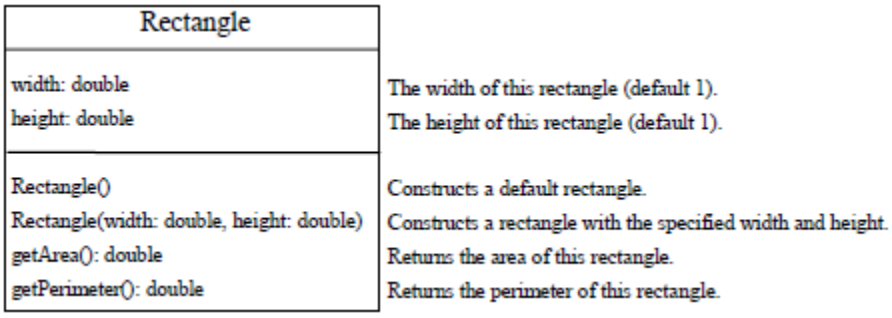
Chapter 9 – Objects and Classes

Four questions, 25 points each.

1. **Design a class based on the following UML Class diagram.**

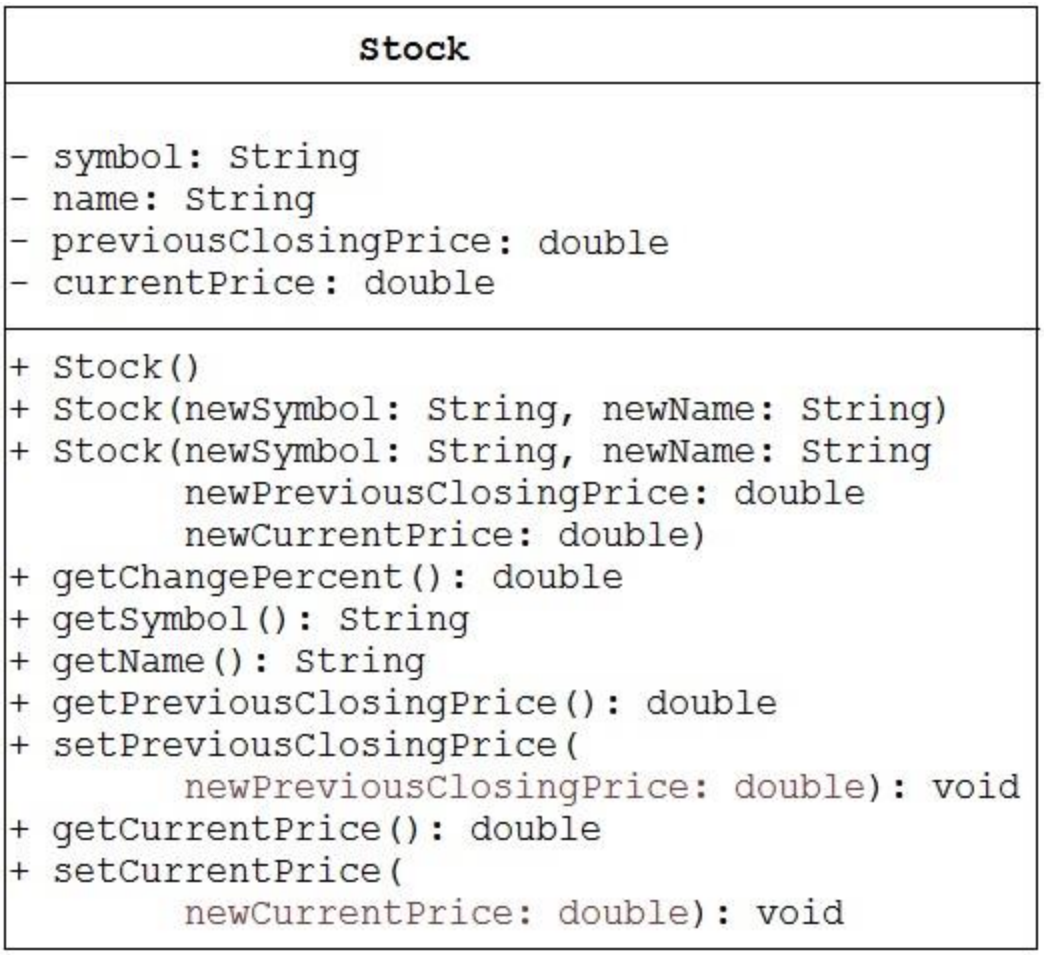


Use the following main method for your program and to get the screenshot of the output.

```
 public static void main(String[] args) {
   Rectangle myRectangle = new Rectangle(4, 40);
   System.out.println("The area of a rectangle with width " +
     myRectangle.width + " and height " +
     myRectangle.height + " is " +
     myRectangle.getArea());
   System.out.println("The perimeter of a rectangle is " +
     myRectangle.getPerimeter());

   Rectangle yourRectangle = new Rectangle(3.5, 35.9);
   System.out.println("The area of a rectangle with width " +
     yourRectangle.width + " and height " +
     yourRectangle.height + " is " +
     yourRectangle.getArea());
   System.out.println("The perimeter of a rectangle is " +
     yourRectangle.getPerimeter());
 }
}
```

2. **Design a Stock class based on the following UML Class diagram. All the data fields and methods are self-explanatory. The method getChangePercent() refers to percentage change from current price to previous closing price.**



Use the following main method for your program and to get the screenshot of the output.

```
public static void main(String[] args) {
  Stock stock = new Stock("SUNW", "Sun MicroSystems Inc.");
  stock.setPreviousClosingPrice(100);

  // Set current price
  stock.setCurrentPrice(90);

  // Display stock info
  System.out.println("Previous Closing Price: " +
    stock.getPreviousClosingPrice());
  System.out.println("Current Price: " +
    stock.getCurrentPrice());
  System.out.println("Price Change: " +
    stock.getChangePercent() * 100 + "%");
}
```

Sample Output for the above main method:

Previous Closing Price: 100.0
Current Price: 90.0
Price Change: -10.0%

3. Write a program that creates a Date object, sets its elapsed time to 1000000000, 10000000000, and 100000000000, and displays the date and time using the toString() method, respectively.

4. Write a program that creates a Random object with seed 100 and displays the first 10 random integers between 50 and 100 (exclusive).