Programming Fundamentals Lab
Course Code # CS-102

Semester Project

Snake Game

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Submitted by:

Registration #	Name
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Source Code:

```
1.  #include <iostream>
2.  #include <conio.h>
3.  #include <windows.h>
4.  using namespace std ;
5.
6.  void gotoxy( short int , short int ) ;
7.  void Border() ;
8.  void Draw() ;
9.  void Input() ;
10.void Setup() ;
11.void Logic() ;
12.void Replay() ;
13.
14.bool gameOver ;
15.char name[10] ;
16.const int width = 20 , height = 20 ;
17.int x , y , fruitX , fruitY , score , choice , tailX[100], tailY[100] , nTail ;
18.enum eDirecton { STOP = 0 , LEFT , RIGHT , UP , DOWN } ;
19.eDirecton dir ;
20.
21.int main()
22.{
23.         system("cls"); //clear screen
24.         //game startup
25.                  Setup() ;
26.    //game
27.                  while ( !gameOver )
28.              {
29.                 Draw() ;
30.                   Border() ;
31.                           Input() ;
32.                 Logic() ;
33.              }
34.    //ask for replay
35.    Replay() ;
36.
37.    return 0 ;
38.}
```

```
39.
40.void gotoxy( short int a , short int b )
41.{
42.         COORD V = { a , b } ;
43.         SetConsoleCursorPosition ( GetStdHandle ( STD_OUTPUT_HANDLE ) , V ) ;
44.}
45.
46.void Replay() //end game screen and ask to replay
47.{
48.         Border() ;
49.         gotoxy(17,3) ;
50.         cout<<"Game End";
51.    gotoxy(13,6) ;
52.                  cout<<"Hi!" ;
53.    gotoxy(16,7) ;
54.                  cout<<name ;
55.    gotoxy(13,8) ;
56.                  cout<<"Your Score is "<<score ;
57.    gotoxy(11,19) ;
58.                  cout<<"Press Any key to Exit " ;
59.         gotoxy(11,20) ;
60.                  cout<<"and 'Y' to play again " ;
61.    char play = getch() ;
62.    if( play == 'Y' || play == 'y')
63.    {
64.                  main() ;
65.         }
66.}
67.
68.void Border() //border to game
69.{
70.         gotoxy(0,1) ;
71.         for (int i = 0; i < width+2; i++)
72.        cout << "# " ;
73.    cout << endl ;
74.    for (int i = 0; i < height; i++)
75.    {
76.        for (int j = 0; j < width; j++)
77.        {
```

```
78.           if ( j == 0 )
79.               cout << "# " ;
80.          cout << "  ";
81.           if ( j == width - 1 )
82.               cout << "#" ;
83.       }
84.       cout << endl ;
85.    }
86.    for ( int i = 0 ; i < width+2 ; i++ )
87.       cout << "# " ;
88.    cout << endl ;
89.}
90.
91.void Draw()
92.{
93.
94.          //score bar
95.                   gotoxy(16,0) ;
96.                   cout << "Score : " << score << endl ;
97.          //game play area
98.          gotoxy(0,2) ;
99.    for ( int i = 0 ; i < height ; i++ )
100.           {
101.              for ( int j = 0 ; j < width ; j++ )
102.              {
103.                if ( j == 0 )
104.                    cout << "# " ;
105.                 if ( i == y && j == x )
106.                    cout << "@ " ;
107.                 else if ( i == fruitY && j == fruitX )
108.                    cout << "o " ;
109.                 else
110.                 {
111.                    bool print = false ;
112.                    for ( int k = 0 ; k < nTail ; k++ )
113.                    {
114.                       if ( tailX[k] == j && tailY[k] == i )
115.                       {
116.                          cout << "* " ;
```

```
                    print = true ;
                }
            }
            if ( !print )
            {
                cout << "  " ;
                    }
                }
        }
        cout << endl ;
    }
    gotoxy(0,25) ;
    Sleep(70) ; //speed control
}

void Input() //input from user to change snake direction
{
    if (_kbhit())
    {
        switch (_getch())
        {
                case 'a' :
                    dir = LEFT ;
                    break ;
                case 'd' :
                    dir = RIGHT ;
                    break ;
                case 'w' :
                    dir = UP ;
                    break ;
                case 's' :
                    dir = DOWN ;
                    break ;
                case ' ' :
                    gameOver = true ;
                    break ;
        }
    }
}
```

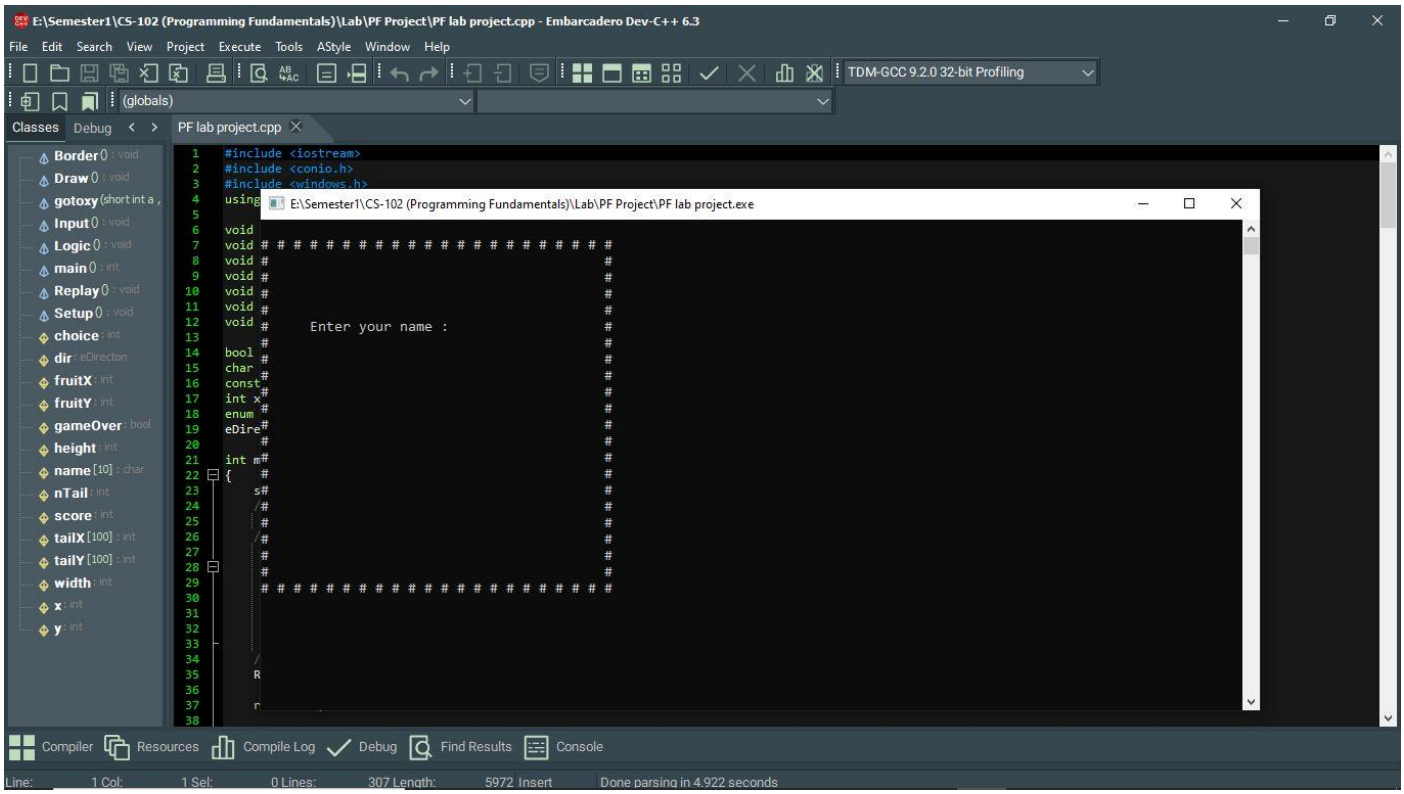
```
156.
157.    void Setup()
158.    {
159.        //startup initialize
160.            nTail = 0 ;
161.            score = 0 ;
162.          gameOver = false ;
163.          dir = STOP ;
164.          x = width / 2 ;
165.          y = height / 2 ;
166.          fruitX = rand() % width ;
167.          fruitY = rand() % height ;
168.       //name
169.          Border() ;
170.          gotoxy( 6 , 6 ) ;
171.            cout << "Enter your name : " ;
172.            gets(name);
173.        //choice
174.            Border() ;
175.            gotoxy(4,6) ;
176.                cout << "Enter choice ( default : Regular ) :";
177.            gotoxy(8,7) ;
178.                cout << "1. Regular";
179.            gotoxy(8,8) ;
180.                cout << "2. Bordered";
181.            gotoxy(11,9) ;
182.                choice = getch() ;
183.        //note
184.            Border();
185.            gotoxy(5,5) ;
186.                cout<<"Note:" ;
187.            gotoxy(9,6) ;
188.                cout<<"Use W,A,S & D keys to " ;
189.            gotoxy(9,7) ;
190.                cout<<"move and space to exit" ;
191.            gotoxy(10,15) ;
192.                cout<<"Press 'Y' to Start " ;
193.            char z = getch() ;
194.            if( z == 'Y' || z == 'y' )
```

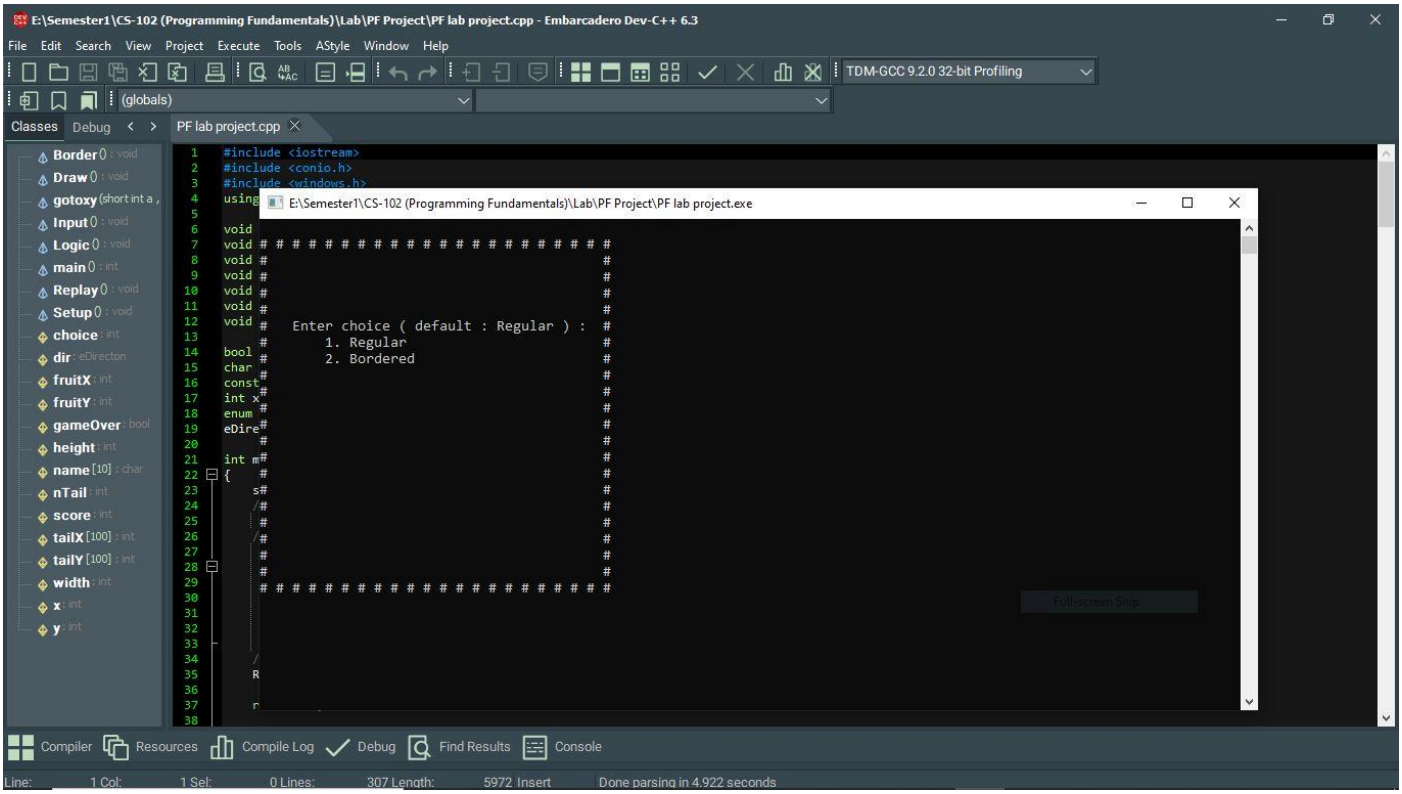
```
195.                    {
196.
197.                    }
198.                    else
199.                    {
200.                            Replay() ;
201.                    }
202.    }
203.
204.    void Logic()
205.    {
206.       int prevX = tailX[0] ;
207.       int prevY = tailY[0] ;
208.       int prev2X, prev2Y ;
209.       tailX[0] = x ;
210.       tailY[0] = y ;
211.
212.            for ( int i = 1 ; i < nTail ; i++ )
213.       {
214.          prev2X = tailX[i] ;
215.          prev2Y = tailY[i] ;
216.          tailX[i] = prevX ;
217.          tailY[i] = prevY ;
218.          prevX = prev2X ;
219.          prevY = prev2Y ;
220.       }
221.       //movement of snake
222.              switch (dir)
223.              {
224.                      case LEFT :
225.                         x-- ;
226.                         break ;
227.                      case RIGHT :
228.                         x++ ;
229.                         break ;
230.                      case UP :
231.                         y-- ;
232.                         break ;
233.                      case DOWN :
```

```
                    y++ ;
                    break ;
                default :
                    break ;
            }
        //bordered or regular
            switch ( choice )
            {
                case '1' :
                    //regular
                    if (x >= width)
                        {
                            x = 0 ;
                        }
                        else if (x < 0)
                        {
                            x = width - 1 ;
                        }

                    if (y >= height)
                        {
                            y = 0 ;
                        }
                        else if (y < 0)
                        {
                            y = height - 1 ;
                        }
                        break ;
                case '2' :
                    //bordered
                        if (x > width || x < 0 || y > height || y < 0)
                        {
                            gameOver = true;
                        }
                        break ;
                default :
                    //regular
                    if (x >= width)
                        {
```

```
                                        x = 0 ;
                                    }
                                    else if (x < 0)
                                    {
                                        x = width - 1 ;
                                    }

                                if (y >= height)
                                    {
                                        y = 0 ;
                                    }
                                    else if (y < 0)
                                    {
                                        y = height - 1 ;
                                    }
                                break ;
                        }
                    //tail collusion
                       for ( int i = 0 ; i < nTail ; i++ )
                       {
                           if ( tailX[i] == x && tailY[i] == y )
                          {
                           gameOver = true ;
                                }
                           }
                    //add tail
                       if ( x == fruitX && y == fruitY )
                       {
                          score += 10 ;
                          fruitX = rand() % width ;
                          fruitY = rand() % height ;
                          nTail++ ;
                       }
        }
```

Output:


E:\Semester1\CS-102 (Programming Fundamentals)\Lab\PF Project\PF lab project.cpp - Embarcadero Dev-C++ 6.3
E:\Semester1\CS-102 (Programming Fundamentals)\Lab\PF Project\PF lab project.exe
Enter your name :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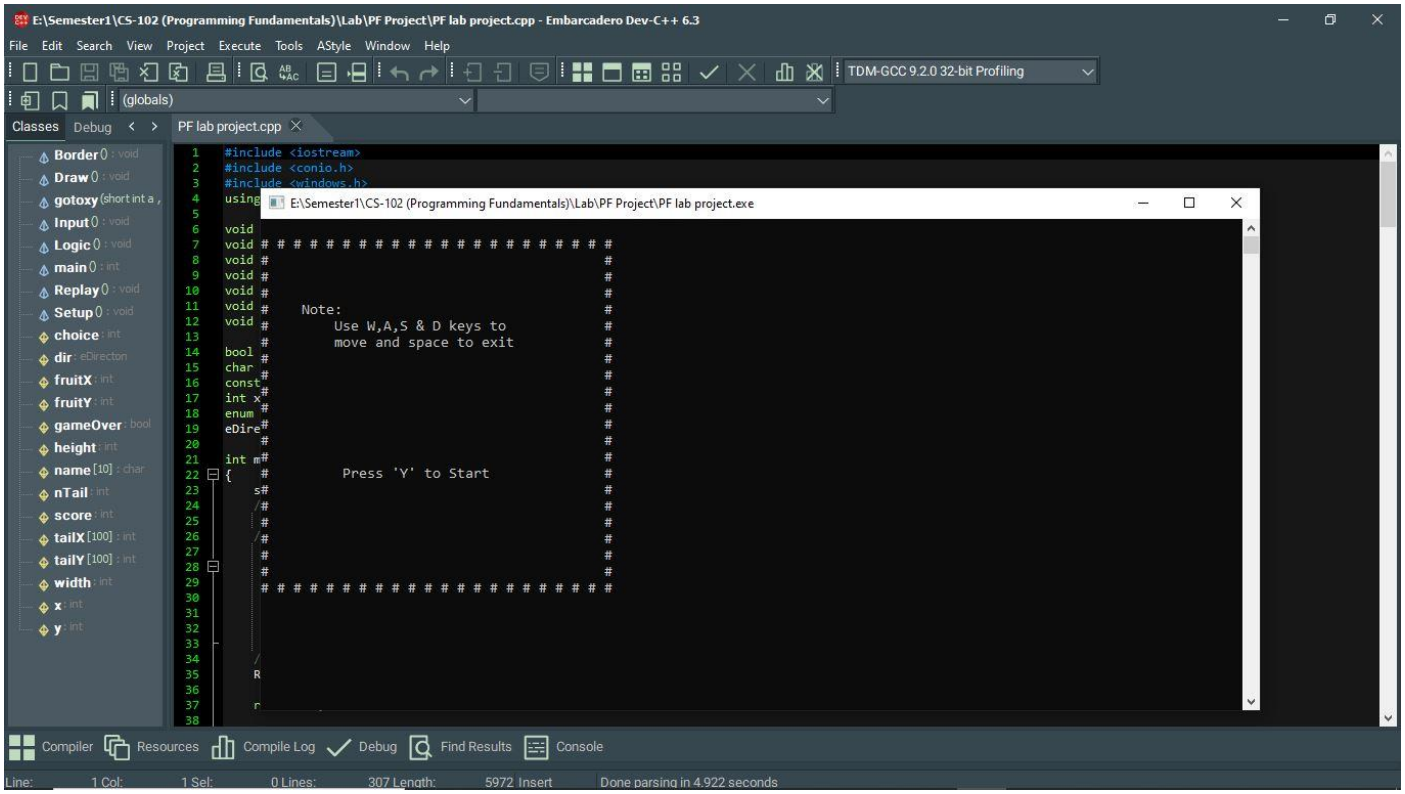
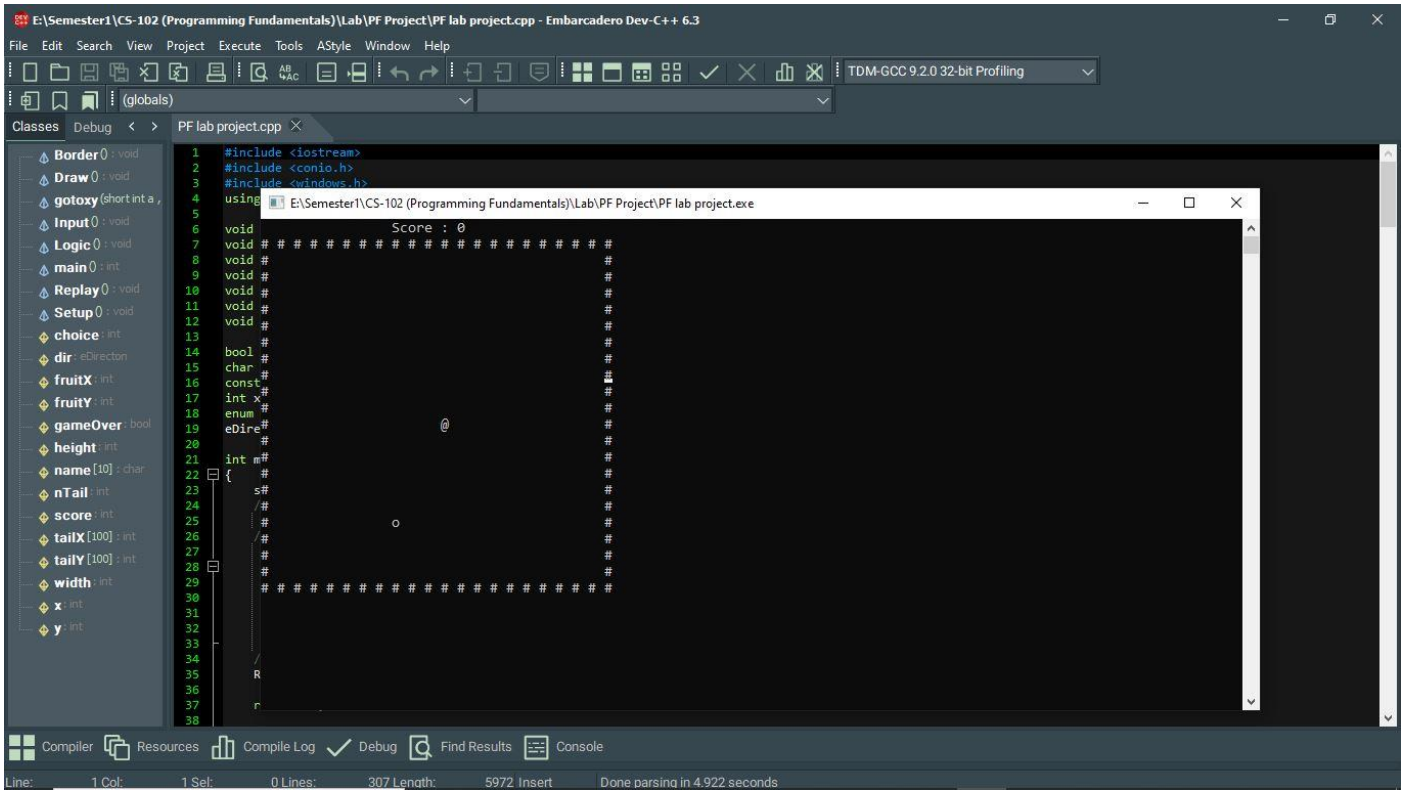
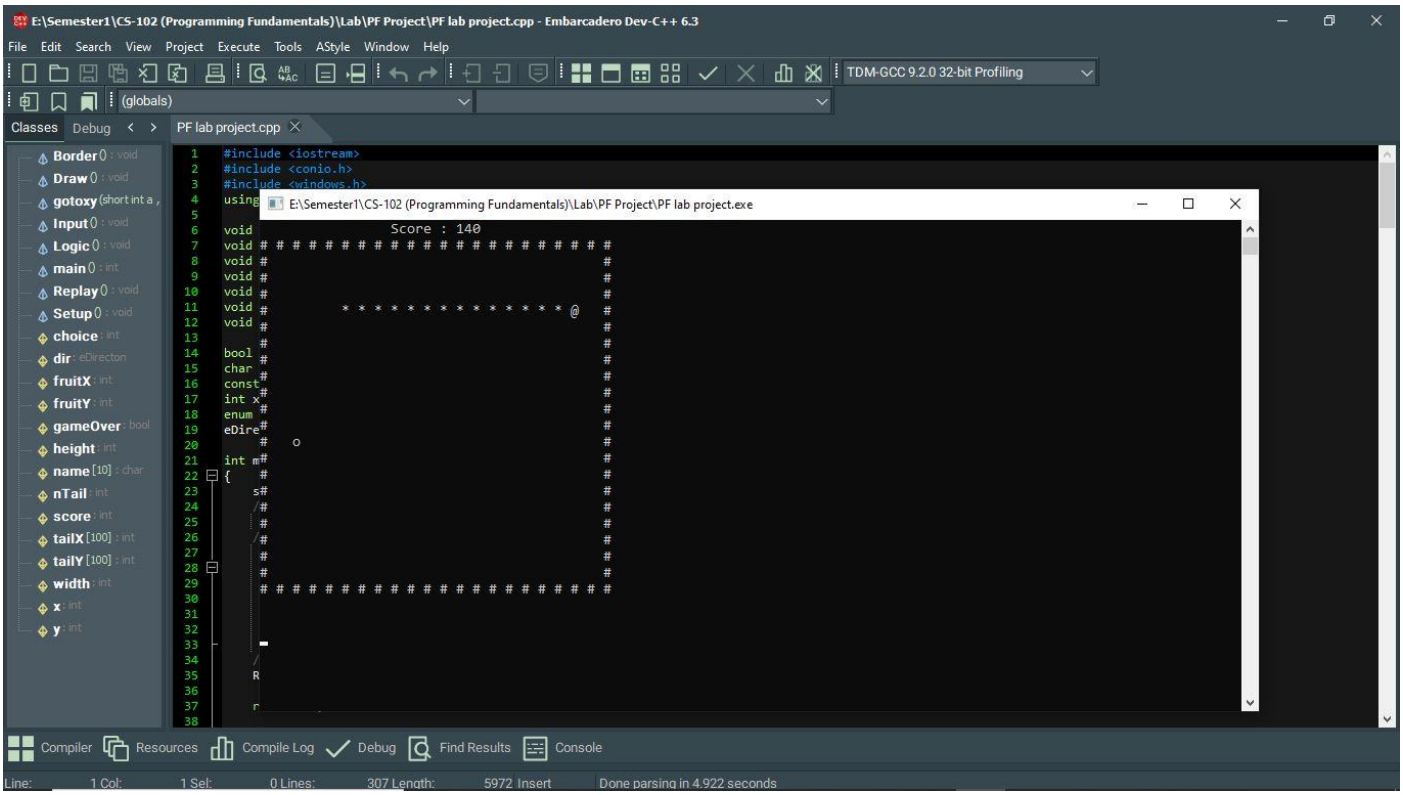
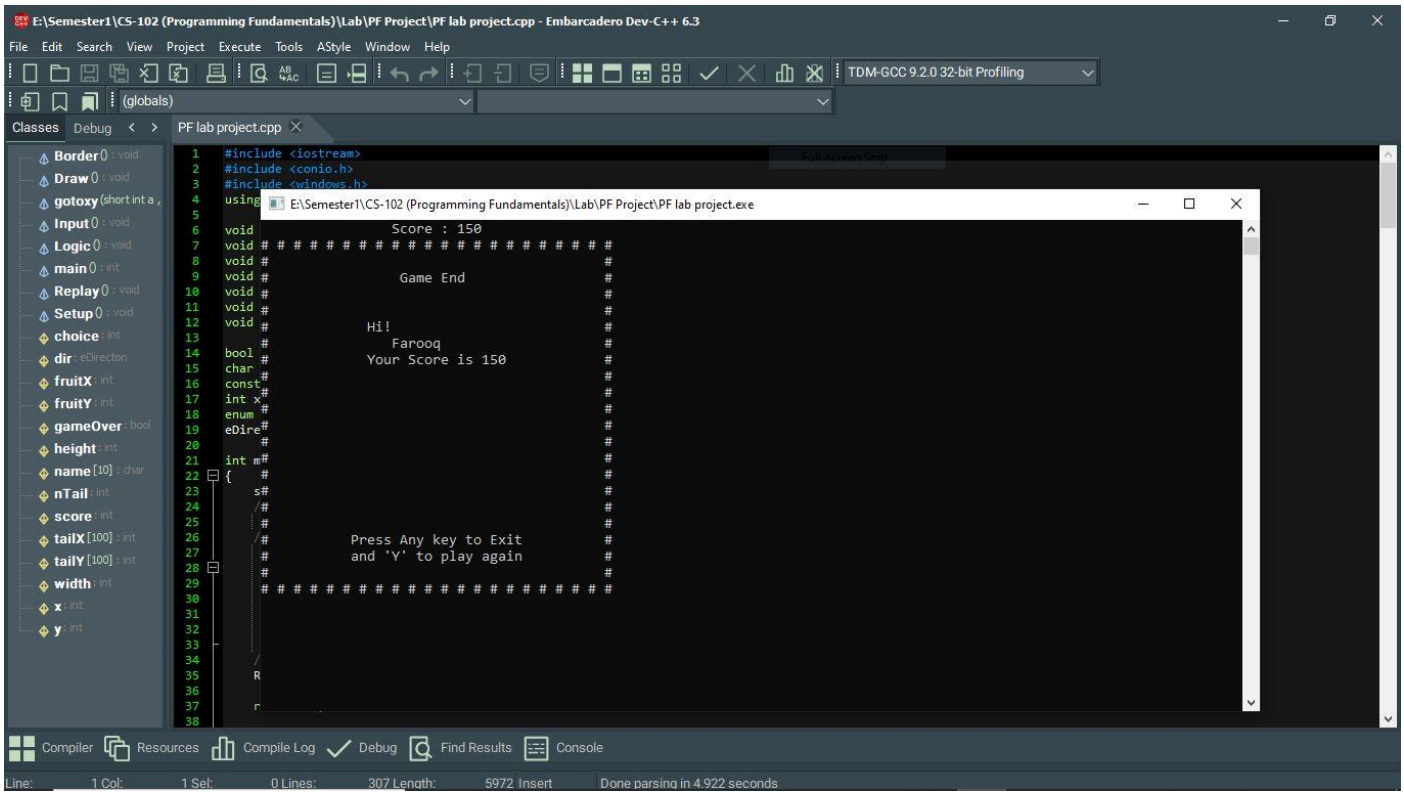
E:\Semester1\CS-102 (Programming Fundamentals)\Lab\PF Project\PF lab project.exe
Enter choice (default : Regular) :
1. Regular
2. Bordered


E:\Semester1\CS-102 (Programming Fundamentals)\Lab\PF Project\PF lab project.cpp - Embarcadero Dev-C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 9.2.0 32-bit Profiling
(globals)
Classes Debug
PF lab project.cpp
E:\Semester1\CS-102 (Programming Fundamentals)\Lab\PF Project\PF lab project.exe
Note:
Use W,A,S & D keys to
move and space to exit
Press 'Y' to Start
Compiler Resources Compile Log Debug Find Results Console
Done parsing in 4.922 seconds


E:\Semester1\CS-102 (Programming Fundamentals)\Lab\PF Project\PF lab project.cpp - Embarcadero Dev-C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 9.2.0 32-bit Profiling
(globals)
Classes Debug
PF lab project.cpp
E:\Semester1\CS-102 (Programming Fundamentals)\Lab\PF Project\PF lab project.exe
Score : 0
Compiler Resources Compile Log Debug Find Results Console
Done parsing in 4.922 seconds


E:\Semester1\CS-102 (Programming Fundamentals)\Lab\PF Project\PF lab project.cpp - Embarcadero Dev-C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 9.2.0 32-bit Profiling
(globals)
Classes Debug
PF lab project.cpp
E:\Semester1\CS-102 (Programming Fundamentals)\Lab\PF Project\PF lab project.exe
Score : 140
Compiler Resources Compile Log Debug Find Results Console
Done parsing in 4.922 seconds


E:\Semester1\CS-102 (Programming Fundamentals)\Lab\PF Project\PF lab project.cpp - Embarcadero Dev-C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 9.2.0 32-bit Profiling
(globals)
Classes Debug
PF lab project.cpp
E:\Semester1\CS-102 (Programming Fundamentals)\Lab\PF Project\PF lab project.exe
Score : 150
Game End
Hi!
Farooq
Your Score is 150
Press Any key to Exit
and 'Y' to play again
Compiler Resources Compile Log Debug Find Results Console
Done parsing in 4.922 seconds