## Paper, Scissors, Rock Game

### Overview:

The paper-scissors-rock.exe game simulates two players choosing paper, scissors or rock. The application decides which player would have won the game based on the well-known paper, scissors, and rock logic. This simulated game runs 100 times and the program outputs the overall winner.

The application paper-scissors-rock.exe is a self-contained executable, no additional files are needed and no install is required. It has been compiled to run on Windows.

For developers wanting to improve on the game the source code is included in the \source folder and includes:   
- main.cpp: the main program containing program flow  
- RockPaperScissors.cpp: all program functions (excluding main)  
- RockPaperScissors.h: function definitions and program constants for the application

### Function Descriptions:

### main

The main function controls the program flow for the application. All program screen output occurs in the main function – no screen output comes from any other function. The main function calls initialise to seed the random number generator, it then calls simulate\_hand for player1, and then simulate\_hand for player2. It passes the values to the calculate\_winner function to decide the hand winner. It repeats the process 100 times keeping a tally of wins for each player in player1\_score and player2\_score. The main function then calls overall\_champion to determine which players score is larger and displays both players’ scores to the user with the winner.

### initialise

Function to seed the random number generator. No input or return values. The rand function will be used in a later function to generate an integer representing rock, paper or scissors. In this function the srand() function is used to seed the rand() function used later. It is defined in stdlib.h, and this library has been included in RockPaperScissors.cpp.

### simulate\_hand

Function to simulate a player choosing rock, paper or scissors. Uses the rand() function to return an integer that represents one of the values. The function accepts no input, but returns the players selection.

### calculate\_winner

The function accepts the values from both players running simulate\_hand as inputs, and then uses the rock, paper, scissor logic to determine which player wins the hand. The function returns the winner as an integer value. Integer constants have been defined in RockPaperScissors.cpp to represent each player, and also to represent rock, paper or scissors.

### overall\_champion

The function takes player1\_score and player2\_score as inputs, and returns to main() an integer representing the player who has won the most games. A draw is also an acceptable return value. Values have been defined as integer constants in the RockPaperScissors.cpp file.

## Sample Program Output

