Project 1

(Rock-Paper-Scissors)

CSC-5-40717

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Introduction:

Title: Rock-Paper-Scissors

Rock-paper-scissors is a zero sum hand game usually played between two people/players where each player simultaneously forms one of three shapes with an outstretched hand. The game has only three possible outcomes other than a tie: a player who decides to play rock will beat another player who has chosen scissors ("rock crushes scissors") but will lose to one who has played paper ("paper covers rock"); a play of paper will lose to a play of scissors ("scissors cut paper"). If both players throw the same shape, the game is tied and is usually immediately replayed to break the tie.

The game is often used as a choosing method in a way similar to coin flipping, drawing straws, or throwing dice. Unlike truly random selection methods, however, rock-paper-scissors can be played with a degree of skill by recognizing and exploiting non-random behavior in opponents.

Summary:

Project size: 100+ lines

The number of variables: 6

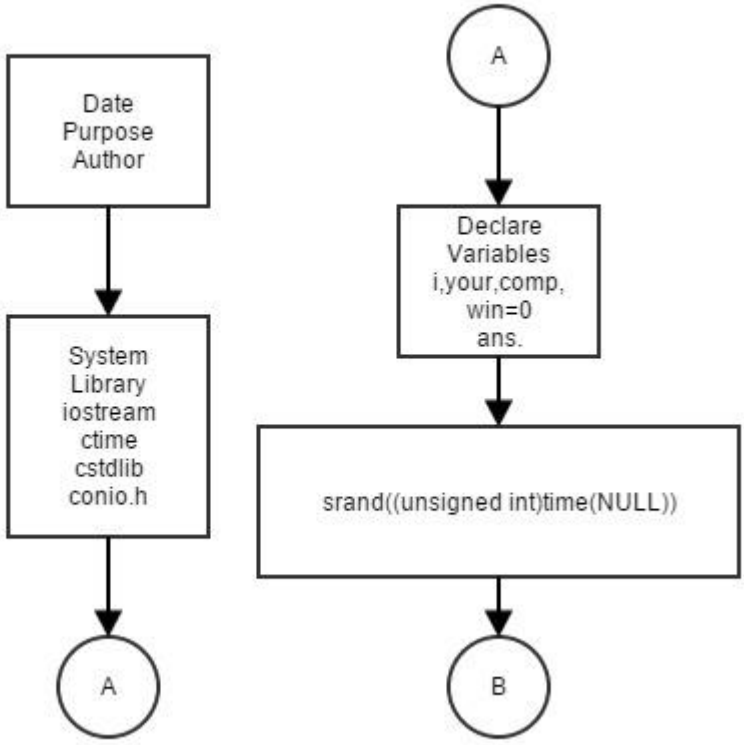
In this project, I try to use everything which I learned in the passing few weeks. In the process I still have some method not understand, so I go through the textbooks and notes to review some proper noun. I programmed just a base game, and it still needs to be completed. For example, one player game (with computer), and we only have to set up the probability of the computer. It took around one week. It was not so hard because most information are from textbooks. However, I met a lot of problems, so I search on the web pages and textbooks and try to solved some of them. I know

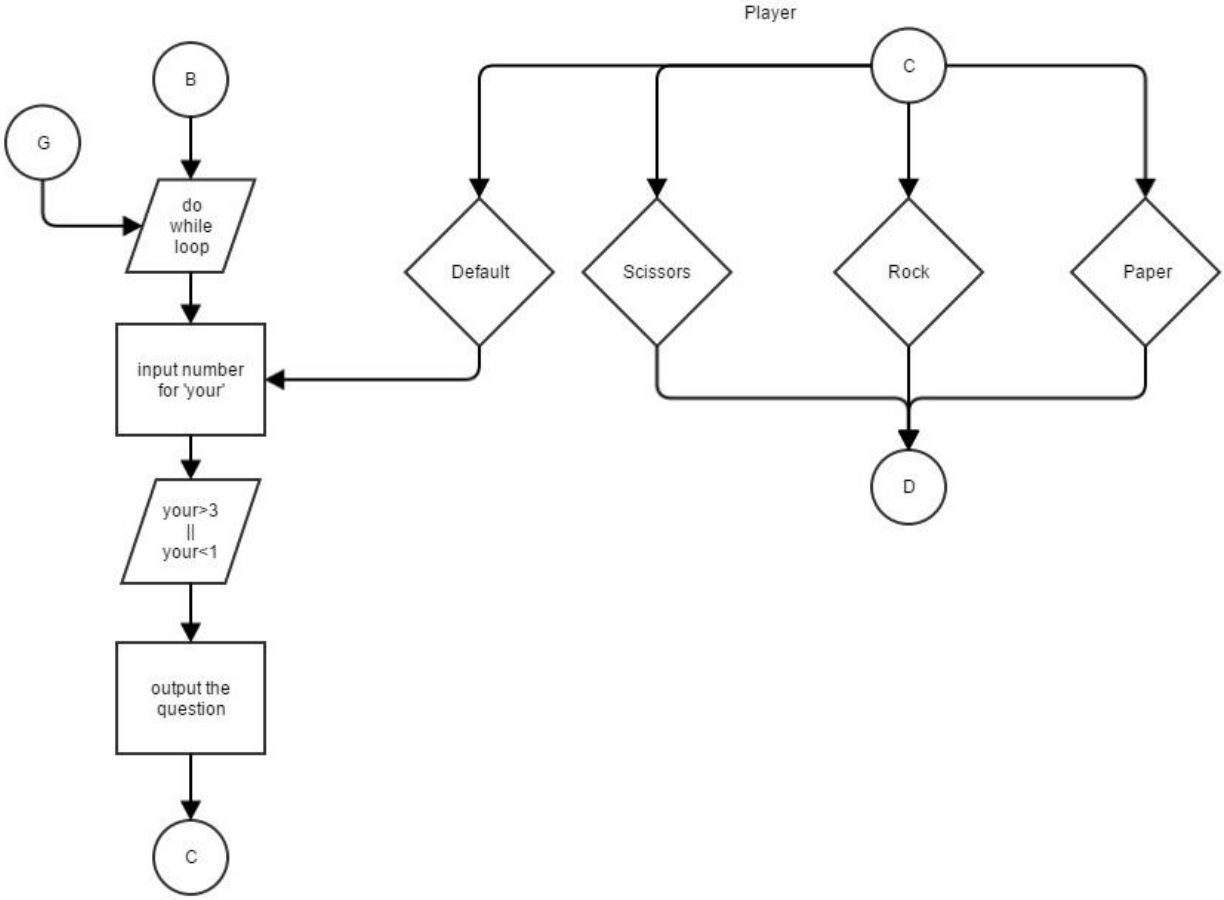
there still have another better way can do this project, but I just don’t know how to use it.

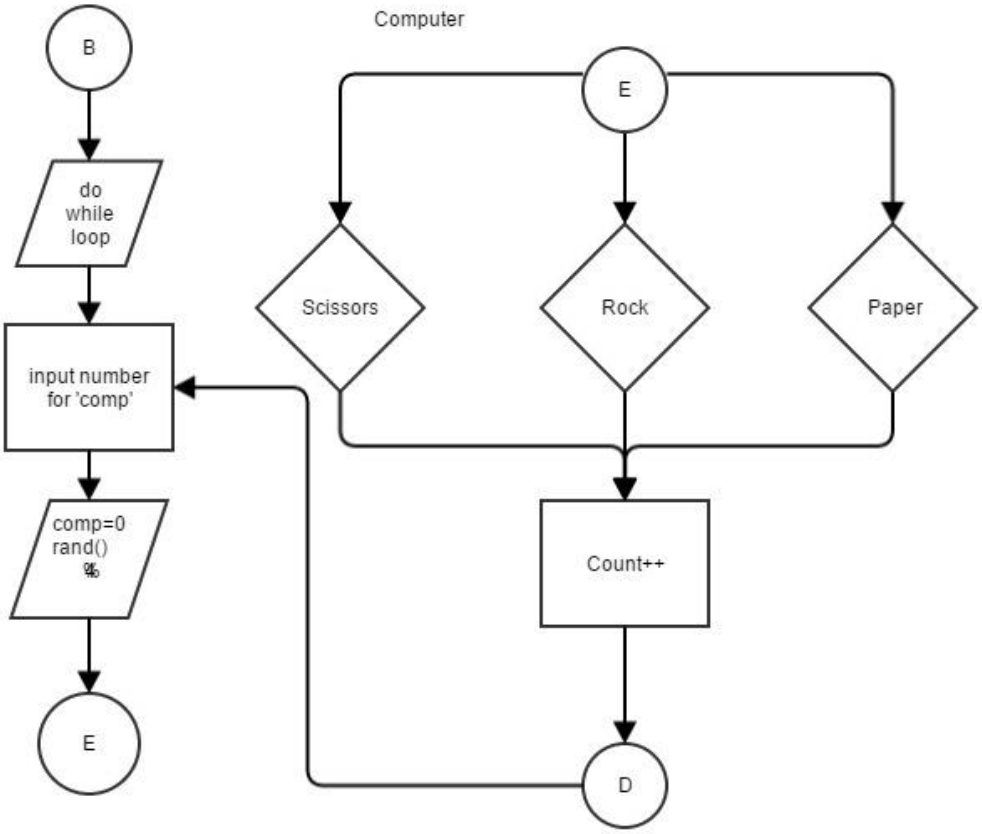
Description:

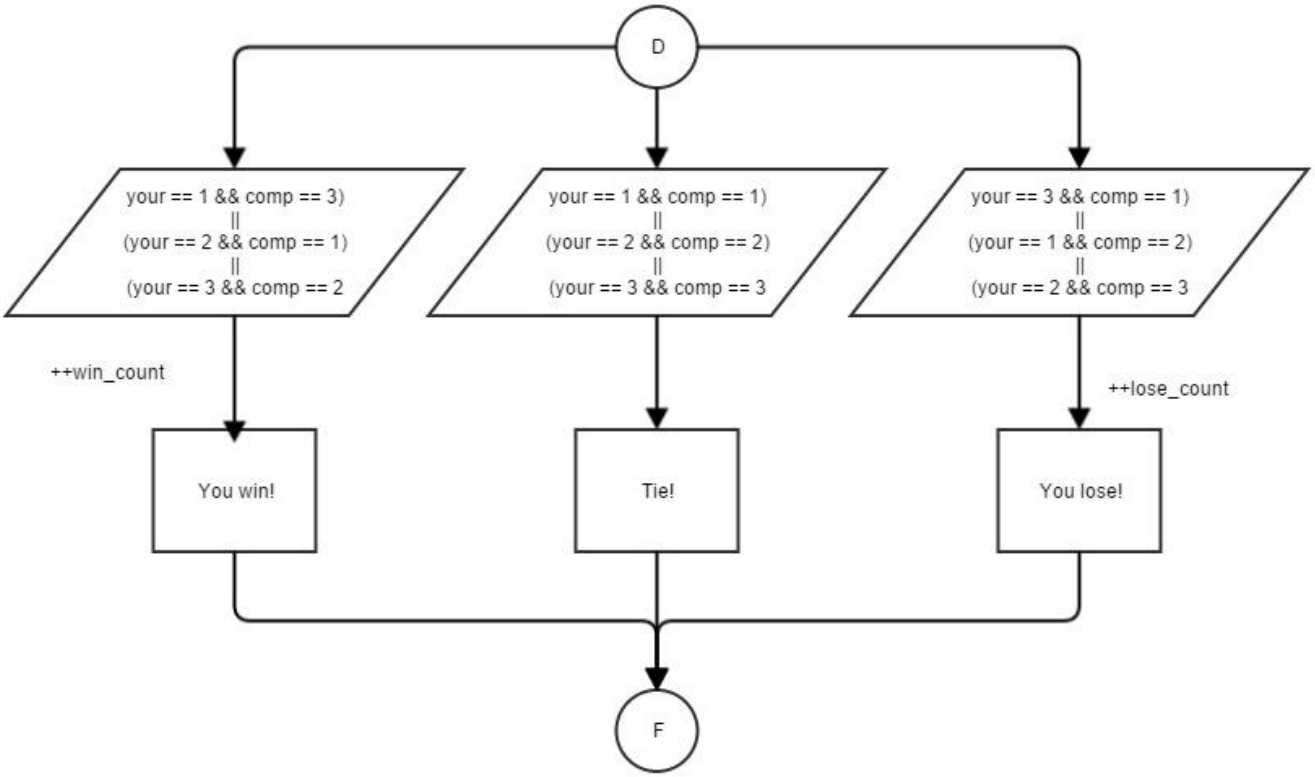
The main point of this project is that how it works with probability, and also know how to separation.

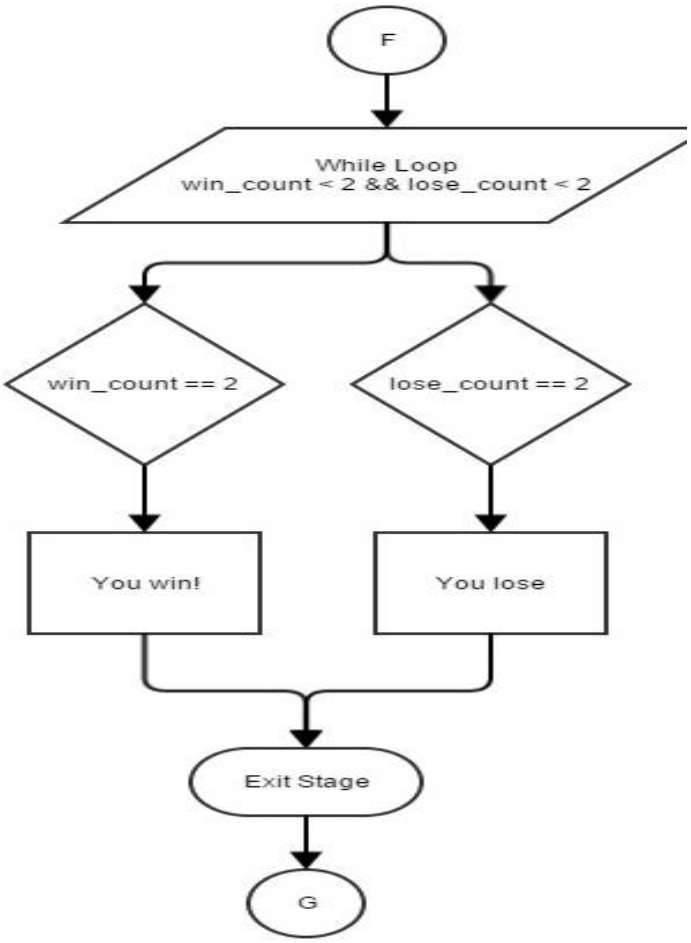
FlowChart Code:




Player
B
G
do
while
loop
input number
for 'your'
your>3
||
your<1
output the
question
C
C
Default
Scissors
Rock
Paper
D


Computer
B
do
while
loop
input number
for 'comp'
comp=0
rand()
%
E
E
Scissors
Rock
Paper
Count++
D


D
your == 1 && comp == 3)
||
(your == 2 && comp == 1)
||
(your == 3 && comp == 2
your == 1 && comp == 1)
||
(your == 2 && comp == 2)
||
(your == 3 && comp == 3
your == 3 && comp == 1)
||
(your == 1 && comp == 2)
||
(your == 2 && comp == 3
++win_count
++lose_count
You win!
Tie!
You lose!
F


F
While Loop
win_count < 2 && lose_count < 2
win_count == 2
lose_count == 2
You win!
You lose
Exit Stage
G

Variables:

Variable Name:	Description:
Your	For the players' information
Comp	To set up the probability of computer
Win	I set 0 because the game start there no win or lose
Count	Our player put rock, paper, or scissors
Win_count	To know witch player win 2 games
Lose_count	To know witch player lose 2 games

Constructs:

Keywords	Location
Do-while	do{ your = 0; while((your>3) || (your<1)
Switch	switch(your){ case 1: cout << " You pick Scissors!!\n";
Case	case 2: cout << " You pick Rock!!\n"; break; case 3: cout << " You pick Paper!!\n"; break;
Break	case 1: cout << "Computer pick

	Scissors!!\n\n" ; break;
Default	default : cout<<"Please pick 1,2 or 3,do not pick another number!!"<<endl;

While	while(comp == 0){
	comp = rand() % 4;
	}

If	if((your == 1 && comp == 3) || (your == 2 && comp == 1) || (your == 3 && comp == 2)){ ++win_count;
Else-if	if((your == 1 && comp == 1) || (your == 2 && comp == 2) || (your == 3 && comp == 3))

Reference:

1. Textbook- C++ from control structures through objects
2. Textbook- Problems solving for C++
3. Website -http://pydoing.blogspot.com/2012/10/cpp-Loop.html
4. Website -https://tw.knowledge.yahoo.com/question/question?qid=1510081702131

Program Code:

```
//System Library
#include <iostream>
#include <ctime>
#include <cstdlib>
#include <conio.h>

using namespace std;
//User Libraries

//Global Constants

//Function Prototypes

//Execution begins here
int main(void){
//Declare Variables
    int your,comp,win = 0,count = 0,win_count = 0,lose_count = 0;

    do{

        your = 0;

        while((your>3) || (your<1)){
```

```
cout << "You already play"<<count<<"games!!\n ";
cout << "--------------\n";
cout << "１ · Scissors\n";
cout << "２ · Rock\n";
cout << "３ · Paper\n";
cout << "--------------\n";
cout << "Please pick one of these from the top：";

cin >> your ;

switch(your){

case 1:
cout << " You pick Scissors!!\n";
break;

case 2:
cout << " You pick Rock!!\n";
break;

case 3:
cout << " You pick Paper!!\n";
break;

default :
```

```
cout<<"Please pick 1,2 or 3,do not pick another number!!"<<endl;

}

}

comp = 0;

while(comp == 0){

comp = rand() % 4;

}

switch(comp){

case 1:
cout << "Computer pick Scissors!!\n\n" ;
break;

case 2:
cout << "Computer pick Rock!!\n\n" ;
break;

case 3:
cout << "Computer pick Paper!!\n\n" ;
```

```
        break;
        }

        count++;


        if((your == 1 && comp == 3) || (your == 2 && comp == 1) || (your == 3 &&
comp == 2)){

        ++win_count;

        cout << "You win!!\n\n" ;

        }
        else{

        if((your == 1 && comp == 1) || (your == 2 && comp == 2) || (your == 3 &&
comp == 3)){

        cout << "Tie!!\n\n" ;

        }
        else{
        cout << "You loss!!\n\n" ;

        ++lose_count;
```

```
        }
        }

    }while(win_count < 2 && lose_count < 2);

    if(win_count == 2)
        cout << "You won two games, Championship is you!!!!!!!!!\n";

    if(lose_count == 2)
        cout << "You lost two games, you will be championship next time!\n";



    return 0;

}
```