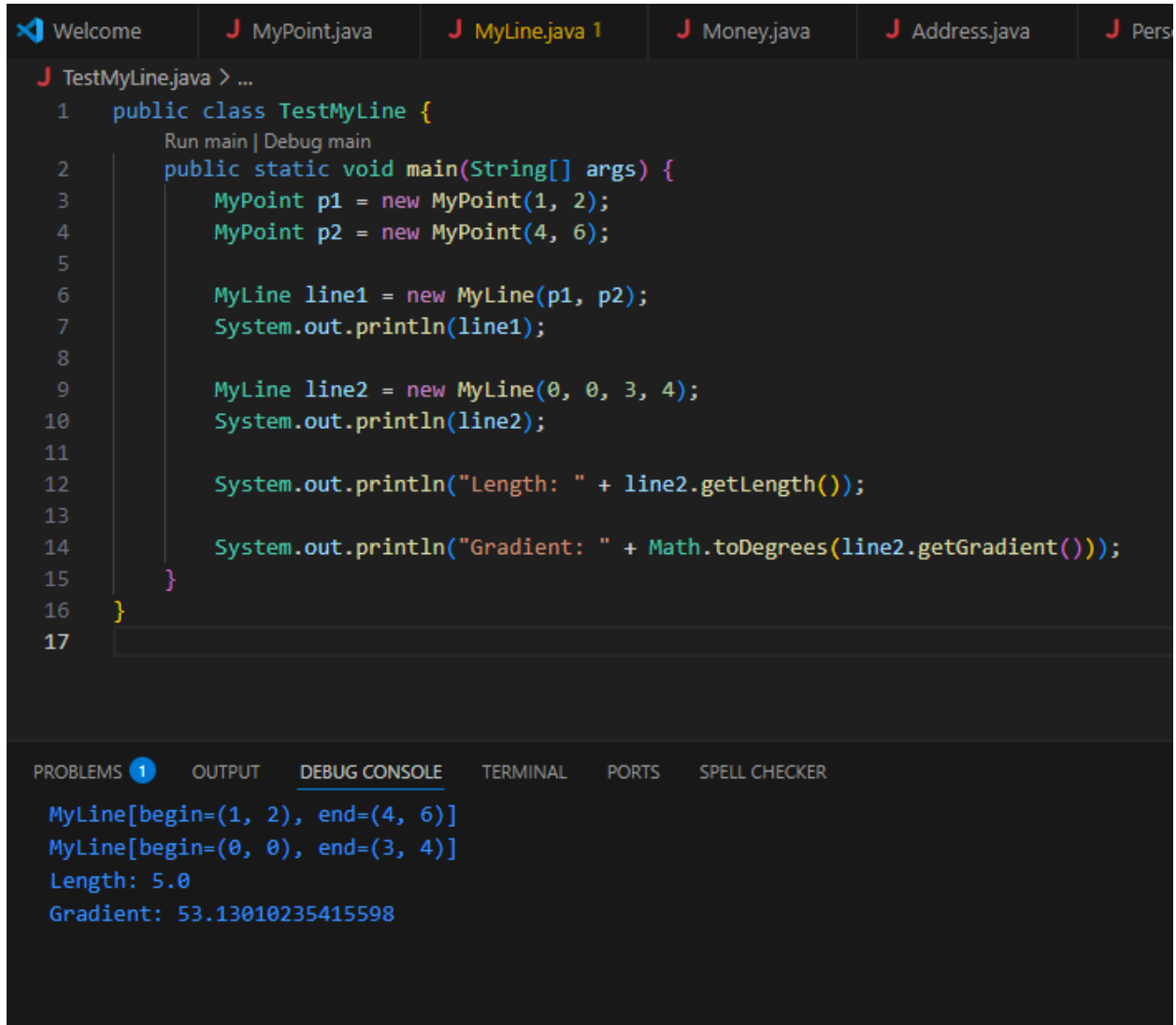# Advanced Programming (Java) QAP2

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SD12

Questionnaire

1. This assignment took me approximately 6 hours total, including review and concept solidification. I found the final problem a little challenging.

2. To complete this assignment, I utilized W3Schools, Ainee's lecture notes, and StackOverflow

3. N/A

4. N/A

5. I found the first two questions straightforward, but the last question was a bit more tricky. The UML diagrams are helpful, but I'll still need mor practice in order to complete these problems with more speed and confidence.

Problem #1

```java
public class TestMyLine {
    Run main | Debug main
    public static void main(String[] args) {
        MyPoint p1 = new MyPoint(1, 2);
        MyPoint p2 = new MyPoint(4, 6);

        MyLine line1 = new MyLine(p1, p2);
        System.out.println(line1);

        MyLine line2 = new MyLine(0, 0, 3, 4);
        System.out.println(line2);

        System.out.println("Length: " + line2.getLength());

        System.out.println("Gradient: " + Math.toDegrees(line2.getGradient()));
    }
}
```

PROBLEMS 1   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   SPELL CHECKER

```
MyLine[begin=(1, 2), end=(4, 6)]
MyLine[begin=(0, 0), end=(3, 4)]
Length: 5.0
Gradient: 53.13010235415598
```

Problem #2

MyPoint

- x: int
- y: int

+ MyPoint(x, y)
+ getX(): int
+ getY(): int
+ setX(x: int)
+ setY(y: int)
+ getXY(x, y)
+ distance(p: MyPoint): double
+ toString(): String

MyRectangle

- topLeft: MyPoint
- bottomRight: MyPoint

+ MyRectangle(x1, y1, x2, y2)
+ MyRectangle(topLeft: MyPoint, bottomRight: MyPoint)
+ getTopLeft(): MyPoint
+ setTopLeft(topLeft: MyPoint)
+ getBottomRight(): MyPoint
+ setBottomRight(bottomRight: MyPoint)
+ getWidth(): int
+ getHeight(): int
+ getArea(): int
+ getPerimeter(): int
+ toString(): String

J TestMyRectangle.java > ⅏ TestMyRectangle > ◈ main(String[] args)

```java
public class TestMyRectangle {
    Run main | Debug main
    public static void main(String[] args) {
        MyRectangle rect1 = new MyRectangle(1, 7, 3, 2);
        System.out.println(rect1);

        MyPoint p1 = new MyPoint(2, 6);
        MyPoint p2 = new MyPoint(5, 2);
        MyRectangle rect2 = new MyRectangle(p1, p2);
        System.out.println(rect2);

        rect2.setTopLeft(new MyPoint(0, 3));
        rect2.setBottomRight(new MyPoint(4, 9));
        System.out.println("Updated Rectangle: " + rect2);

        System.out.println("Width: " + rect2.getWidth());
        System.out.println("Height: " + rect2.getHeight());
        System.out.println("Area: " + rect2.getArea());
        System.out.println("Perimeter: " + rect2.getPerimeter());


    }
}
```

PROBLEMS 1   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   SPELL CHECKER

```
MyRectangle[Top Left=(1, 7), Bottom Right=(3, 2), Width=2, Height=5]
MyRectangle[Top Left=(2, 6), Bottom Right=(5, 2), Width=3, Height=4]
Updated Rectangle: MyRectangle[Top Left=(0, 3), Bottom Right=(4, 9), Width=4, Height=6]
Width: 4
Height: 6
Area: 24
Perimeter: 20
```

Problem #3

J CreditCardDemo.java > ⛭ CreditCardDemo > ⓨ main(String[] args)

```java
public class CreditCardDemo {
    Run main | Debug main
    public static void main(String[] args) {
        final Money LIMIT = new Money(1000);
        final Money FIRST_AMOUNT = new Money(200);
        final Money SECOND_AMOUNT = new Money(10.02);
        final Money THIRD_AMOUNT = new Money(25);
        final Money FOURTH_AMOUNT = new Money(990);

        Person owner = new Person("Christie", "Diane",
            new Address("237J Harvey Hall", "Menomonie", "WI", "54751"));

        CreditCard visa = new CreditCard(owner, LIMIT);

        System.out.println(visa.getPersonals());
        System.out.println("Balance: " + visa.getBalance());
        System.out.println("Credit Limit: " + visa.getCreditLimit());
        System.out.println();

        System.out.println("Attempt to charge " + FIRST_AMOUNT);
        visa.charge(FIRST_AMOUNT);
        System.out.println("Balance: " + visa.getBalance());

        System.out.println("Attempt to charge " + SECOND_AMOUNT);
        visa.charge(SECOND_AMOUNT);
```

PROBLEMS 15   OUTPUT   **DEBUG CONSOLE**   TERMINAL   PORTS   SPELL CHECKER 1   Filter (e.g. text, !exclude, \escape)

```
Diane Christie, 237J Harvey Hall, Menomonie, WI 54751
Balance: $0.00
Credit Limit: $1000.00

Attempt to charge $200.00
Charge: $200.00
Balance: $200.00
Attempt to charge $10.02
Charge: $10.02
Balance: $210.02
Attempt to pay $25.00
Payment: $25.00
Balance: $185.02
Attempt to charge $990.00
Exceeds credit limit
Balance: $185.02
```