Final project submission:

- Ammar Akbar 22f 3102
- Murtaza Baig 22f 3128
- Eman Khalid 22f 3178

(please save a txt file named “scores”)

The code (with functions):

```
#include<iostream>
#include<windows.h>
#include<cstdlib>
#include<ctime>
#include <fstream>

using namespace std;

const int width = 50;
const int height = 15;
const int ground = height - 2;
const int gravity = 1;

int posx = 0;
int posy = ground;
int velx = 0;
int vely = 0;
int speed_inc =1;
int score = 0;
```

```
int max_score=0;
int life = 5;
bool game = true;

void initializeGameScreen(string game_sc[]) {
   for (int i = 0; i < height; i++){
      for (int j = 0; j < width; j++){
         if (i == ground) {
            game_sc[i] += "=";
         }
         else {
            game_sc[i] += " ";
         }
      }
   }
}

void updateGameScreen(string game_sc[]) {
   for (int i = 0; i < height; i++) {
      for (int j = 0; j < width; j++) {
         if (j == posx && i == posy) {
            game_sc[i][j] = '^';
         }
         else if (i == ground + 1 && j == width - 1) {
            game_sc[i][j] = ' ';
            if (rand() % 8 == 0) {
               game_sc[i-1][j - 1] = '#';
            }
            else if (rand() % 10 == 0) {
```

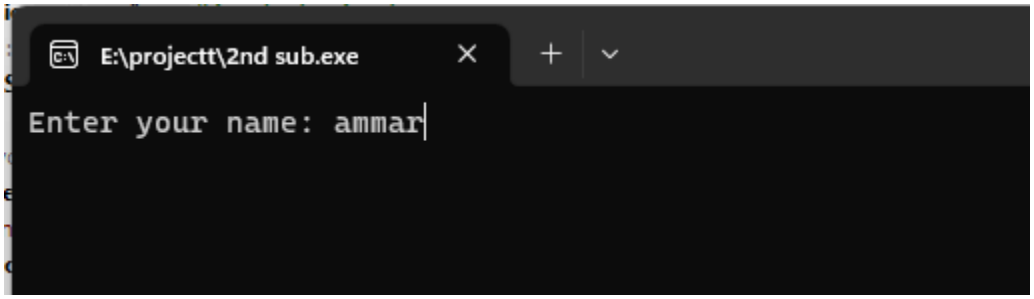
```
                game_sc[i-1][j - 1] = '$';
            }
        }
        else if (game_sc[i][j] == '#' && j > 0) {
            game_sc[i][j - 1] = '#';
            game_sc[i][j] = ' ';
        }
        else if (game_sc[i][j] == '$' && j > 0) {
            game_sc[i][j - 1] = '$';
            game_sc[i][j] = ' ';
        }
        else if (i == 6) {
            game_sc[i][j] = '/';
        }
        else if (i == ground + 1) {
            game_sc[i][j] = '//';
        }
        else {
            game_sc[i][j] = ' ';
        }
      }
   }
}

void printGameScreen(string game_sc[]) {
   for (int y = 0; y < height; y++) {
      cout << game_sc[y];
      cout << endl;
   }
```

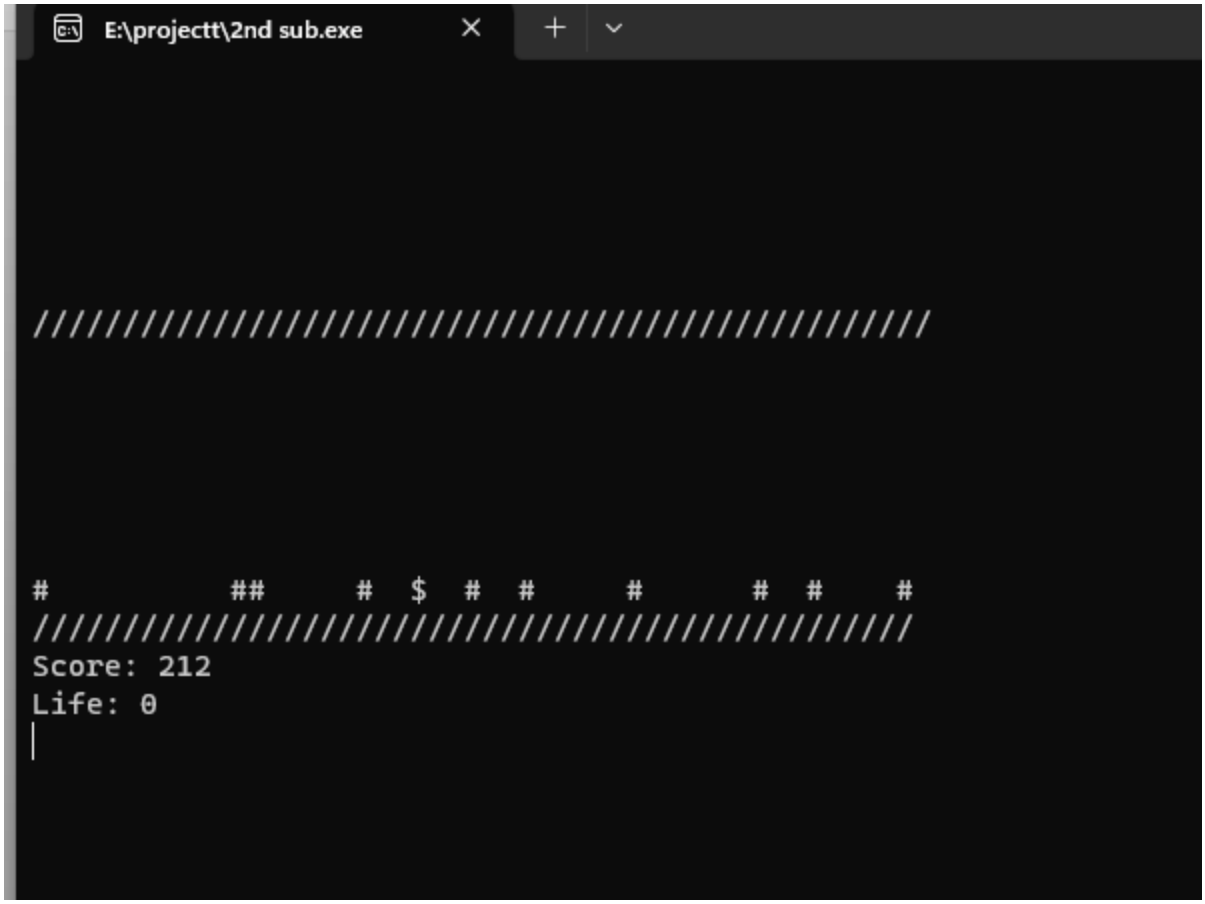
```
}

void handleInput() {
   if (GetAsyncKeyState(VK_LEFT)) {
      velx = -1;
   }
   else if (GetAsyncKeyState(VK_RIGHT)) {
      velx = 1;
   }
   else {
      velx = 0;
   }

   vely += gravity;
   if (GetAsyncKeyState(VK_SPACE) && posy == ground) {
      vely = -2;
   }
   else if (GetAsyncKeyState(VK_DOWN)) {
      posy = ground;
   }
}

void checkForCollision(string game_sc[]) {
   if (game_sc[posy][posx] == '#') {
      life--;
   }
   else if (game_sc[posy][posx] == '$') {
      score += 10;
      game_sc[posy][posx] = ' ';
```

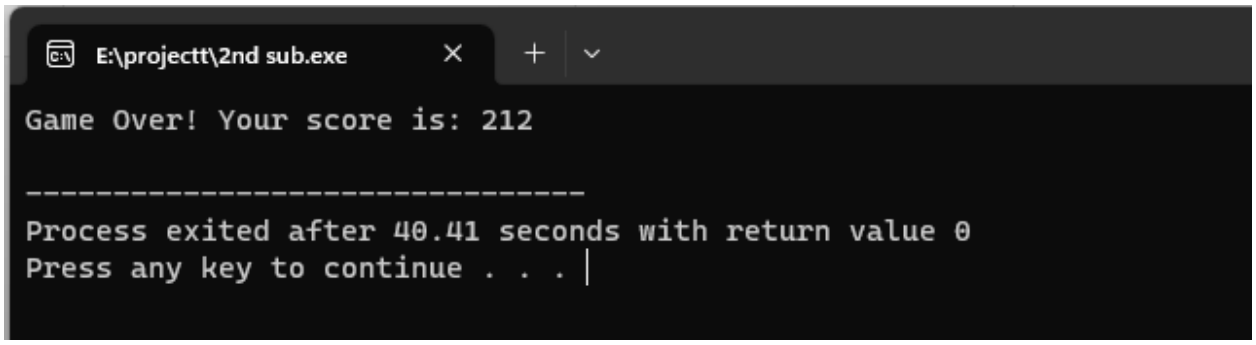
```
    }
    else {
        score++;
        if (score % 10 == 0 && score > 0) {
            velx += speed_inc;
        }
    }
}

void saveScore(string name) {
    ifstream inFile;
    inFile.open("scores.txt", ios::out);
    inFile >> max_score ;
    inFile.close();

    if(max_score<score){
        ofstream outFile;
        outFile.open("scores.txt", ios::in);
        outFile << score << endl;
        outFile.close();
    }
}

void playGame() {
    string game_sc[height];
    string name;
    initializeGameScreen(game_sc);
    while (life > 0) {
        handleInput();
```

```
        posx += velx;
        posy += vely;
        if (posx >= width) {
            posx = width - 1;
        }
        if (posx < 0) {
            posx = 0;
        }
        if (posy >= ground) {
            posy = ground;
        }
        updateGameScreen(game_sc);
        printGameScreen(game_sc);
        checkForCollision(game_sc);
        cout << "Score: " << score << endl;
        cout << "Life: " << life << endl;
        Sleep(90);
        system("cls");
    }
    saveScore(name);
    cout << "Game Over! Your score is: " << score << endl;
}

int main() {
    string name;
    cout << "Enter your name: ";
    cin >> name;

    playGame();
```

```
    return 0;
}
```







The code (without functions) :

```
#include<iostream>

#include<windows.h>

#include<cstdlib>
```

```
#include<ctime>
#include <fstream>

using namespace std;
const int width = 50;
const int height = 15;
const int ground = height - 2;
const int gravity = 1;
int main(){
int posx = 0;
int posy = ground;
srand(time(NULL));

int velx = 0;
int vely = 0;
int speed_inc =1;
int score = 0;
int max_score=0;
int life = 5;
bool game = true;
ifstream inFile;
inFile.open("scores.txt", ios::out);
//outFile << "Name: " << name << "  ";
inFile >> max_score ;
inFile.close();
cout<<"highest score yet"<<max_score;
string game_sc[height];
string name;
cout << "enter your name: ";
```

```
cin >> name;
for (int i = 0; i < height; i++){
   for (int j = 0; j < width; j++){
      if (i == ground) {
         game_sc[i] += "=";
      }
      else {
         game_sc[i] += " ";
      }
   }
}

system("cls");
while (life > 0) {
   if (GetAsyncKeyState(VK_LEFT)) {
      velx = -1;
   }
   else if (GetAsyncKeyState(VK_RIGHT)) {
      velx = 1;
   }
   else {
      velx = 0;
   }



   vely += gravity;
   if (GetAsyncKeyState(VK_SPACE) && posy == ground) {
      vely = -2;
   }
```

```
else if (GetAsyncKeyState(VK_DOWN)) {
    posy = ground;
}

posx += velx;
posy += vely;
        if (score % 10 == 0 && score > 0) {
        velx += speed_inc;
        }

if (posx >= width) {
    posx = width - 1;

}
if (posx < 0) {
    posx = 0;
}
if (posy >= ground) {
    posy = ground;
}

// Update game screen
for (int i = 0; i < height; i++) {
    for (int j = 0; j < width; j++) {
        if (j == posx && i == posy) {
            game_sc[i][j] = '^';
        }
        else if (i == ground + 1 && j == width - 1) {
            game_sc[i][j] = ' ';
```

```
            if (rand() % 8 == 0) {
                game_sc[i-1][j - 1] = '#';
            }
        }
        else if (game_sc[i][j] == '#' && j > 0) {
            game_sc[i][j - 1] = '#';
            game_sc[i][j] = ' ';
        }
        else if (i == 6) {
            game_sc[i][j] = '/';
        }
        else if (i == ground + 1) {
            game_sc[i][j] = '//';
        }
        else {
            game_sc[i][j] = ' ';
        }
      }
   }
   // Print game screen
   for (int y = 0; y < height; y++) {
      cout << game_sc[y];
      cout << endl;
   }

   // Check for collision with obstacles
  if (game_sc[posy][posx] == '#') {
   life--;
}
```

```
else
    score++;
// else if (posx == width - 3) {
    // Increment score if obstacle is avoided
   // score++;




    // Print score
    cout << "Score: " << score << endl;
    cout << "Life: " << life << endl;
    Sleep(90);
    system("cls");
}
if(max_score<score){

ofstream outFile;
outFile.open("scores.txt", ios::in);
//outFile << "Name: " << name << "  ";
outFile << score << endl;
outFile.close();
}
cout << "Game Over! Your score is: " << score << endl;

return 0;
}
```

Jazak Allah khair!