ITP 120 Programming Assignment 1

130 points

I bet during the time of COVID, you've had at least a chance or two to play Rock Paper Scissors with a friend or family member. For ITP 120 Programming Assignment 1, you are going to code a Rock Paper and Scissors game. In this game, you play the role of the other player by entering in a choice for them R for Rock or P for Paper or S for Scissors and the Random number generator in Java chooses for you. That's the only fair way we can do it.

Here are the rules and requirements. You begin by asking a player this following: `Please enter Play if you want to play the game or anything else to Stop.`
This starts a sentinel value loop that will be used to control the program until the user chooses not to play another game. If the user enters play (no matter what case they use, uppercase, lowercase, a mix of each when entering Play, make sure that the game starts). Once the game starts, enter the following information to the player to let them choose R for Rock, or P for Paper, or S for Scissors. (Notice that you need to keep track of how many games are played…Game 1, Game 2, Game 3, etc.)

```
Game 1 Rock, Paper, Scissors - Play!
Choose your weapon [R]ock], [P]aper, or [S]cissors:
```

Each time they choose to play the game, validate their choice of weapon with a while loop to make sure that it is one of the following letters: R, P, S.

Then, display their input with a message as follows where you replace the _ with the letter they have chosen:

```
You chose: _
```

Then, use the Random number generator to generate 3 possible numbers from 0 to 2 that represent the choice you are making. Based on the number generated, you will assign a letter that represents your choice as follows. This will require a decision structure (meaning switch, or sequential ifs, or if else if).

If the random generator generates a 0, you have chosen R for Rock.
If the random generator generates a 1, you have chosen P for Paper.
If the random generator generates a 2, you have chosen S for Scissors.

Then, display your choice with a message as follows where you replace the _ with the letter you are playing.

```
I chose: _
```

Then, you will need another decision structure to determine who wins the game and displays a message and keeps track of tie games, how many games the user wins, and how many games you win. Remember the random generator is making your choices for you and you play the role of the other player by entering in their choices.

Here are the rules:

If there is a tie, you display the following message `Tie!` Then add 1 to a counter that is keeping track of the number of ties.

If the user chooses P and your choice is S, you display the following message `Scissors beats paper, a win for me!` Then add 1 to a counter that is keeping track of your wins.

If the user chooses S and your choice is R, you display the following message `Rock beats scissors, a win for me!` Then add 1 to a counter that is keeping track of your wins.

If the user chooses R and your choice is P, you display the following message `Paper beats rock! a win for me!` Then add 1 to a counter that is keeping track of your wins.

If the user chooses S and your choice is P, you display the following message `Scissors beats paper, a win for you!` Then add 1 to a counter that is keeping track of their wins.

If the user chooses R and your choice is S, you display the following message `Rock beats scissors, a win for you!` Then add 1 to a counter that is keeping track of their wins.

If the user chooses P and your choice is R, you display the following message `Paper beats rock! a win for you!` Then add 1 to a counter that is keeping track of their wins.

Then ask the user if they want to play the game as follows: `Please enter Play if you want to play the game again or anything else to Stop.`

After the user chooses to stop the game, you want to display a report that shows who won the most games where the _ will be replaced by each of your scores respectively.

```
~~~Final Score~~~
Your Score  My Score
_                   _
```

Then, you will need an if statement to compare the number of games they won to the number of games you won and display the following:

If they won more games than you did, display the following message that shows how many games they outscored you by as represented by the _. Please replace the _ with the number of games that they outscored you.

`Congratulations! You outplayed me by _ games!`

If you won more games than they did, display the following message that shows how many games you outscored them by as represented by the _. Please replace the _ with the number of games that you outscored them.

`You're a great opponent! I beat you by only _ games.`

If the number of games that you and the other player played was a tie, then display the following message and the number of tie games. Replace the _ with the number of tie games for each of you.

`We're all tied up with _ games apiece. Let's play again soon.");`

Below is the output for the program when running with test data where you won. Input data is shown in red.

```
Please enter Play if you want to play the game or anything else
to Stop.

▶▶ play
   Game 1 Rock, Paper, Scissors - Play!
   Choose your weapon [R]ock], [P]aper, or [S]cissors:
▶▶ r
   You chose: R
   I chose: R
   Tie!
   Please enter Play if you want to play the game or anything
else to Stop.

▶▶ play
   Game 2 Rock, Paper, Scissors - Play!
   Choose your weapon [R]ock], [P]aper, or [S]cissors:
▶▶ p
   You chose: P
   I chose: S
   Scissors beats paper, a win for me!
   Please enter Play if you want to play the game or anything
else to Stop.

▶▶ play
   Game 3 Rock, Paper, Scissors - Play!
   Choose your weapon [R]ock], [P]aper, or [S]cissors:
▶▶ s
   You chose: S
   I chose: R
   Rock beats scissors, a win for me!
   Please enter Play if you want to play the game or anything
else to Stop.

▶▶ Play
   Game 4 Rock, Paper, Scissors - Play!
   Choose your weapon [R]ock], [P]aper, or [S]cissors:
▶▶ s
   You chose: S
   I chose: R
   Rock beats scissors, a win for me!
   Please enter Play if you want to play the game or anything
```

```
else to Stop.

▶▶ play
   Game 5 Rock, Paper, Scissors - Play!
   Choose your weapon [R]ock], [P]aper, or [S]cissors:
▶▶ p
   You chose: P
   I chose: R
   Paper beats rock! a win for you!
   Please enter Play if you want to play the game or anything
else to Stop.

▶▶ play
   Game 6 Rock, Paper, Scissors - Play!
   Choose your weapon [R]ock], [P]aper, or [S]cissors:
▶▶ r
   You chose: R
   I chose: S
   Rock beats scissors, a win for you!
   Please enter Play if you want to play the game or anything
else to Stop.

▶▶ stop
   ~~~Final Score~~~
   Your Score  My Score
   2                  3
   You're a great opponent! I beat you by only 1 game(s).
```

Hints: Because of the random function, your scores will vary. This assignment assesses your ability to apply decision structures, loops, the random function, and format correctly. Please make sure that you debug your code before you submit it, or the highest possible score will be 50% which is 65 out of 130 points. Enjoy!