Homework 1

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Exercise 1

Describe all parts of this method:

```java
public static String method(int n1, String s1)
{
   return s1 + " " + n1;
}
```

Answer:

"public static String method (int n1, string s1)": the method head
"public static": the modifier.
"String": It means the return type of this method is a string
"method": the name of the method
"int n1, String s1": the parameters of the method, which are an integer named n1, and a string named s1
"method(int n1, String s1)": method signature
"return s1 + " " + n1": It is the method body. It returns the string s1, a space, and finally the integer n1

Problem 2

Does this program compile?
If so, why? How to break it?
If not, why? How to fix it?

```java
public class Test {
  public static void main(String[] args) {
    System.out.println(max(1, 2.0));
  }

  public static double max(int num1, double num2) {
    if (num1 > num2)
      return num1;
    else
      return num2;
  }

  public static double max(double num1, int num2) {
    if (num1 > num2)
      return num1;
    else
      return num2;
  }
}
```

Exercise2.java

Answer:

Yes, this code will compile.
The main will execute the first max function (the one with (int num1, double num2)), because the main method calls the max with 1, an integer, and 2.0, a double. The output will be 2.0.
This would still work if the first number is a double and the second number is an int, in which case, it would execute the second max method. For instance, with max(1.0, 2).
To break it, we can simply enter two integers or two doubles: max(int1, int2) or max(double1, double2). For example, both max(1, 2) and max(1.0, 2.0) will break it.

Problem 3

Write a program that simulates the Rock-Paper-Scissors game (see Wikipedia for instructions). The program should ask the player to input his choice (rock, paper, or scissors) and randomly generate the computer choice. Then, it should decide the winner and print the result.

The program should start with a welcome banner. Then, the player chooses the first letter of the element (both uppercase and lowercase letters should be accepted). The program should continue to ask for the element until a valid letter is chosen.

After a correct choice the program should display the player and computer choice on screen using ascii art (ascii art link).

Finally it should determine the (if any) winner by using the following rules:

- rock beats scissors
- paper beats rock
- scissors beats paper

Answers:

Source Code: RPS.java is attached to the hw submissions

Eventual Screenshots: 6 pngs with different inputs are attached

Eventual Text file: The Rock, Paper, Scissors look a little bit broken in the listed text file in this pdf due to some listing problems with latex. The .txt files and .png files I attached are what they actually look like.

```
Last login: Thu Oct  8 21:38:53 on ttys001
baoyechen@BaoyedeMacBook-Air ~ % cd /Users/baoyechen/Desktop/cs101/cs101_hw1
baoyechen@BaoyedeMacBook-Air cs101_hw1 % javac RPS.java
baoyechen@BaoyedeMacBook-Air cs101_hw1 % java RPS
===================================================
Welcome to the Rock-Paper-Scissors game!
===================================================

Select your element:
    R/r - rock
    P/p - paper
    S/s - scissors
R
  __.--.--.-
 /    | -|    |   '|
 |    |'  |    |    |
 | /     --:--:--/
 |/    /        |
 (          \      |
  \       '.   /
     |         |
     |         |

Player
        --.--.
        |  |    |
 ."" |  |    |  _
 |    |  |    |  '|
 |    | -|   |    |
 |    |' )  |    |
 | /      /     /
 |/    /        |
```

```
(              \          |
\              '.     /
   |                |
   |                |

Computer
Computer Won. (paper beats rock)
baoyechen@BaoyedeMacBook−Air cs101_hw1 % java RPS
========================================================
Welcome to the Rock−Paper−Scissors game!
========================================================

Select your element:
     R/r − rock
     P/p − paper
     S/s − scissors
r
 __.−−.−−._
/    |  _|  |  '|
|    |'  |  |  |  |
|  /    __:−−:__/
|/   /        |
(              \          |
\           '.      /
    |                 |
    |                 |

Player
         −−.−−.
         |   |   |
.""|   |   |_
|    |   |   |   |'|
|    |   |_|   |   |
|    |' )   |   |
|  /      /       /
|/    /          |
(                \          |
\            '.      /
    |                 |
    |                 |

Computer
Computer Won. (paper beats rock)
baoyechen@BaoyedeMacBook−Air cs101_hw1 % java RPS
========================================================
Welcome to the Rock−Paper−Scissors game!
========================================================

Select your element:
     R/r − rock
     P/p − paper
     S/s − scissors
P
         −−.−−.
         |   |   |
.""|   |   |_
|    |   |   |   |'|
|    |   |_|   |   |
|    |' )   |   |
|  /      /       /
|/    /          |
(                \          |
\            '.      /
    |                 |
    |                 |

Player
 __.−−.−−._
```

4

```
  /    |  _ |    |   `|
  |    | `  |    |    |
  | /     __:__:__/
  |/    /        |
 (          \        |
  \        `.   /
    |          |
    |          |

Computer
Player Won. ( paper beats rock )
baoyechen@BaoyedeMacBook−Air cs101_hw1 % java RPS
================================================
Welcome  to  the  Rock−Paper−Scissors  game!
================================================

Select  your  element :
    R/r − rock
    P/p − paper
    S/s − scissors
p
        __.__.
        |    |    |
  ."" |    |    | _
  |    |    |    | `|
  |    |  _ |    |    |
  |    | ` )    |    |
  |  /         /         /
  |/    /            |
 (              \        |
  \            `.    /
    |                |
    |                |

Player
 .""  .       . "" ,
 |    |    /    /
 |    |  /    /
 |    |/  .__.__
 |        _ |    |  `|
 |    / ` )    |    |
 |  /    /       __:__/
 |/    /            |
 (              \        |
  \          `.      /
    |                |
    |                |

Computer
Computer Won. ( scissors beats paper )
baoyechen@BaoyedeMacBook−Air cs101_hw1 % java RPS
================================================
Welcome  to  the  Rock−Paper−Scissors  game!
================================================

Select  your  element :
    R/r − rock
    P/p − paper
    S/s − scissors
S
 .""  .        . "" ,
 |    |    /    /
 |    |  /    /
 |    |/  .__.__
 |        _ |    |  `|
 |    / ` )    |    |
 |  /    /        __:__/
 |/    /            |
```

```
170  (          \        |
     \        '.    /
         |          |
172      |          |

174  Player
          __.__.
          |  |   |
176       |  |   |
     .""|  |  |_
178  |    |    |  '|
     |    |  _|    |    |
180  |    |'  )    |    |
     |   /        /        /
182  |/   /          |
     (          \        |
184  \        '.    /
         |          |
186      |          |

188  Computer
     Player Won. (scissors beats paper)
190  baoyechen@BaoyedeMacBook-Air cs101_hw1 % java RPS
     ================================================
192  Welcome to the Rock-Paper-Scissors game!
     ================================================

194
     Select your element:
196      R/r - rock
         P/p - paper
198      S/s - scissors
     s
200  .""".    .""",
     |    |   /    /
202  |    |  /    /
     |    |/  .__._
204  |      _|    |  '|
     |    /'  )    |    |
206  |   /   /      __:__/
     |/   /          |
208  (          \        |
     \        '.    /
210      |          |
         |          |
212
     Player
214  .""".    .""",
     |    |   /    /
216  |    |  /    /
     |    |/  .__._
218  |      _|    |  '|
     |    /'  )    |    |
220  |   /   /      __:__/
     |/   /          |
222  (          \        |
     \        '.    /
224      |          |
         |          |
226
     Computer
228  Draw! No winner.
     baoyechen@BaoyedeMacBook-Air cs101_hw1 %
```

RPS trials.txt