

## Rock Paper Scissors

### **Assignment:**

For this lab, you'll be designing a program that can play repeated rounds of the game Rock, Paper, Scissors with the user, where the user states their choice of the three, then the computer posts its choice, and the winner is decided. A reminder that Paper beats Rock, Rock beats Scissors, and Scissors beats Paper.

However, your program will adapt to the user. Please store NINE possible replies from the system, initially divided evenly between Rock, Paper, and Scissors, and have the program randomly choose from these. As the user inputs their choices, please update the list to remove one element, bump every element in the list up, and add a new element to the end of the list, based on what would've beaten the user's last choice. For example, if the user selected, "Scissors, Paper, Scissors" then Rock, Scissors, Rock would be added to the updated list.

For the purposes of screenshots, please post an image showing the results of playing the following hands in this order against your program:

Rock, Paper, Scissors, Rock, Rock, Paper, Rock, Scissors, Rock, Rock, Rock, Paper.

(50pts for Code, 50pts for the results)

### **Code:**

```
// Name: Dawlat Hamad
```

```
// ID: GV5450
```

```
// Lab 10 - Rock Paper Scissors
```

```
// Source 1: My tutor: Meryem Y.
```

```
// Source 2: https://www.w3schools.com/cpp/cpp\_do\_while\_loop.asp
```

```
// Source 3: https://www.cs.stir.ac.uk/~kms/schools/rps/learnprob.pdf
```

```
// Source 4: http://www.datasmith.org/2020/05/17/ai-for-rock-paper-scissors/
```

```
#include <iostream>
using namespace std;
```

```
int main()
{
    //Declare Variables
    int user;
    int comp;
    char answer;

    //Intro
    cout << endl;
    cout << "The computer will play a game of Rock, Paper, Scissors with user." <<
endl;
    cout << endl;
```

```

int thewheel[9] = {1,2,3,1,2,3,1,2,3}; //list

do
{
    //Prompt user for input
    cout << "Rock, Paper, Scissors, Shoot: " << endl;
    cout << "Please Choose - 1)Rock 2)Paper 3)Scissor : ";
    cin >> user;
    cout << "You played: ";
    if(user == 1)
    {
        cout << "Rock" << endl;
    }
    else if (user == 2)
    {
        cout << "Paper" << endl;
    }
    else if (user == 3)
    {
        cout << "Scissors" << endl;
    }
    else
    {
        cout << "Invalid option, please read instructions carefully!" << endl;
    }

    //Computer Choice
    srand(time(NULL));
    comp = thewheel[rand() % 9];

    //Print Players choice
    cout << "Computer played: ";
    if(comp == 1)
    {
        cout << "Rock" << endl;
    }
    else if (comp == 2)
    {
        cout << "Paper" << endl;
    }
    else if (comp == 3)
    {
        cout << "Scissors" << endl;
    }

    //the updating of the "wheel"

```

```

for(int i = 1; i < 9; i++)
{
    thewheel[i] = thewheel[i - 1];
}
if(user == 1)
{
    thewheel[0] = 2;
}
else if(user == 2)
{
    thewheel[0] = 3;
}
else if(user == 3)
{
    thewheel[0] = 1;
}

//Outcomes
if (user == 1 && comp == 1)
{
    cout << "Tie!" << endl;
}
else if (user == 1 && comp == 2)
{
    cout << "Computer Wins!" << endl;
}
else if (user == 1 && comp == 3)
{
    cout << "You win!" << endl;
}
else if (user == 2 && comp == 1)
{
    cout << "You win!" << endl;
}
}
else if (user == 2 && comp == 2)
{
    cout << "Tie!" << endl;
}
}
else if (user == 2 && comp == 3)
{
    cout << "Computer Wins!" << endl;
}
}
else if (user == 3 && comp == 1)
{

```

```

        cout << "Computer Wins!" << endl;
    }
    else if (user == 3 && comp == 2)
    {
        cout << "You win!" << endl;
    }
    else if (user == 3 && comp == 3)
    {
        cout << "Tie!" << endl;
    }
    else
    {
        cout << "Default! You lose." << endl;
    }

    //Repeat rounds
    cout << endl;
    cout << "Would you like to play a game? (Y/N): ";
    cin >> answer;
    cout << endl;

} while (answer == 'Y' || answer == 'y');

return 0;
}

```

## Output:

```

Rock, Paper, Scissors, Shoot:
Please Choose - 1)Rock 2)Paper 3)Scissor : 1
You played: Rock
Computer played: Rock
Tie!

Would you like to play a game? (Y/N): y

Rock, Paper, Scissors, Shoot:
Please Choose - 1)Rock 2)Paper 3)Scissor : 2
You played: Paper
Computer played: Rock
You win!

Would you like to play a game? (Y/N): y

Rock, Paper, Scissors, Shoot:
Please Choose - 1)Rock 2)Paper 3)Scissor : 3
You played: Scissors
Computer played: Paper
You win!

Would you like to play a game? (Y/N): y

Rock, Paper, Scissors, Shoot:
Please Choose - 1)Rock 2)Paper 3)Scissor : 1
You played: Rock
Computer played: Scissors
You win!

Would you like to play a game? (Y/N): y

Rock, Paper, Scissors, Shoot:
Please Choose - 1)Rock 2)Paper 3)Scissor : 1
You played: Rock
Computer played: Rock
Tie!

Would you like to play a game? (Y/N): y

Rock, Paper, Scissors, Shoot:
Please Choose - 1)Rock 2)Paper 3)Scissor : 2
You played: Paper
Computer played: Paper
Tie!

Would you like to play a game? (Y/N): y

```

```

Rock, Paper, Scissors, Shoot:
Please Choose - 1)Rock 2)Paper 3)Scissor : 1
You played: Rock
Computer played: Paper
Computer Wins!

Would you like to play a game? (Y/N): y

Rock, Paper, Scissors, Shoot:
Please Choose - 1)Rock 2)Paper 3)Scissor : 3
You played: Scissors
Computer played: Scissors
Tie!

Would you like to play a game? (Y/N): y

Rock, Paper, Scissors, Shoot:
Please Choose - 1)Rock 2)Paper 3)Scissor : 1
You played: Rock
Computer played: Paper
Computer Wins!

Would you like to play a game? (Y/N): y

Rock, Paper, Scissors, Shoot:
Please Choose - 1)Rock 2)Paper 3)Scissor : 1
You played: Rock
Computer played: Rock
Tie!

Would you like to play a game? (Y/N): y

Rock, Paper, Scissors, Shoot:
Please Choose - 1)Rock 2)Paper 3)Scissor : 1
You played: Rock
Computer played: Paper
Computer Wins!

Would you like to play a game? (Y/N): y

Rock, Paper, Scissors, Shoot:
Please Choose - 1)Rock 2)Paper 3)Scissor : 2
You played: Paper
Computer played: Paper
Tie!

Would you like to play a game? (Y/N): n

```