//Source Code of Tic Tac Toe using Multiple Inheritance

```
class Game:public RPS,public TTT
#include <iostream>
#include <cstdlib>
                                                               public:
#include<ctime>
                                                                int choice1,uc;
#include<stdlib.h>
                                                                int userInput1();
using namespace std;
                                                                int userInput2();
class RPS {
                                                              };
public:
  int choice2,ac;
                                                              int main() {
  int scoreR1,scoreR2;
                                                                srand(time(0));
  RPS()
                                                                Game g;
  { scoreR1=scoreR2=0;
                                                                cout<<"Roll No. 161210040\n";
                                                                int choice;
  int Alinput1();
                                                                cout<<"Which game do you want to play?";
  void scoreR(int,int);
                                                                cout<<"\n1. Rock Paper Scissor
                                                                                                   2.Tic Tac
                                                              Toe\n";
  void checkwin1(int,int);
                                                                cin>>choice;
};
                                                                switch(choice) {
class TTT {
                                                                  case 1: int a,b,i,n;
public:
                                                                    cout<<"How many games you want to play? ";</pre>
  int a[10],choice2,scoreT1,scoreT2;
                                                                      cin>>n;
  TTT()
                                                                   cout<<"\n1.ROCK 2.PAPER
                                                                                                    3.SCISSOR\n";
  { scoreT1=scoreT2=0;
                                                                      for(i=0;i<n;i++)
    for(int i=0;i<10;i++)
                                                                      { cout<<"Game "<<i+1<<"\n";
      a[i]=i;
                                                                        a=g.userInput1();
                                                                        b=g.Alinput1();
  int Alinput2();
                                                                        g.scoreR(a,b);
  void scoreT();
  void checkwin2(int,int);
                                                                      g.checkwin1(g.scoreR1,g.scoreR2);
  void show();
                                                                      break;
};
```

```
case 2: int ch,m,j,k;
                                                                }
                                                                else if(uc==2)
         ch=5;
                                                                { if(ac==1)
         m=1;
         while(ch!=1 && m<=5)
                                                                    scoreR1++;
         \{ if(m==5) \}
                                                                  else
            ch=1;
                                                                    scoreR2++;
                                                                }
           j=g.userInput2();
           m++;
                                                                else
           k=g.Alinput2();
                                                                { if(ac==1)
           g.show();
                                                                   scoreR2++;
           g.scoreT();
                                                                  else
           if(g.scoreT1>g.scoreT2)
                                                                   scoreR1++;
            ch=g.scoreT1;
           else if(g.scoreT1<g.scoreT2)
                                                                cout<<"\nYour Score: "<<scoreR1;</pre>
               ch=g.scoreT2;
                                                                cout<<"\tCPU Score: "<<scoreR2<<endl;</pre>
         }
         g.checkwin2(g.scoreT1,g.scoreT2);
                                                              void RPS::checkwin1(int user,int AI)
         break;
                                                              { if(user==AI)
    default: cout<<"\nWrong Choice";
                                                                  cout<<"\nGAME DRAWS!\n";</pre>
                                                                else if(user<AI)
         break;
                                                                 cout<<"\nCPU WINS!\n";
 }
 return 0;
                                                                else
                                                                  cout<<"\nYOU WIN!\n";
void RPS::scoreR(int uc,int ac) {
                                                              }
  if(uc==ac)
                                                              int RPS::Alinput1()
   cout<<"";
  else if(uc==1)
                                                                choice2=(rand()%3)+1;
  { if(ac==2)
                                                                cout<<"CPU: "<<choice2;
     scoreR2++;
                                                                return choice2;
                                                              }
    else
     scoreR1++;
```

```
else if(a[1]==a[5] && a[5]==a[9])
int Game::userInput1()
{ cout<<"You:";
                                                                 { if(a[1]==10)
  cin>>choice1;
                                                                    scoreT1++;
  return choice1;
                                                                   else
}
                                                                    scoreT2++;
                                                                 }
int TTT::Alinput2()
                                                                 else if(a[2]==a[8] && a[8]==a[5])
{ int i;
                                                                 \{ if(a[2]==10) \}
  do
                                                                    scoreT1++;
  { choice2=(rand()%9)+1;
                                                                   else
    i=choice2;
                                                                    scoreT2++;
  }while((a[i]==20) | | (a[i]==10));
                                                                 else if(a[3]==a[6] && a[6]==a[9])
  cout<<"CPU: "<<choice2<<endl;
                                                                 { if(a[3]==10)
  a[i]=20;
                                                                    scoreT1++;
  return choice2;
                                                                   else
}
                                                                    scoreT2++;
void TTT::scoreT()
                                                                 else if(a[3]==a[5] && a[5]==a[7])
  if(a[1]==a[2] && a[2]==a[3])
                                                                 \{ if(a[3]==10) \}
  { if(a[1]==10)
                                                                    scoreT1++;
     scoreT1++;
                                                                   else
    else
                                                                    scoreT2++;
     scoreT2++;
  }
                                                                 else if(a[4]==a[5] && a[5]==a[6])
  else if(a[1]==a[4] && a[4]==a[7])
                                                                 \{ if(a[4]==10) \}
  { if(a[1]==10)
                                                                    scoreT1++;
     scoreT1++;
                                                                   else
    else
                                                                    scoreT2++;
     scoreT2++;
  }
                                                                 else if(a[7]==a[8] && a[8]==a[9])
```

```
{
 if(a[7]==10)
                                                              {
     scoreT1++;
                                                               cout<<"You:";
    else
                                                                 cin>>choice1;
                                                                while((a[choice1]==10)||(a[choice1]==20))
     scoreT2++;
  }
}
                                                                 cout<<"Already occupied!\n";</pre>
void TTT::checkwin2(int user,int AI)
                                                                  cout<<"Enter Again : ";</pre>
{ if(user==AI)
                                                                  cin>>choice1;
    cout<<"\nGAME DRAWS!\n";</pre>
  else if(user<AI)
                                                                 a[choice1]=10;
   cout<<"\nCPU WINS!\n";
                                                                 return choice1;
  else
    cout<<"\nYOU WIN!\n";
}
void TTT::show()
{ int i=1;
  while(i<=9) {
     if(a[i]==10)
       cout<<" o ";
     else if(a[i]==20)
       cout<<" x ";
     else
       cout<<" _ ";
      if(i%3==0)
       cout << "\n";
     i++;
  }
  cout<<endl;
int Game::userInput2()
```

```
class Game:public RPS,public TTT
#include <iostream>
#include <cstdlib>
                                                               public:
#include<ctime>
                                                                int choice1,uc;
#include<stdlib.h>
                                                                int userInput1();
using namespace std;
                                                                int userInput2();
class RPS {
                                                             };
public:
  int choice2,ac;
                                                              int main() {
  int scoreR1,scoreR2;
                                                               srand(time(0));
  RPS()
                                                               Game g;
  { scoreR1=scoreR2=0;
                                                               cout<<"Roll No. 161210040\n";
                                                               int choice;
  int Alinput1();
                                                               cout<<"Which game do you want to play?";
  void scoreR(int,int);
                                                               cout<<"\n1. Rock Paper Scissor
                                                                                                  2.Tic Tac
                                                             Toe\n";
  void checkwin1(int,int);
                                                               cin>>choice;
};
                                                               switch(choice) {
class TTT {
                                                                  case 1: int a,b,i,n;
public:
                                                                      cout<<"How many games you want to play?
  int a[10],choice2,scoreT1,scoreT2;
  TTT()
                                                                      cin>>n;
  { scoreT1=scoreT2=0;
                                                                      cout<<"\n1.ROCK
                                                                                         2.PAPER
                                                             3.SCISSOR\n";
   for(int i=0;i<10;i++)
                                                                      for(i=0;i<n;i++)
      a[i]=i;
                                                                      { cout<<"Game "<<i+1<<"\n";
  }
                                                                       a=g.userInput1();
  int Alinput2();
                                                                       b=g.Alinput1();
  void scoreT();
                                                                       g.scoreR(a,b);
  void checkwin2(int,int);
  void show();
                                                                      g.checkwin1(g.scoreR1,g.scoreR2);
};
```

```
break;
                                                                   scoreR1++;
    case 2: int ch,m,j,k;
                                                                }
         ch=5;
                                                                else if(uc==2)
         m=1;
                                                                { if(ac==1)
         while(ch!=1 && m<=5)
                                                                    scoreR1++;
         { if(m==5)
                                                                  else
            ch=1;
                                                                    scoreR2++;
                                                                }
           j=g.userInput2();
           m++;
                                                                else
           k=g.Alinput2();
                                                                { if(ac==1)
           g.show();
                                                                   scoreR2++;
           g.scoreT();
                                                                  else
           if(g.scoreT1>g.scoreT2)
                                                                   scoreR1++;
            ch=g.scoreT1;
           else if(g.scoreT1<g.scoreT2)
                                                                cout<<"\nYour Score: "<<scoreR1;</pre>
                                                                cout<<"\tCPU Score: "<<scoreR2<<endl;</pre>
               ch=g.scoreT2;
         }
         g.checkwin2(g.scoreT1,g.scoreT2);
                                                             void RPS::checkwin1(int user,int AI)
                                                             { if(user==AI)
         break;
    default: cout<<"\nWrong Choice";
                                                                 cout<<"\nGAME DRAWS!\n";</pre>
                                                                else if(user<AI)
         break;
                                                                 cout<<"\nCPU WINS!\n";
 }
 return 0;
                                                                else
                                                                 cout<<"\nYOU WIN!\n";
void RPS::scoreR(int uc,int ac) {
  if(uc==ac)
                                                             int RPS::Alinput1()
   cout<<"";
  else if(uc==1)
                                                                choice2=(rand()%3)+1;
                                                                cout<<"CPU: "<<choice2;
  { if(ac==2)
     scoreR2++;
                                                               return choice2;
    else
                                                             }
```

```
}
int Game::userInput1()
                                                                 else if(a[1]==a[5] && a[5]==a[9])
{ cout<<"You:";
                                                                { if(a[1]==10)
  cin>>choice1;
                                                                    scoreT1++;
  return choice1;
                                                                  else
}
                                                                    scoreT2++;
                                                                 }
                                                                 else if(a[2]==a[8] && a[8]==a[5])
int TTT::Alinput2()
{ int i;
                                                                 { if(a[2]==10)
  do
                                                                    scoreT1++;
  { choice2=(rand()%9)+1;
                                                                  else
    i=choice2;
                                                                    scoreT2++;
  }while((a[i]==20) | | (a[i]==10));
                                                                 else if(a[3]==a[6] && a[6]==a[9])
  cout<<"CPU: "<<choice2<<endl;
                                                                 \{ if(a[3]==10) \}
  a[i]=20;
                                                                    scoreT1++;
  return choice2;
                                                                  else
                                                                    scoreT2++;
void TTT::scoreT()
                                                                 }
                                                                 else if(a[3]==a[5] && a[5]==a[7])
  if(a[1]==a[2] && a[2]==a[3])
                                                                \{ if(a[3]==10) \}
  { if(a[1]==10)
                                                                    scoreT1++;
     scoreT1++;
                                                                  else
    else
                                                                    scoreT2++;
     scoreT2++;
  }
                                                                 else if(a[4]==a[5] && a[5]==a[6])
  else if(a[1]==a[4] && a[4]==a[7])
                                                                 { if(a[4]==10)
  { if(a[1]==10)
                                                                    scoreT1++;
     scoreT1++;
                                                                  else
    else
                                                                    scoreT2++;
     scoreT2++;
                                                                 }
```

```
else if(a[7]==a[8] && a[8]==a[9])
                                                                    i++;
  \{ if(a[7]==10) \}
     scoreT1++;
                                                                 cout<<endl;
    else
                                                              int Game::userInput2()
     scoreT2++;
  }
                                                              { cout<<"You:";
}
                                                                 cin>>choice1;
void TTT::checkwin2(int user,int AI)
                                                                 while((a[choice1]==10)||(a[choice1]==20))
{ if(user==AI)
                                                                 { cout<<"Already occupied!\n";
    cout<<"\nGAME DRAWS!\n";</pre>
                                                                  cout<<"Enter Again : ";</pre>
  else if(user<AI)
                                                                  cin>>choice1;
   cout<<"\nCPU WINS!\n";
                                                                 a[choice1]=10;
  else
    cout<<"\nYOU WIN!\n";
                                                                 return choice1;
}
                                                              }
void TTT::show()
{ int i=1;
  while(i<=9) {
     if(a[i]==10)
       cout<<" o ";
     else if(a[i]==20)
       cout<<" x ";
     else
       cout<<" _ ";
      if(i%3==0)
       cout << "\n";
```