```cpp
//ITP PROJECT CODE

#include <iostream>

#include <string>

#include <cstdlib>

#include <ctime>

#include <cstdio>

/***********Function ProtoTypes*************/

void pattern_rules();

void endgame();

void drawLine(int n, char symbol);

void casino_rules();

void backTomenu();

using namespace std;


/************Tic Tac Toe Functions*************/

char board[3][3]={{'1','2','3'},{'4','5','6'},{'7','8','9'}};

char turn='X';

int row,column;

bool draw=false;

void display_board()
```

```cpp
{
system("cls");

cout<< "\n\n\t\t\t\t\t\tTic Tac Toe Game"<<endl<<endl;

cout<<"\tPlayer1 [x] \n\tPlayer2 [O]\n\n";


cout << "\t\t\t\t\t\t    |    |     \n" ;

cout << "\t\t\t\t\t\t"<< "  " << board[0][0] << "  |  " << board[0][1] << "  | " << board[0][2] << "    \n";


cout << "\t\t\t\t\t\t_____|_____|_____ \n" ;

cout << "\t\t\t\t\t\t    |    |     \n" ;


cout << "\t\t\t\t\t\t"<< "  " << board[1][0] << "  |  " << board[1][1] << "  | " << board[1][2]<< "    \n" ;


cout << "\t\t\t\t\t\t_____|_____|_____ \n" ;

cout << "\t\t\t\t\t\t    |    |     \n" ;


cout << "\t\t\t\t\t\t"<< "  " << board[2][0] << "  |  " << board[2][1] << "  | " << board[2][2] << "    \n";
```

```cpp
cout << "\t\t\t\t\t\t   |   |    \n" ;

}

void player_turn()

{

int choice;

if(turn=='X')

{

cout<<"\n\tPlayer 1 [X] turn :";

}

if(turn=='O')

{

cout<<"\n\tPlayer 2 [O] turn :";

}

cin>>choice;

switch(choice)

{

case 1:

row=0;column=0;

break;

case 2:
```

```
row=0;column=1;

break;

case 3:

row=0;column=2;

break;

case 4:

row=1;column=0;

break;        case 5:

row=1;column=1;

break;

case 6:

row=1;column=2;

break;

case 7:

row=2;column=0;

break;

case 8:

row=2;column=1;

break;

case 9:
```

```cpp
row=2;column=2;

break;

default:

cout<<"Invalid Choice\n";

break;

}

if(turn=='X' &&board[row][column]!='X' && board[row][column]!='O'){

board[row][column]='X';

turn='O';

}

else if(turn=='O'  && board[row][column]!='X' &&
board[row][column]!='O') {


board[row][column]='O';

turn='X';

}

else{


cout<<"Box already filled!\n Please try again!!\n\n"<<endl;

player_turn();
```

```
}

display_board();

}

bool gameover(){

//check win

for(int i=0;i<3;i++)

if(board[i][0]==board[i][1]&&board[i][0]==board[i][2] ||
board[0][i]==board[1][i] && board[0][i]==board[2][i])

return false;

if(board[0][0]==board[1][1] &&board[0][0]==board[2][2] ||
board[0][2]==board[1][1] &&board[0][2]==board[2][0])

return false;


for(int i=0;i<3;i++)

for(int j=0;j<3;j++)

if (board[i][j]!='X' && board[i][j]!='O')

return true;

//draw

draw=true;

return false;
```

```
}


/********Main Function*********/

int main()

{


/***********DECLARATIONS***********/

int Game_No;

int  Dice1, Dice2 ,Dice3, Dice4, total1, total2;

int a,pattern_choice,run=1,l=1,m=0;

int d1,d2,d3,sum_old,sum_new,runtime=1;

int bettingAmount, guess, casino_dice, total;

long amount;

char key,choice,DiceNo;

char casino_choice, user_guess, dice_key;

string player1name, player2name ,menu;

string
color[4]={"RED","GREEN","BLUE","YELLOW"},comp[50],temp[50],pattern_key;
```

```cpp
/***********DECLARATIONS ENDED***********/



drawLine(80,'+');

cout<<"\n\n\n\t\t\t\t  GAME-MENU\n\n\n";

drawLine(80,'+');

cout<<endl<<endl;


cout<<"\t|Game No|      |Games Name|  \n\n";

cout<<"\t Game:1    <<Tic-Tac-Toe>>\n";

cout<<"\t Game:2    <<Casino Number Guessing Game>>\n";

cout<<"\t Game:3    <<Follow The Pattern>>\n";

cout<<"\t Game:4    <<Dice Games>>\n";


do{

cout<<"\n\tEnter the Number of Game You want to play: ";

cin>>Game_No;

if(Game_No<1 || Game_No>4)
```

```cpp
{
cout<<"\tSorry! There isn't any Game No "<<Game_No<<"."<<endl;

cout<<"\tPlz Read the Menu Given above!"<<endl;

}
}while(Game_No<1 || Game_No>4);

system("cls");

switch(Game_No)
{
case 1:          //TIC TAC TOE

while(gameover())
{
display_board();
player_turn();
gameover()      ;
}
if(turn=='X'&& draw==false)
cout<<"Player2 [O] Wins Congratulations\n";
else if(turn=='O'&&draw==false)
```

```cpp
cout<<"Player1 [X] Wins!! Congratulations\n";

else

cout<<"Game Draw!!!\n";


backTomenu();

break;


case 2:        //CASINO GAME


srand(time(0));


drawLine(65,'_');

cout << "\n\n\n\n\t\t||<<<===CASINO GAME===>>>||\n\n\n\n";

drawLine(65,'_');


cout << "\n\nEnter an amount to start the Game: $";

cin >> amount;


do
```

```cpp
{
system("cls");

casino_rules();

cout << "\n\nYour current balance is $ " << amount << "\n";



do
{
cout <<"Enter money to bet : $";

cin >> bettingAmount;

if(bettingAmount > amount)

cout << "Your betting amount is more than your current balance\n"

   <<"\nRe-enter data\n ";

}while(bettingAmount > amount);



do
{
cout << "Guess your number to bet between 1 to 10 :";

cin >> guess;
```

```cpp
if(guess <= 0 || guess > 10)

cout << "Please check the number!! should be between 1 to 10\n\nRe-
enter data\n ";

}while(guess <= 0 || guess > 10);


casino_dice = rand()%10 + 1;


if(casino_dice == guess)

{

total = bettingAmount * 10;

cout << "\n\nGood Luck!! You won Rs." << total;

amount = amount + total;

}

else

{

cout << "Bad Luck this time !! You lost $ "<< bettingAmount <<"\n";

amount = amount - bettingAmount;

}


cout << "\nThe winning number was : " << casino_dice <<"\n";
```

```cpp
cout << "\nYou have $ " << amount << " remaining.\n";

if(amount == 0)

{

cout << "You have no money to play! ";

break;

}

cout << "\n\n-->Do you want to play again (y/n)? ";

cin >> casino_choice;

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


cout << "\n\n\n";

drawLine(80,'=');

cout << "\n\n\tThanks for playing game. Your balance amount is $ " << amount << "\n\n";

drawLine(80,'=');


backTomenu();


break;
```

```cpp
case 3:                //PATTERN GAME


pattern_rules();

cout<<"        Enter any key to start the Game: ";

cin>>pattern_key;

system("cls");

while(run==1){

srand(time(0));

a=rand()%4;

cout<<"\tPOP-UP: ";

cout<<color[a];

comp[m]=color[a];//

cout<<"\n\tRED means 0 \n\tGREEN means 1 \n\tBLUE means 2 \n\tYELLOW means 3 \n";

for(int j=0; j<l;j++){

cout<<"\t==> ";

cin>>pattern_choice;
```

```cpp
*(temp+j)=*(color+pattern_choice);

}

cout<<endl<<endl;

for(int j=0;j<l;j++){

if(*(temp+j)==*(comp+j))

{

run=1;

}

else

{

run=0;

j=500;

}

}

l++;

m++;

}


endgame();
```

```cpp
backTomenu();



//backTomenu();



break;



case 4:              //DICE GAMES

cout<<"\n\n\t\tWhich Dice Game u want to play?\n";

cout<<"\t\tA:  <<Two Player>>\n";

cout<<"\t\tB:  <<Single Player>>\n";

cout<<"\t\tCHOOSE(A or B): ";

cin>>DiceNo;

system("cls");

switch(DiceNo)

{

case 'A':

case 'a':
```

```cpp
cout<<"\n\n
_____
_____\n\n";
cout<<"    =================<TWO-PLAYER DICE
GAME>=================";
cout<<"\n
_____
_____\n\n\n\n";
cout<<"\nPlayer 1,\nEnter your name: ";
cin>>player1name;
cout<<"\nPlayer 2,\nEnter your name: ";
cin>>player2name;
system("cls");
do{

Dice1 = rand() % 6 + 1;
Dice2 = rand() % 6 + 1;
Dice3 = rand() % 6 + 1;
Dice4 = rand() % 6 + 1;
total1=Dice1+Dice2;
total2=Dice3+Dice4;
```

```cpp
cout<<"\n\n

_____

\n\n";

cout<<"    ===================<TWO-PLAYER DICE GAME>===================";

cout<<"\n

_____

\n\n\n\n";

cout<<"    "<<player1name<<",\n    Your turn. Enter ANY key to roll a dice: ";

cin>>key;

cout<<"\n\n";

cout<<"         _____    _____\n";

cout<<"        |       |  |       |\n";

cout<<"        |   "<<Dice1<<"   |  |   "<<Dice2<<"   |\n";

cout<<"        |_____|  |_____|\n\n\n\n\n";


cout<<"    "<<player2name<<",\n    Your turn. Enter ANY key to roll a dice: ";

cin>>key;

cout<<"\n\n";
```

```cpp
        cout<<"          _____    _____\n";

        cout<<"        |     | |       |\n";

        cout<<"        |   "<<Dice3<<"   | |   "<<Dice4<<"   |\n";

        cout<<"        |_____| |_____|\n\n\n\n\n\n";



        if(total1>total2)

        {

                cout<<"    |||===<Player1 Won!>===|||";

                }

        else if(total1<total2)

        {

                cout<<"    |||===<Player2 Won!>===|||";

                }

         else

        {

                cout<<"    |||===<Game Drawn!>===|||";

        }

        cout<< "\n\n\n    Do you want to play again?(y/n): ";

        cin>>choice;

        if(choice=='y')
```

```cpp
        {
            system("cls");
        }
        else
        {
            cout<<"\n\n\n";
            cout<<"    _____\n\n";
            cout<<"   |||...Thanks for PLaying...|||\n";
            cout<<"    _____";
        }
    }while(choice=='y'|| choice=='Y');


    backTomenu();



    break;


    case 'B':
    case 'b':
```

```cpp
cout<<"\n\n
_____
_\n\n";
cout<<"    ================<SINGLE-PLAYER DICE GAME>=================";
cout<<"\n
_____
_\n\n\n\n";
while(runtime==1)
{
d1 = (rand() % 6) + 1;
d2 = (rand() % 6) + 1;
d3 = (rand() % 6) + 1;
sum_old = d1 + d2 + d3;
cout<<"\n    Press any Key to Roll a Dice: ";
cin>>dice_key;
cout<<"\n\n";
cout<<"      _____   _____   _____\n";
cout<<"     |      | |      |   |      |\n";
cout<<"     | "<<d1<<" | | "<<d2<<" |  | "<<d3<<"  |\n";
cout<<"     |_____| |_____|  |_____|\n\n\n\n\n";
```

```cpp
cout<<"\n    You have rolled: <"<<d1<<"> <"<<d2<<">
<"<<d3<<">"<<endl;

cout<<"    Your total is : "<<sum_old;

cout<<"\n\n    Will your next total be higher(h), lower(l) or the
same(s)?\n    (q to quit) (h/l/s/q): ";




while(runtime==1) {

do{

cin>>user_guess;

}while(user_guess != 'h' && user_guess!='H'&& user_guess != 's' &&
user_guess!='S'&& user_guess != 'l' && user_guess!='L' && user_guess
!= 'q' && user_guess!='Q' );




srand(time(NULL));

d1 = (rand() % 6) + 1;

d2 = (rand() % 6) + 1;

d3 = (rand() % 6) + 1;

sum_new = d1 + d2 + d3;

if(user_guess=='q' || user_guess=='Q') {
```

```cpp
system("cls");

backTomenu();

runtime = 0;

return 0;

}

cout<<"\n    Press any Key to Roll a Dice: ";

cin>>dice_key;

cout<<"\n\n";

cout<<"      _____   _____   _____\n";
cout<<"     |     | |     | |     |\n";
cout<<"     | "<<d1<<" | | "<<d2<<" | | "<<d3<<"  |\n";
cout<<"     |_____| |_____| |_____|\n\n\n\n\n";
cout<<"\n    You have rolled: <"<<d1<<"> <"<<d2<<">
<"<<d3<<">"<<endl;

cout<<"    Your total is : "<<sum_new;

if((user_guess == 'h' || user_guess=='H')&& sum_new > sum_old)

{

cout<<"\n    YOUR PREDICTION WAS CORRECT!!\n";

}
```

```cpp
else if((user_guess=='l' || user_guess=='L') && sum_new < sum_old) {

cout<<"\n    YOUR PREDICTION WAS CORRECT!!\n";

}

else if((user_guess=='s' || user_guess=='S') && sum_new == sum_old  )
{

cout<<"\n    YOUR PREDICTION WAS CORRECT!!\n";

}

else {

cout<<"\n    YOUR PREDICTION WAS WRONG!!\n";//

}

sum_old = sum_new;

cout<<"\n\n    Will your next total be higher(h), lower(l) or the
same(s)?\n    (q to quit) (h/l/s/q): ";

}

}

cout<<"    Congratulations on completing the game!";


backTomenu();
```

```cpp
            break;

        default:

        cout<<"\t\tINVALID INPUT!!!";

        backTomenu();


        }


        break;




        default:

        break;

        }



        return 0;

        }
```
/**********END OF MAIN**************/

```cpp
/*************Functions Defination ***************/

void drawLine(int n, char symbol)  //Function to draw a line
{
for(int i=0; i<n; i++)
cout << symbol;


}


void casino_rules()        //Casino Game rules
{
system("cls");
cout << "\n\n";
cout<<"|";
drawLine(80,'=');
cout<<"|\n";
cout << "\t\t\t <<RULES OF THE GAME>>\n";
cout<<"|";
drawLine(80,'=');
cout<<"|\n";
```

```cpp
cout << "\t 1. Choose any number between 1 to 10.\n";

cout << "\t 2. If you win, you will get 10 times of money you bet.\n";

cout << "\t 3. If you bet on wrong number you will lose your betting amount.\n\n";

cout<<"|";

drawLine(80,'=');

cout<<"|\n";

}

void endgame()       //Pattern Game Function

{

//system("cls");

cout<<"\n\n\n";

cout<<"\t\t\t\t\t||<<<===YOU LOST THE PATTERN===>>>||";

cout<<"\n\t\t\t\t\t ||<<<===THANKS FOR PLAYING===>>>||";

cout<<"\n\n\n";

}

void pattern_rules()   //Pattern Game rules

{


cout << "\n\n";
```

```cpp
cout<<"\t|";

drawLine(60,'=');

cout<<"|\n";

cout<<"\t\t  ||<<<===FOLLOW THE PATTERN===>>>||\n";

cout<<"|";

drawLine(80,'=');

cout<<"|\n";

cout << "\t\t\t <<RULES OF THE GAME>>\n";

cout<<"|";

drawLine(80,'=');

cout<<"|\n\n";

cout << "\t 1. There are 4 colors in this game.\n";

cout << "\t 2. Every color denotes a number.\n";

cout << "\t 3. At the start a pop-up will appear showing a color and \n\t you have to enter number which that color denotes.\n";

cout << "\t 4. You have to follow the patterns of pop-ups,if u fail to,\n\t the game will end.\n\n";

cout<<"|";

drawLine(80,'=');

cout<<"|\n";
```

```cpp
}
/*****BACK TO MENU FUNCTIONS*******/
void backTomenu()
{
        string menu;
cout<<"\n\n\t\t|===========================>>>";
cout<<"\n\t\t  Enter M to go back to menu: ";


cout<<"\n\t\t|===========================>>>";
cin>>menu;


if(menu =="M" || menu =="m")
{
system("cls");
main();
}
else
{
system("cls");
cout<<"\n\n\n\t\t\tThanks For Playing!";
```

```
    }

}
```

/**************THE END*******************/