//Source Code of Tic Tac Toe using Multiple Inheritance

```cpp
#include <iostream>

#include <cstdlib>

#include<ctime>

#include<stdlib.h>

using namespace std;

class RPS {

 public:

   int choice2,ac;

   int scoreR1,scoreR2;

    RPS()

    { scoreR1=scoreR2=0;

    }

   int AIinput1();

   void scoreR(int,int);

   void checkwin1(int,int);

};

class TTT {

 public:

   int a[10],choice2,scoreT1,scoreT2;

   TTT()

   { scoreT1=scoreT2=0;

     for(int i=0;i<10;i++)

       a[i]=i;

   }

   int AIinput2();

   void scoreT();

   void checkwin2(int,int);

   void show();

};

class Game:public RPS,public TTT

{

  public:

    int choice1,uc;

    int userInput1();

    int userInput2();

};


int main() {

  srand(time(0));

  Game g;

  cout<<"Roll No. 161210040\n";

  int choice;

  cout<<"Which game do you want to play?";

  cout<<"\n1. Rock Paper Scissor     2.Tic Tac
Toe\n";

  cin>>choice;

  switch(choice) {

    case 1: int a,b,i,n;

      cout<<"How many games you want to play? ";

       cin>>n;

     cout<<"\n1.ROCK    2.PAPER    3.SCISSOR\n";

       for(i=0;i<n;i++)

       { cout<<"Game "<<i+1<<"\n";

         a=g.userInput1();

         b=g.AIinput1();

         g.scoreR(a,b);

       }

       g.checkwin1(g.scoreR1,g.scoreR2);

       break;
```

```cpp
    case 2:  int ch,m,j,k;

            ch=5;

            m=1;

            while(ch!=1 && m<=5)

            {  if(m==5)

                ch=1;

              j=g.userInput2();

              m++;

              k=g.AIinput2();

              g.show();

              g.scoreT();

              if(g.scoreT1>g.scoreT2)

                ch=g.scoreT1;

              else if(g.scoreT1<g.scoreT2)

                    ch=g.scoreT2;

            }

            g.checkwin2(g.scoreT1,g.scoreT2);

            break;

        default: cout<<"\nWrong Choice";

            break;

  }

  return 0;

}
void RPS::scoreR(int uc,int ac) {

  if(uc==ac)

    cout<<"";

  else if(uc==1)

  {  if(ac==2)

      scoreR2++;

    else

      scoreR1++;
    }
    else if(uc==2)
    {  if(ac==1)

        scoreR1++;

      else

        scoreR2++;

    }

    else

    {  if(ac==1)

        scoreR2++;

      else

        scoreR1++;

    }

    cout<<"\nYour Score: "<<scoreR1;

    cout<<"\tCPU Score: "<<scoreR2<<endl;

}
void RPS::checkwin1(int user,int AI)

{  if(user==AI)

      cout<<"\nGAME DRAWS!\n";

    else if(user<AI)

      cout<<"\nCPU WINS!\n";

    else

      cout<<"\nYOU WIN!\n";

}
int RPS::AIinput1()

{

    choice2=(rand()%3)+1;

    cout<<"CPU : "<<choice2;

    return choice2;

}
```

```cpp
int Game::userInput1()
{   cout<<"You : ";
    cin>>choice1;
    return choice1;
}

int TTT::AIinput2()
{   int i;
    do
    {   choice2=(rand()%9)+1;
        i=choice2;
    }while((a[i]==20) || (a[i]==10));

    cout<<"CPU : "<<choice2<<endl;
    a[i]=20;
    return choice2;
}
void TTT::scoreT()
{
    if(a[1]==a[2] && a[2]==a[3])
    {   if(a[1]==10)
            scoreT1++;
        else
            scoreT2++;
    }
    else if(a[1]==a[4] && a[4]==a[7])
    {   if(a[1]==10)
            scoreT1++;
        else
            scoreT2++;
    }

    else if(a[1]==a[5] && a[5]==a[9])
    {   if(a[1]==10)
            scoreT1++;
        else
            scoreT2++;
    }
    else if(a[2]==a[8] && a[8]==a[5])
    {   if(a[2]==10)
            scoreT1++;
        else
            scoreT2++;
    }
    else if(a[3]==a[6] && a[6]==a[9])
    {   if(a[3]==10)
            scoreT1++;
        else
            scoreT2++;
    }
    else if(a[3]==a[5] && a[5]==a[7])
    {   if(a[3]==10)
            scoreT1++;
        else
            scoreT2++;
    }
    else if(a[4]==a[5] && a[5]==a[6])
    {   if(a[4]==10)
            scoreT1++;
        else
            scoreT2++;
    }
    else if(a[7]==a[8] && a[8]==a[9])
```

```cpp
   {
    if(a[7]==10)
        scoreT1++;
      else
        scoreT2++;
    }
}
void TTT::checkwin2(int user,int AI)
{   if(user==AI)
      cout<<"\nGAME DRAWS!\n";
    else if(user<AI)
      cout<<"\nCPU WINS!\n";
    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()
{
  cout<<"You : ";
    cin>>choice1;
    while((a[choice1]==10)||(a[choice1]==20))
    {
     cout<<"Already occupied!\n";
      cout<<"Enter Again : ";
      cin>>choice1;
    }
    a[choice1]=10;
    return choice1;
}
```

```cpp
#include <iostream>
#include <cstdlib>
#include<ctime>
#include<stdlib.h>
using namespace std;
class RPS {
 public:
   int choice2,ac;
   int scoreR1,scoreR2;
    RPS()
    { scoreR1=scoreR2=0;
    }
   int AIinput1();
   void scoreR(int,int);
   void checkwin1(int,int);
};
class TTT {
 public:
   int a[10],choice2,scoreT1,scoreT2;
   TTT()
   { scoreT1=scoreT2=0;
     for(int i=0;i<10;i++)
        a[i]=i;
   }
   int AIinput2();
   void scoreT();
   void checkwin2(int,int);
   void show();
};

class Game:public RPS,public TTT
{
 public:
   int choice1,uc;
   int userInput1();
   int userInput2();
};

int main() {
  srand(time(0));
  Game g;
  cout<<"Roll No. 161210025\n";
  int choice;
  cout<<"Which game do you want to play?";
  cout<<"\n1. Rock Paper Scissor      2.Tic Tac Toe\n";
  cin>>choice;
  switch(choice) {
    case 1: int a,b,i,n;
        cout<<"How many games you want to play? ";
        cin>>n;
        cout<<"\n1.ROCK     2.PAPER     3.SCISSOR\n";
        for(i=0;i<n;i++)
        { cout<<"Game "<<i+1<<"\n";
          a=g.userInput1();
          b=g.AIinput1();
          g.scoreR(a,b);
        }
        g.checkwin1(g.scoreR1,g.scoreR2);
```

```cpp
                    break;
         case 2:  int ch,m,j,k;
                ch=5;
                m=1;
                while(ch!=1 && m<=5)
                {  if(m==5)
                      ch=1;
                   j=g.userInput2();
                   m++;
                   k=g.AIinput2();
                   g.show();
                   g.scoreT();
                   if(g.scoreT1>g.scoreT2)
                     ch=g.scoreT1;
                   else if(g.scoreT1<g.scoreT2)
                        ch=g.scoreT2;
                }
                g.checkwin2(g.scoreT1,g.scoreT2);
                break;
         default: cout<<"\nWrong Choice";
                break;
    }
    return 0;
}
void RPS::scoreR(int uc,int ac) {
    if(uc==ac)
      cout<<"";
    else if(uc==1)
    {  if(ac==2)
        scoreR2++;
      else
```

```cpp
               scoreR1++;
      }
      else if(uc==2)
      {  if(ac==1)
           scoreR1++;
        else
           scoreR2++;
      }
      else
      {  if(ac==1)
           scoreR2++;
        else
           scoreR1++;
      }
      cout<<"\nYour Score: "<<scoreR1;
      cout<<"\tCPU Score: "<<scoreR2<<endl;
}
void RPS::checkwin1(int user,int AI)
{  if(user==AI)
      cout<<"\nGAME DRAWS!\n";
    else if(user<AI)
      cout<<"\nCPU WINS!\n";
    else
      cout<<"\nYOU WIN!\n";
}
int RPS::AIinput1()
{
    choice2=(rand()%3)+1;
    cout<<"CPU : "<<choice2;
    return choice2;
}
```

```cpp
int Game::userInput1()
{  cout<<"You : ";
   cin>>choice1;
   return choice1;
}

int TTT::AIinput2()
{  int i;
   do
   {   choice2=(rand()%9)+1;
       i=choice2;
   }while((a[i]==20) || (a[i]==10));

   cout<<"CPU : "<<choice2<<endl;
   a[i]=20;
   return choice2;
}
void TTT::scoreT()
{
   if(a[1]==a[2] && a[2]==a[3])
   {  if(a[1]==10)
       scoreT1++;
     else
       scoreT2++;
   }
   else if(a[1]==a[4] && a[4]==a[7])
   {  if(a[1]==10)
       scoreT1++;
     else
       scoreT2++;
   }
   else if(a[1]==a[5] && a[5]==a[9])
   {  if(a[1]==10)
       scoreT1++;
     else
       scoreT2++;
   }
   else if(a[2]==a[8] && a[8]==a[5])
   {  if(a[2]==10)
       scoreT1++;
     else
       scoreT2++;
   }
   else if(a[3]==a[6] && a[6]==a[9])
   {  if(a[3]==10)
       scoreT1++;
     else
       scoreT2++;
   }
   else if(a[3]==a[5] && a[5]==a[7])
   {  if(a[3]==10)
       scoreT1++;
     else
       scoreT2++;
   }
   else if(a[4]==a[5] && a[5]==a[6])
   {  if(a[4]==10)
       scoreT1++;
     else
       scoreT2++;
   }
```

```cpp
        else if(a[7]==a[8] && a[8]==a[9])
        {  if(a[7]==10)
            scoreT1++;
          else
            scoreT2++;
        }
}
void TTT::checkwin2(int user,int AI)
{  if(user==AI)
      cout<<"\nGAME DRAWS!\n";
    else if(user<AI)
      cout<<"\nCPU WINS!\n";
    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()
{  cout<<"You : ";
   cin>>choice1;
   while((a[choice1]==10)||(a[choice1]==20))
   { cout<<"Already occupied!\n";
     cout<<"Enter Again : ";
     cin>>choice1;
   }
   a[choice1]=10;
   return choice1;
}
```