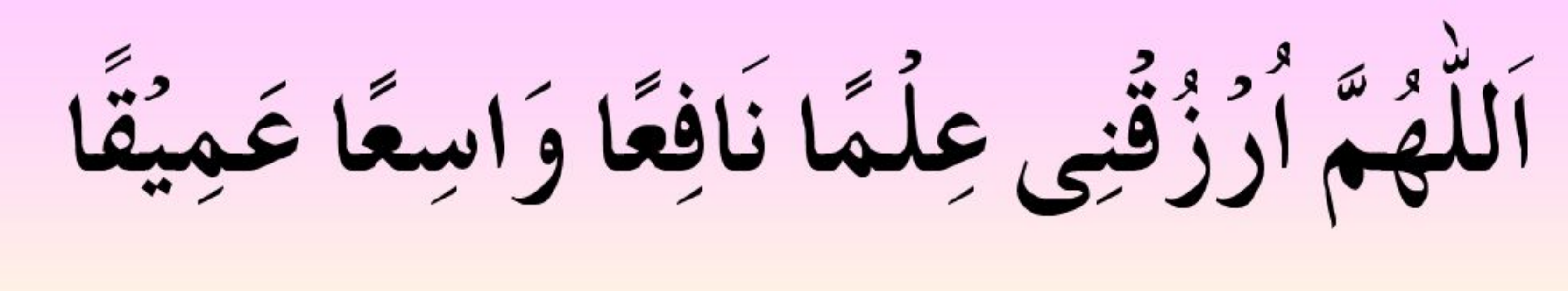
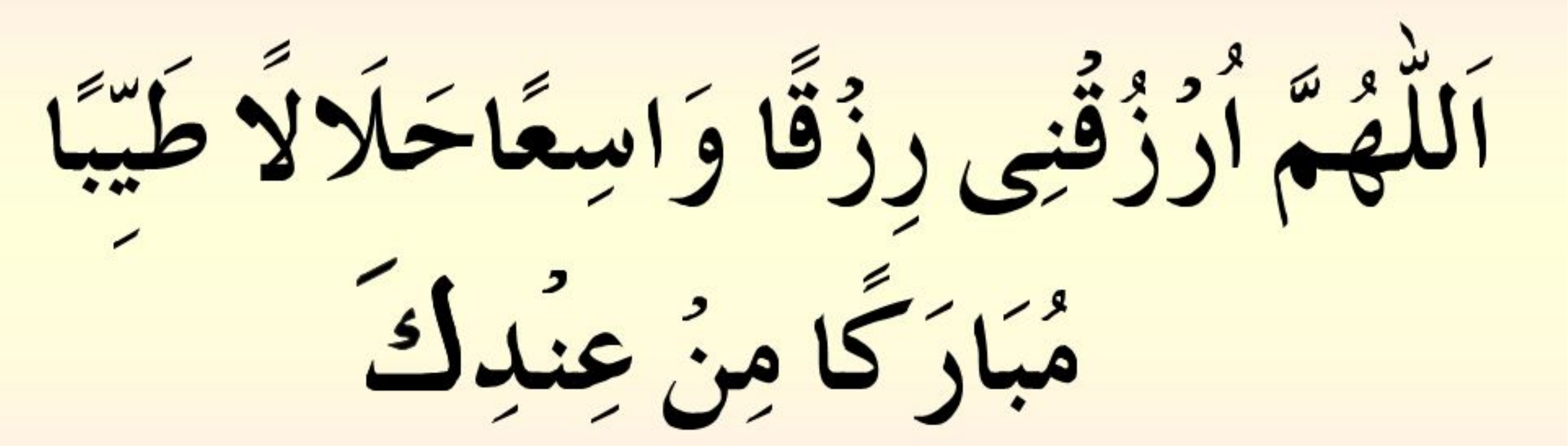
Display on Console at a Specific Location



اَللّٰهُمَّ اُرْزُقْنِى عِلْمًا نَافِعًا وَ اسِعًا عَمِيْقًا

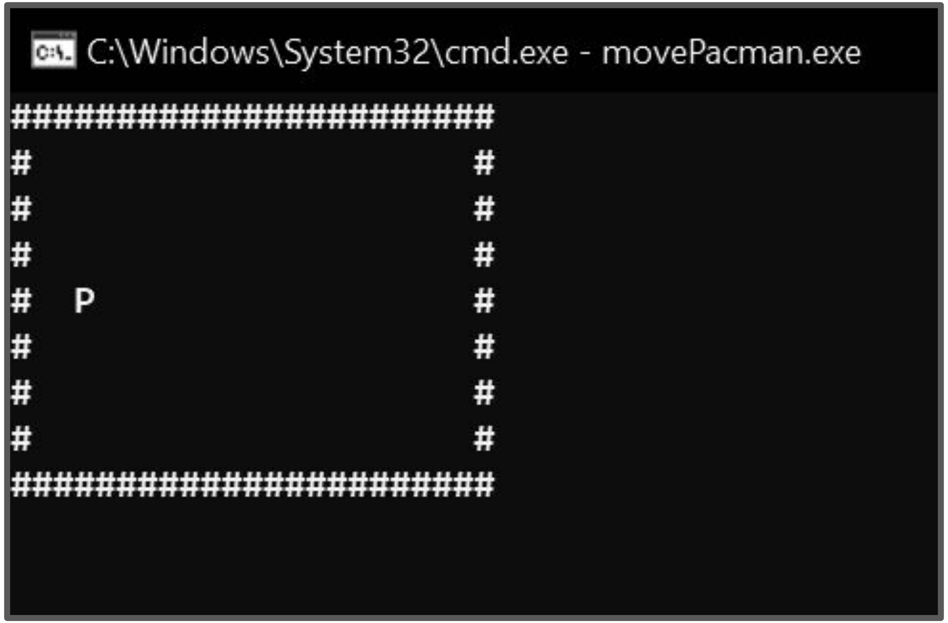


اَللّٰهُمَّ اُرْزُقْنِى رِزْقًا وَاسِعًا حَلَالًا طَيِّبًا

مُبَارَكًا مِنْ عِنْدِكَ

Goal: Display Pacman on the Console

The goal is to display the Pacman in the maze.

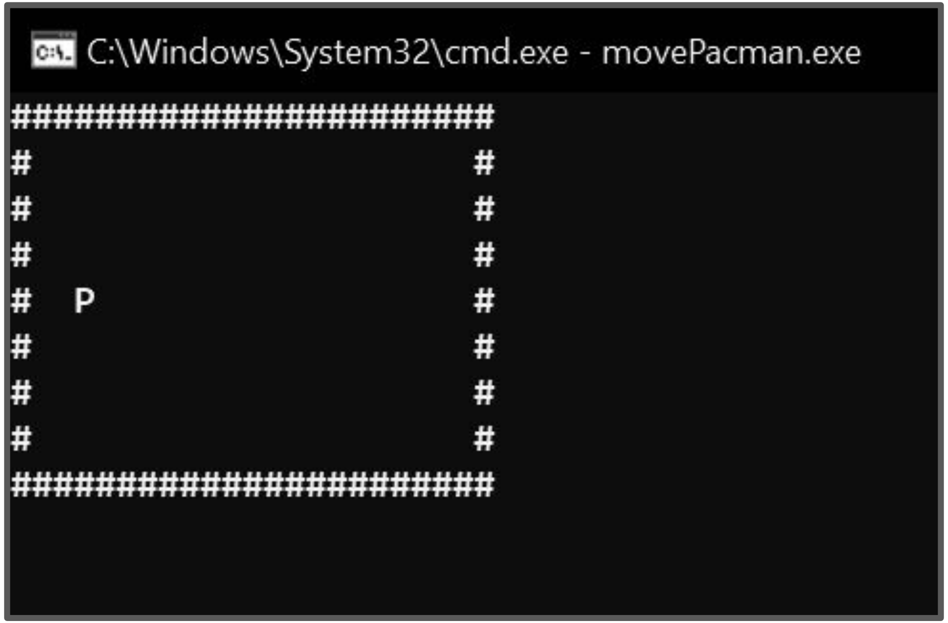


C:\Windows\System32\cmd.exe - movePacman.exe

```
#######################
#                     #
#                     #
#                     #
#  P                  #
#                     #
#                     #
#                     #
#######################
```

Goal: Move Pacman on the Console

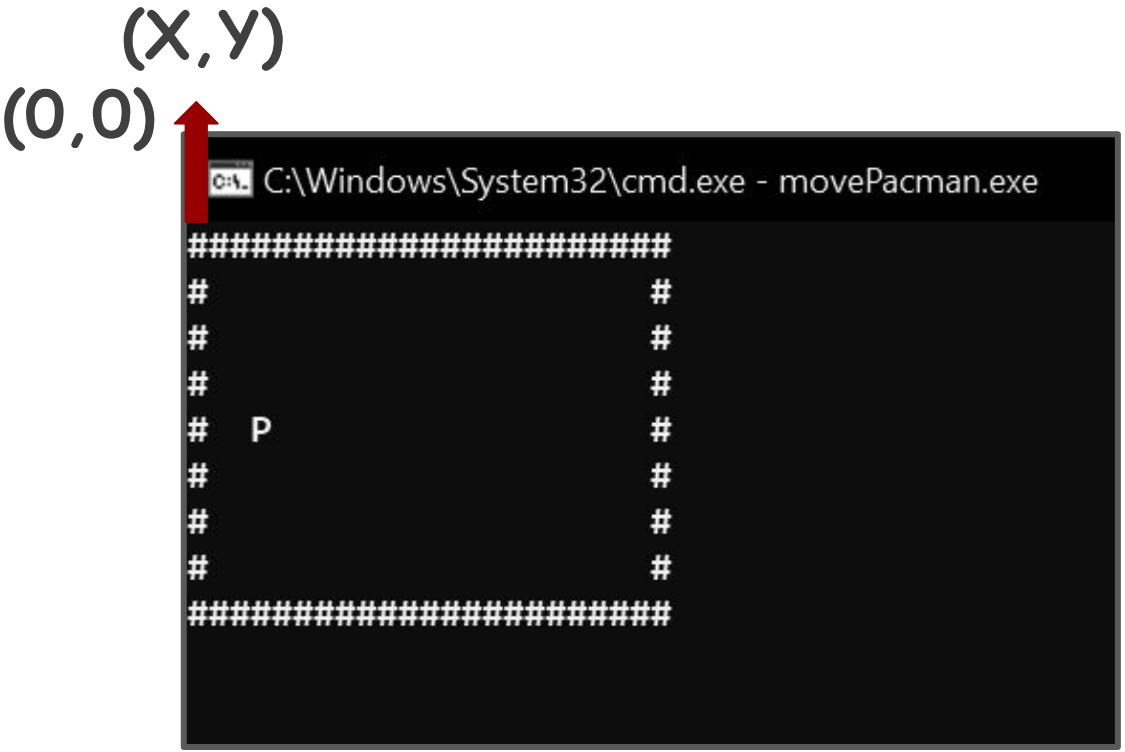
Lets see First, how we can place a character on a specific location on the console.



C:\Windows\System32\cmd.exe - movePacman.exe

```
#######################
#                     #
#                     #
#                     #
#  P                  #
#                     #
#                     #
#                     #
#######################
```

X and Y Coordinates of Console



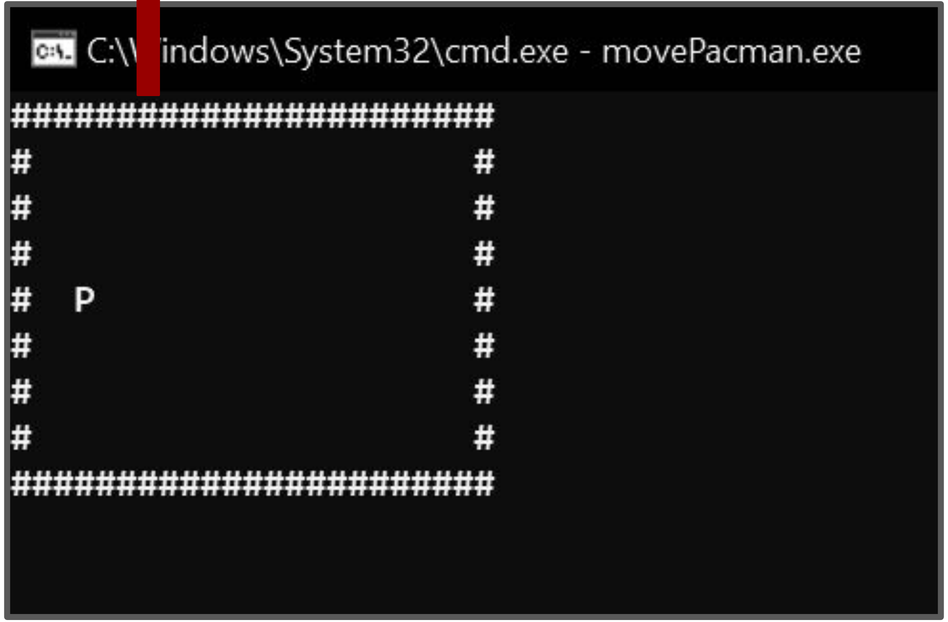
C:\Windows\System32\cmd.exe - movePacman.exe

```
#######################
#                     #
#                     #
#                     #
#  P                  #
#                     #
#                     #
#                     #
#######################
```

X and Y Coordinates of Console

(X,Y)

(6,0)



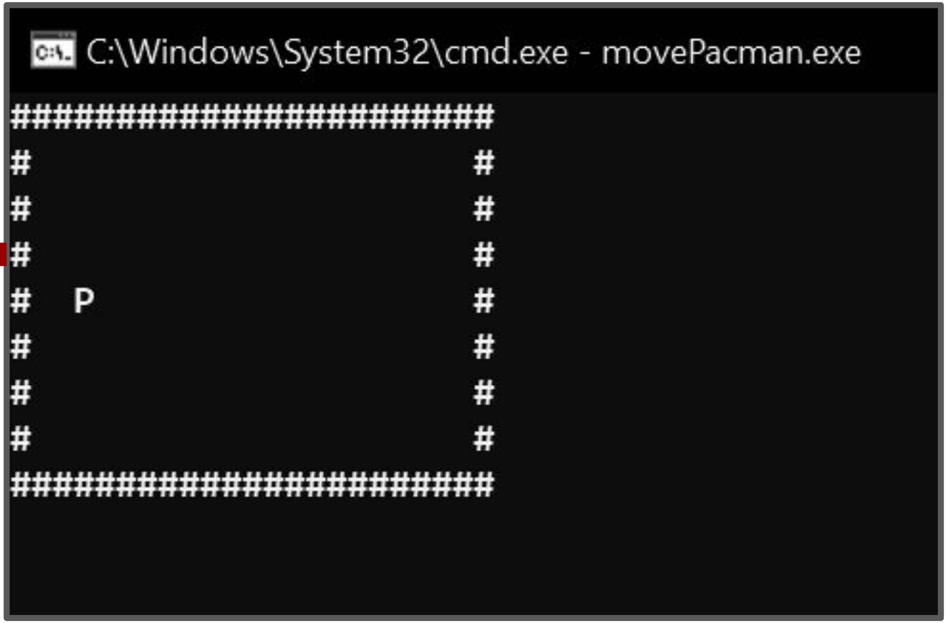
C:\Windows\System32\cmd.exe - movePacman.exe

```
#######################
#                     #
#                     #
#                     #
#  P                  #
#                     #
#                     #
#                     #
#######################
```

X and Y Coordinates of Console

(X,Y)

(0,4)



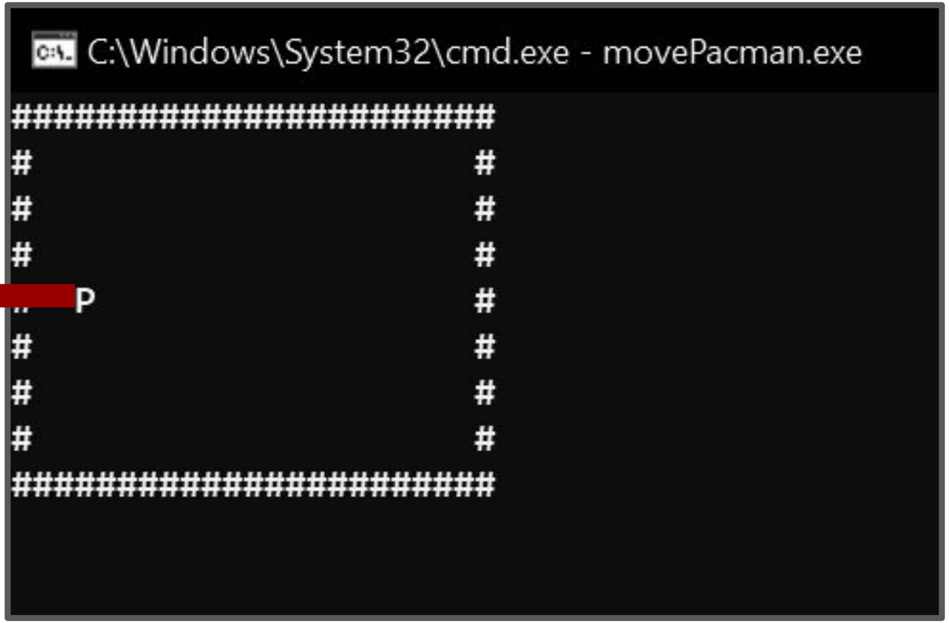
C:\Windows\System32\cmd.exe - movePacman.exe

```
#######################
#                     #
#                     #
#                     #
#  P                  #
#                     #
#                     #
#                     #
#######################
```

X and Y Coordinates of Console

(X,Y)

(3,4)

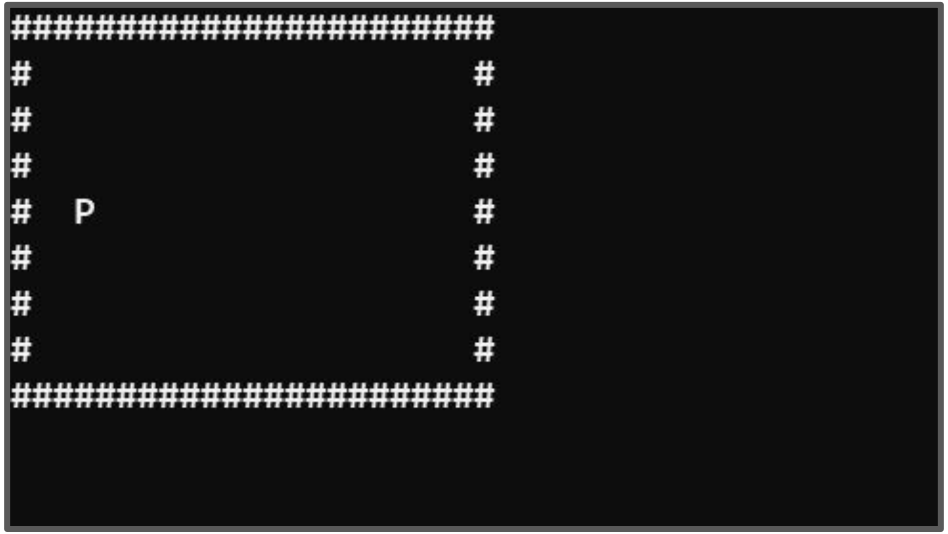


C:\Windows\System32\cmd.exe - movePacman.exe

```
##########################
#                        #
#                        #
#                        #
#  P                     #
#                        #
#                        #
#                        #
##########################
```

Place the cursor on specific location

We will use a function gotoxy() and we will pass it the x coordinates of the console and y coordinates of the console and it will place the cursor on specific location on console.



```
#######################
#                     #
#                     #
#                     #
#  P                  #
#                     #
#                     #
#                     #
#######################
```

gotoxy() Function

To use gotoxy() function we have to include windows.h file.

```
#include <windows.h>
```

gotoxy() Function

The definition of gotoxy() function is given by:

```
void gotoxy(int x, int y)
{
 COORD coordinates;
 coordinates.X = x;
 coordinates.Y = y;
 SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE), coordinates);
}
```

gotoxy() Function

We will not go into the functionality of this function, we will just copy this function in our program and use it.

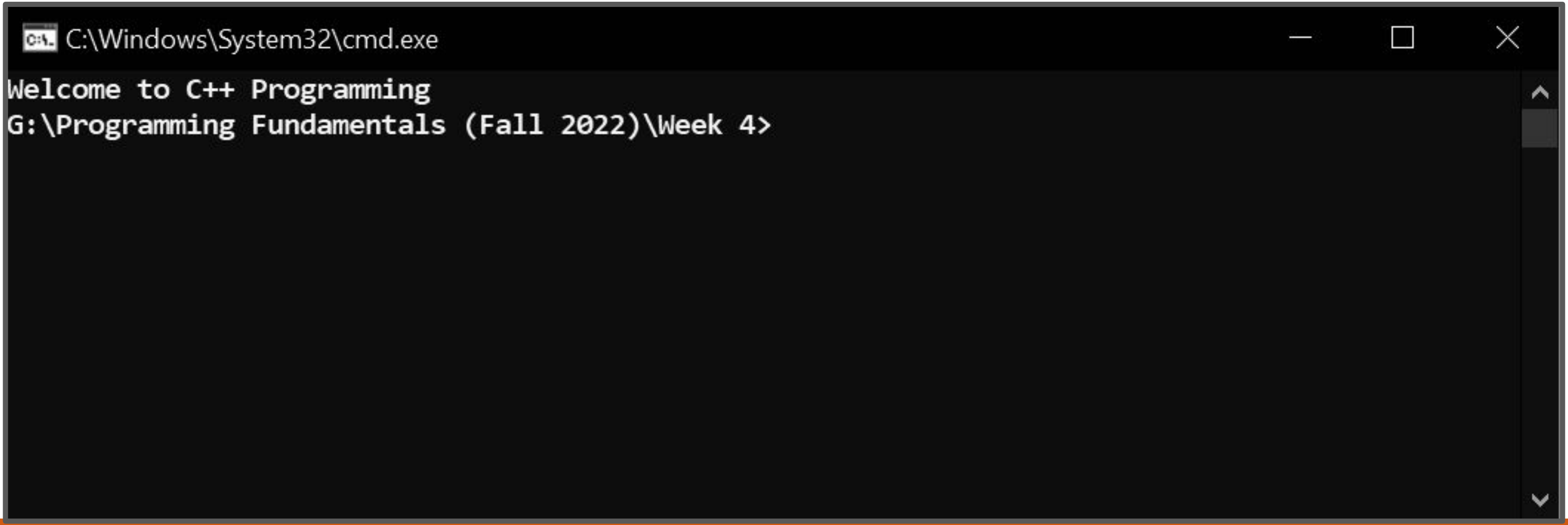
```
void gotoxy(int x, int y)
{
 COORD coordinates;
 coordinates.X = x;
 coordinates.Y = y;
 SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE), coordinates);
}
```

Activity 01

Let's write "Welcome to C++ Programming" at the (0,0) coordinates of console

Activity 01

Let's write "Welcome to C++ Programming" at the (0,0) coordinates of console



```
Welcome to C++ Programming
G:\Programming Fundamentals (Fall 2022)\Week 4>
```

Activity 01: Solution

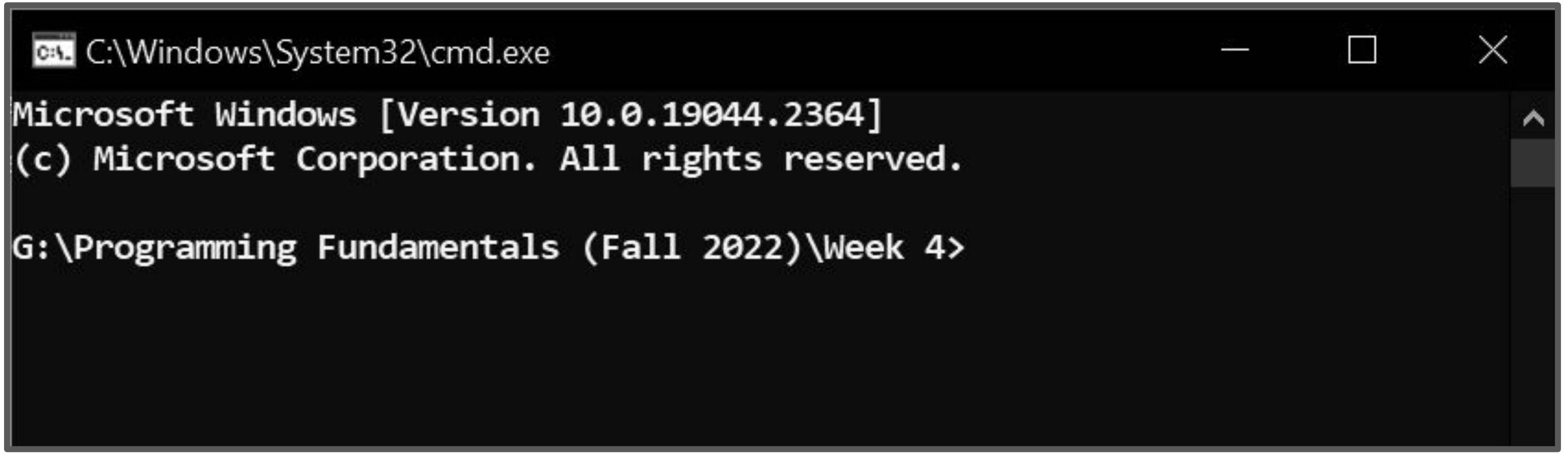
```
#include <iostream>
#include<windows.h>
using namespace std;
void gotoxy(int x, int y);
main()
{
     // Write your Code here
}

void gotoxy(int x, int y)
{
 COORD coordinates;
 coordinates.X = x;
 coordinates.Y = y;
 SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE), coordinates);
}
```

Activity 01: Solution

```cpp
#include <iostream>
#include<windows.h>
using namespace std;
void gotoxy(int x, int y);
main()
{
   gotoxy(0, 0);
   cout << "Welcome to C++ Programming";
}

void gotoxy(int x, int y)
{
 COORD coordinates;
 coordinates.X = x;
 coordinates.Y = y;
 SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE), coordinates);
}
```

Activity 01: Solution

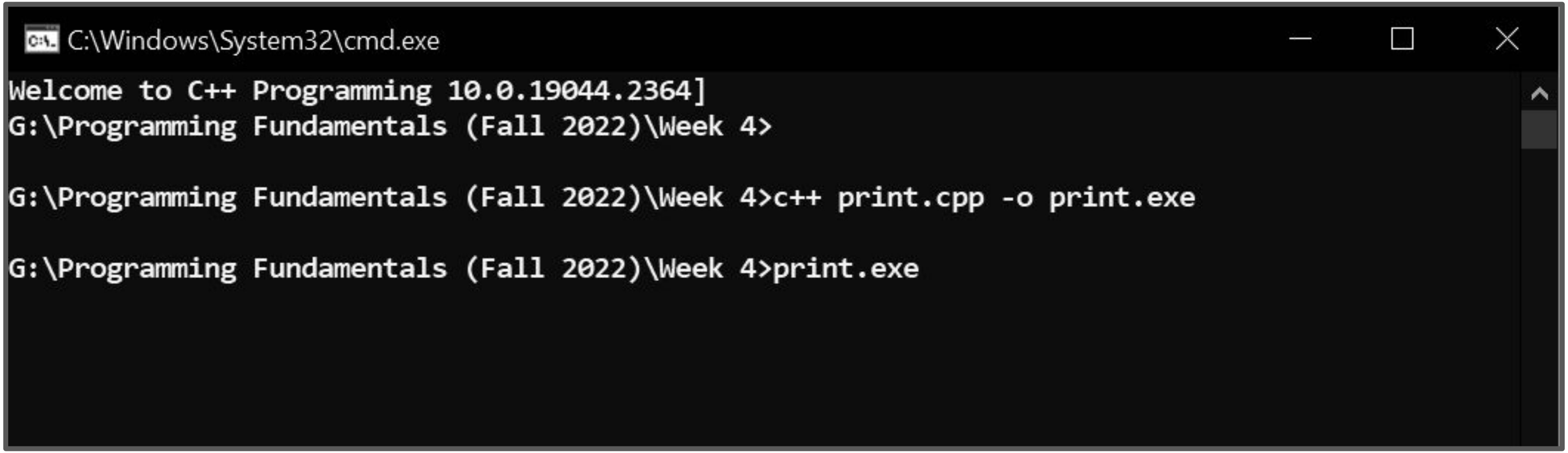
When you just open the cmd it is displaying the Microsoft Windows Version at X = 0 coordinate.



```
Microsoft Windows [Version 10.0.19044.2364]
(c) Microsoft Corporation. All rights reserved.

G:\Programming Fundamentals (Fall 2022)\Week 4>
```

Activity 01: Solution

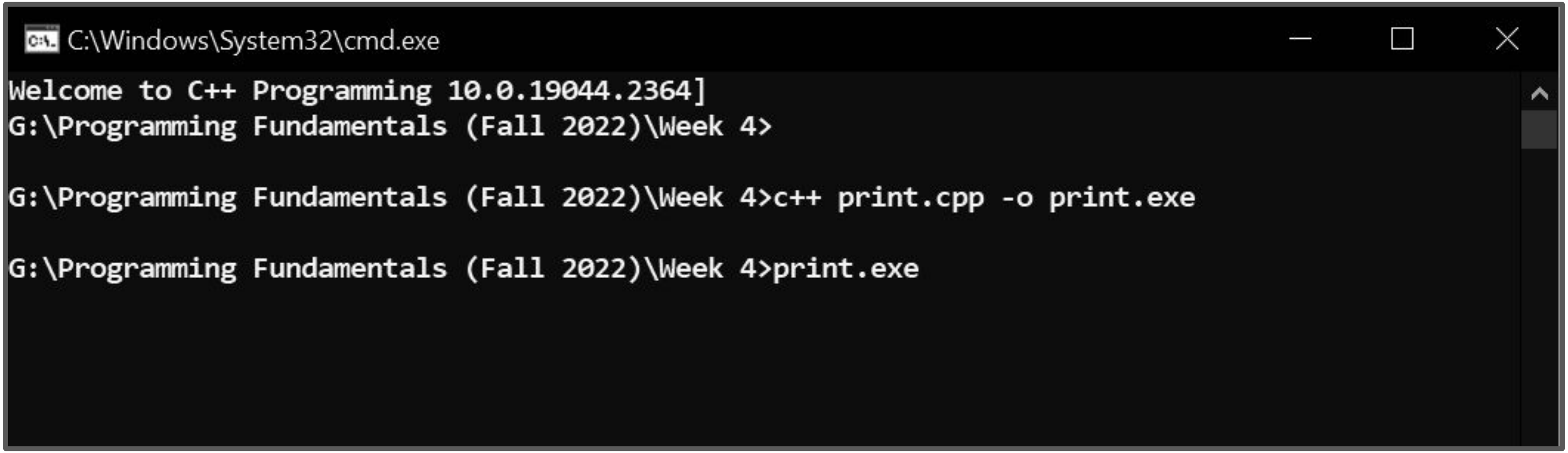
So, after compiling and executing the program, we will get the following output.



```
Welcome to C++ Programming 10.0.19044.2364]
G:\Programming Fundamentals (Fall 2022)\Week 4>

G:\Programming Fundamentals (Fall 2022)\Week 4>c++ print.cpp -o print.exe

G:\Programming Fundamentals (Fall 2022)\Week 4>print.exe
```

Activity 01: Solution

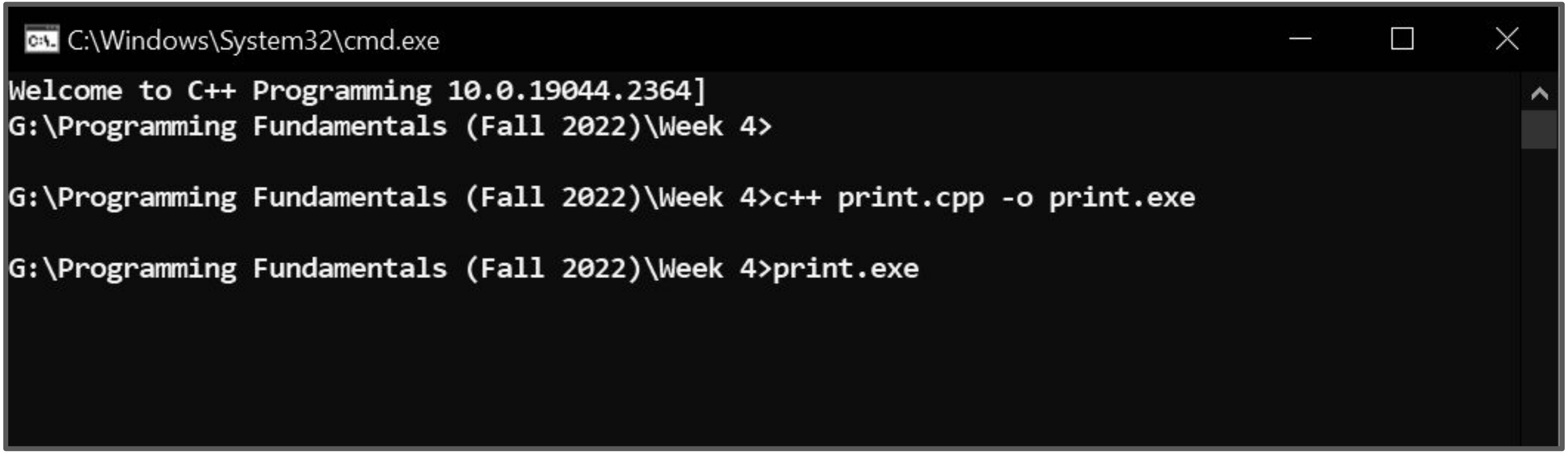
Although, it has displayed "Welcome to C++ Programming" but it has override the previous data and the output is not making sense.



```
Welcome to C++ Programming 10.0.19044.2364]
G:\Programming Fundamentals (Fall 2022)\Week 4>

G:\Programming Fundamentals (Fall 2022)\Week 4>c++ print.cpp -o print.exe

G:\Programming Fundamentals (Fall 2022)\Week 4>print.exe
```

Activity 01: Solution

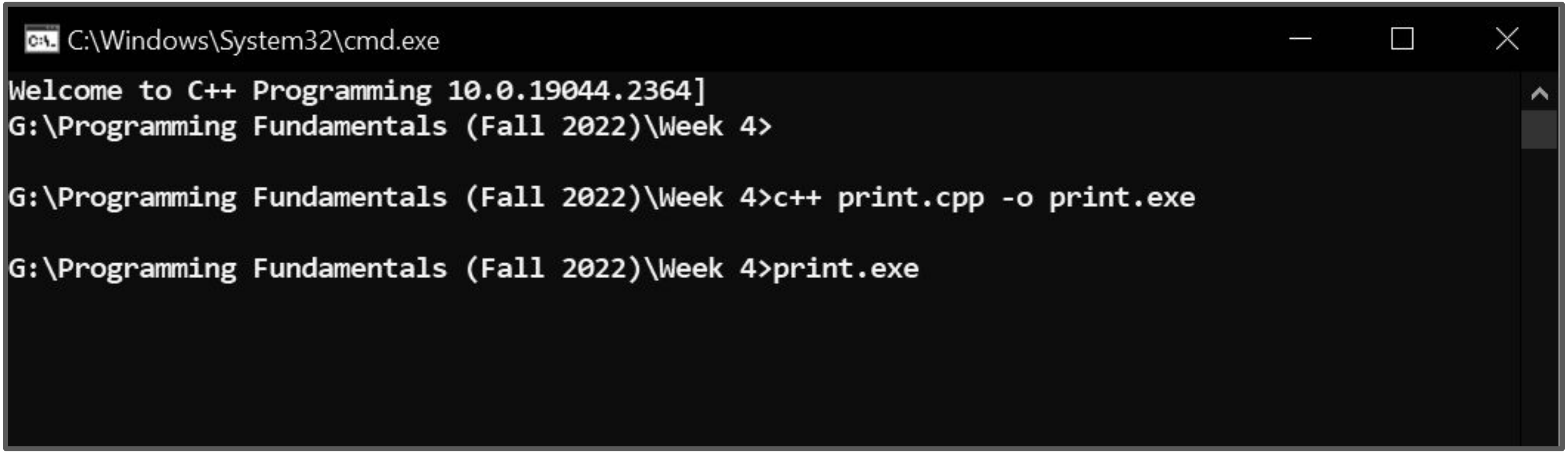
So, what is the solution of this?



```
Welcome to C++ Programming 10.0.19044.2364]
G:\Programming Fundamentals (Fall 2022)\Week 4>

G:\Programming Fundamentals (Fall 2022)\Week 4>c++ print.cpp -o print.exe

G:\Programming Fundamentals (Fall 2022)\Week 4>print.exe
```

Activity 01: Solution

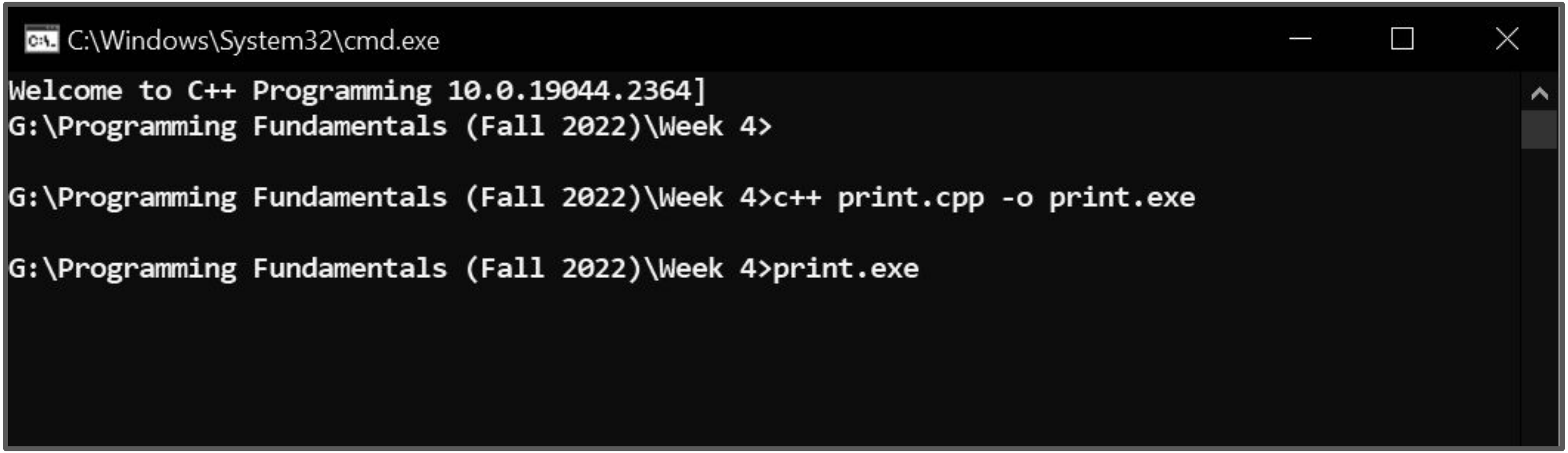
We must clear the screen first.



```
Welcome to C++ Programming 10.0.19044.2364]
G:\Programming Fundamentals (Fall 2022)\Week 4>

G:\Programming Fundamentals (Fall 2022)\Week 4>c++ print.cpp -o print.exe

G:\Programming Fundamentals (Fall 2022)\Week 4>print.exe
```

Activity 01: Solution

In order to call the cls command in C++, we have to use system("cls") function with input parameter cls as string.



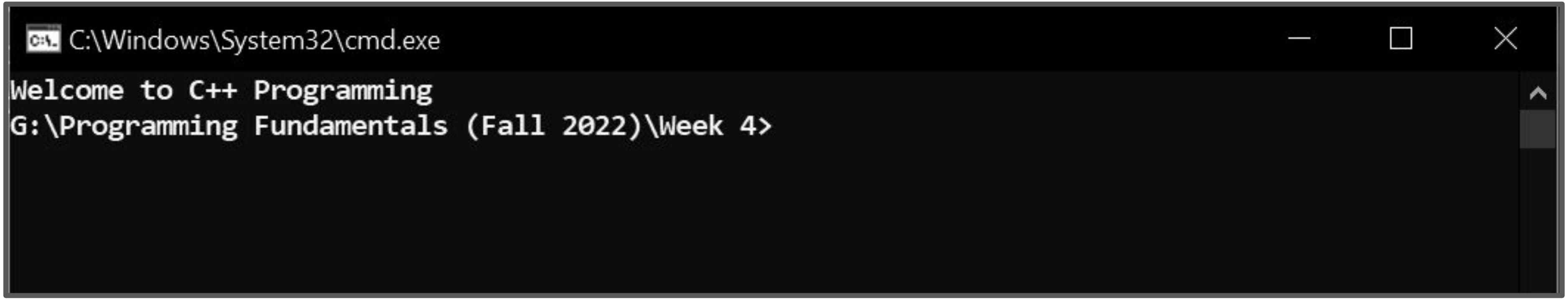
```
Welcome to C++ Programming 10.0.19044.2364]
G:\Programming Fundamentals (Fall 2022)\Week 4>

G:\Programming Fundamentals (Fall 2022)\Week 4>c++ print.cpp -o print.exe

G:\Programming Fundamentals (Fall 2022)\Week 4>print.exe
```

Activity 01: Solution

```
#include <iostream>
#include<windows.h>
using namespace std;
void gotoxy(int x, int y);
main()
{
   system("cls");
   gotoxy(0, 0);
   cout << "Welcome to C++ Programming";
}

void gotoxy(int x, int y)
{
 COORD coordinates;
 coordinates.X = x;
 coordinates.Y = y;
 SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE), coordinates);
}
```

Activity 01: Solution

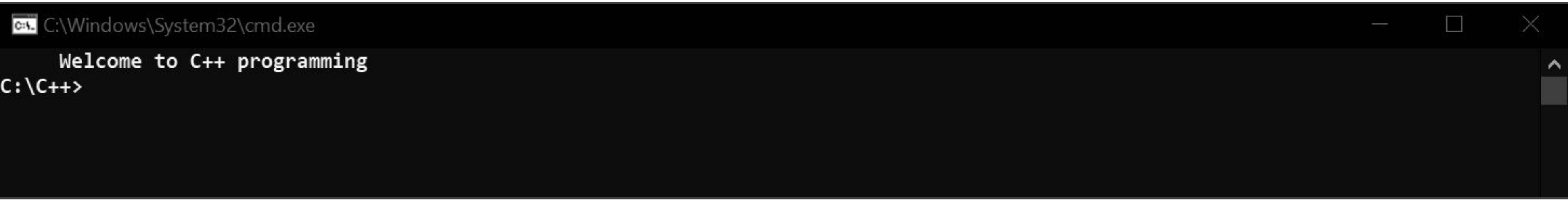
First of all everything will be cleared from the console and then "Welcome to C++ programming" will be written at (0,0) coordinates of the console.



```
Welcome to C++ Programming
G:\Programming Fundamentals (Fall 2022)\Week 4>
```

Activity 02

Let's write "Welcome to C++ Programming" at the (5,0) coordinates of console.



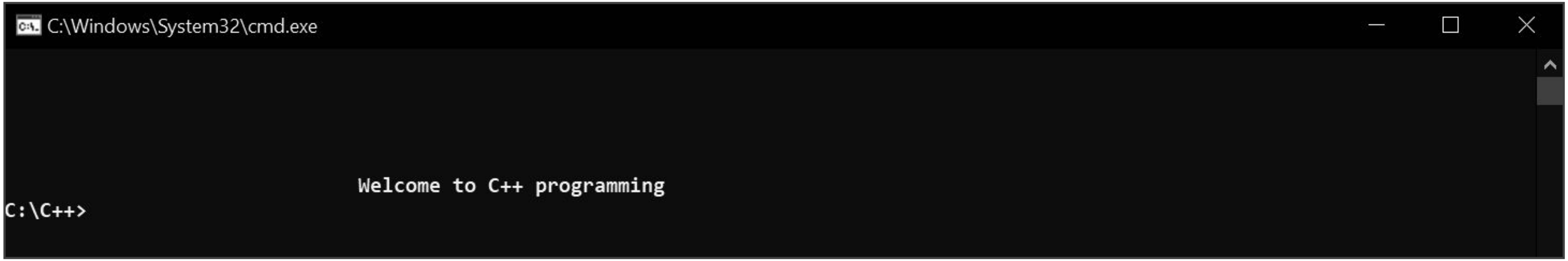
```
     Welcome to C++ programming
C:\C++>
```

Activity 02: Solution

```
#include <iostream>
#include<windows.h>
using namespace std;
void gotoxy(int x, int y);
main()
{   system("cls");
    gotoxy(5, 0);
    cout << "Welcome to C++ Programming";
}
void gotoxy(int x, int y)
{
 COORD coordinates;
 coordinates.X = x;
 coordinates.Y = y;
 SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE), coordinates);
}
```

Activity 03

Let's write "Welcome to C++ Programming" at the 30th x and 5th y (30,5) coordinates of console



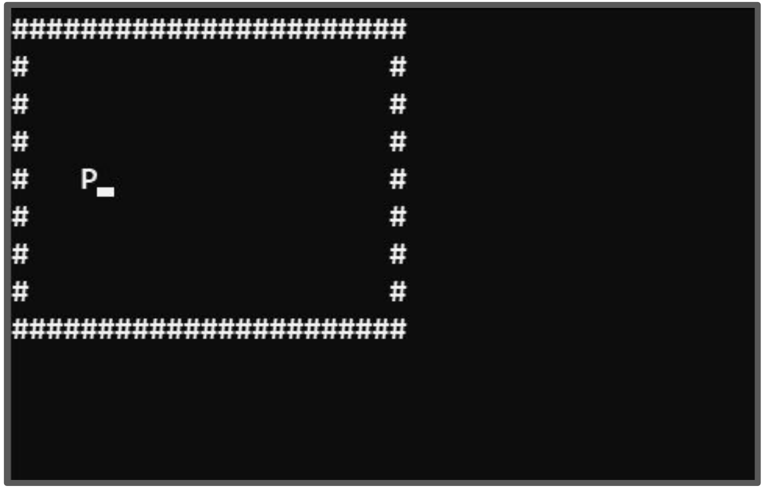
```




                              Welcome to C++ programming
C:\C++>
```

Activity 03: Solution

```
#include <iostream>
#include<windows.h>
using namespace std;
void gotoxy(int x, int y);
main()
{   system("cls");
    gotoxy(30, 5);
    cout << "Welcome to C++ Programming";
}
void gotoxy(int x, int y)
{
 COORD coordinates;
 coordinates.X = x;
 coordinates.Y = y;
 SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE), coordinates);
}
```

Goal: Move Pacman on the Console

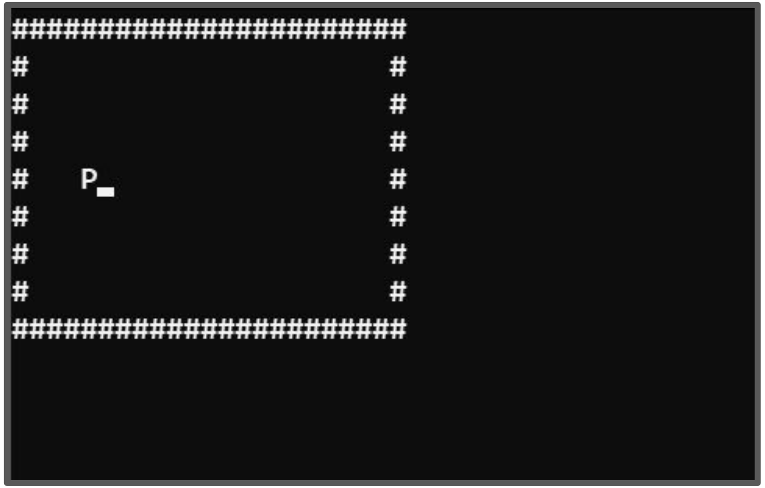
Now, let's come back to the goal of this lecture.



```
#######################
#                     #
#                     #
#                     #
#   P_                #
#                     #
#                     #
#                     #
#######################
```

Goal: Move Pacman on the Console

Lets simply make a function to print the maze first.



```
#######################
#                     #
#                     #
#                     #
#   P                 #
#                     #
#                     #
#                     #
#######################
```

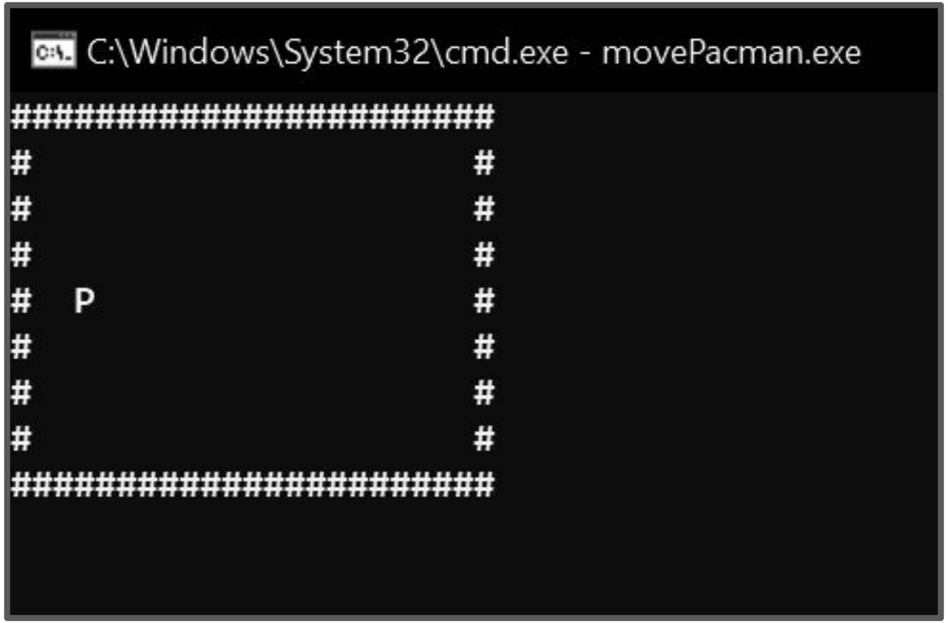
Goal: Move Pacman on the Console

```
#include <iostream>
#include <windows.h>
using namespace std;

void gotoxy(int x, int y);
void printMaze();

main()
{
       system("cls");
       printMaze();
}
```

```
void printMaze()
{
    cout << "#######################" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#######################" << endl;
}
void gotoxy(int x, int y)
{
    COORD coordinates;
    coordinates.X = x;
    coordinates.Y = y;
SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE
), coordinates);
}
```

Goal: Move Pacman on the Console

Lets now place the pacman at (3, 4) coordinate.



C:\Windows\System32\cmd.exe - movePacman.exe

```
#######################
#                     #
#                     #
#                     #
#  P                  #
#                     #
#                     #
#                     #
#######################
```

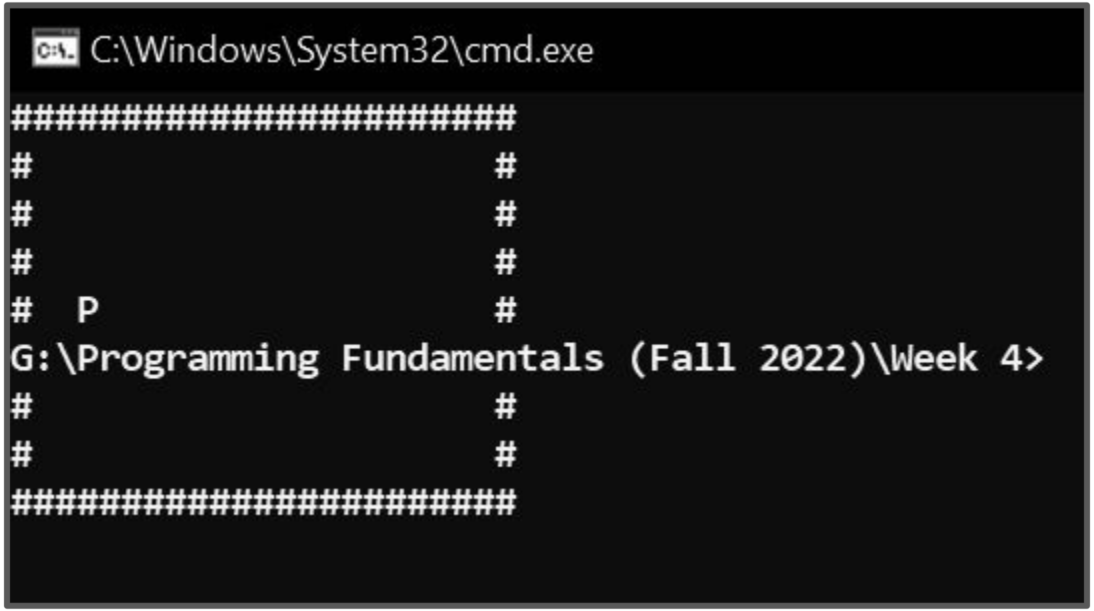
Goal: Move Pacman on the Console

```cpp
#include <iostream>
#include <windows.h>
using namespace std;

void gotoxy(int x, int y);
void printMaze();

main()
{
       system("cls");
       printMaze();
       gotoxy(3,4);
       cout << "P";
}
```

```cpp
void printMaze()
{
    cout << "#######################" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#######################" << endl;
}
void gotoxy(int x, int y)
{
    COORD coordinates;
    coordinates.X = x;
    coordinates.Y = y;
SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE
), coordinates);
}
```

Goal: Move Pacman on the Console

After Compiling and executing the program, the output becomes.

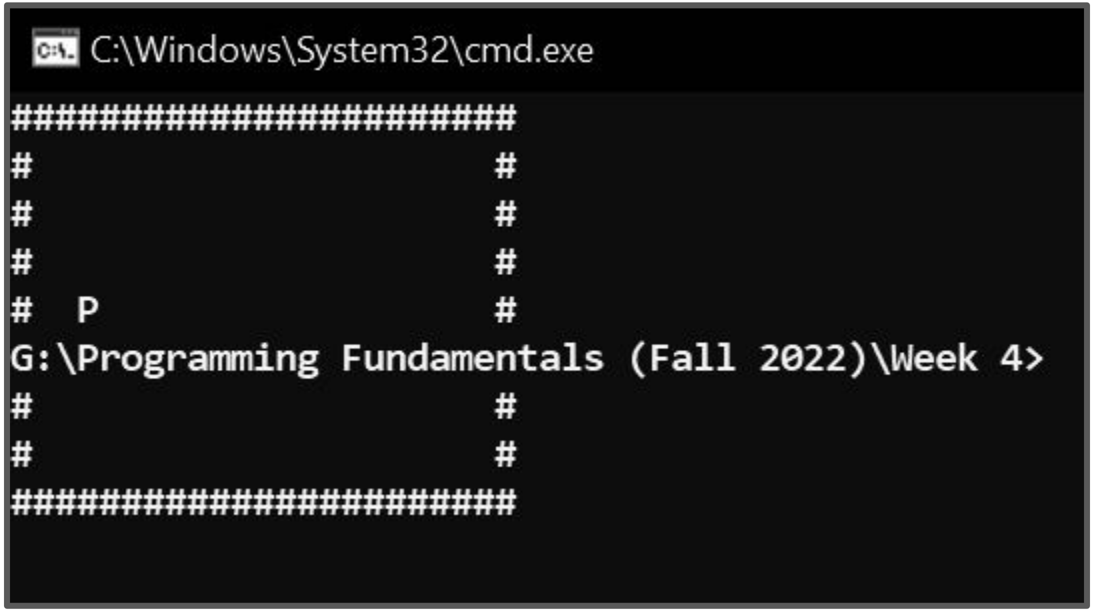


C:\Windows\System32\cmd.exe

```
#######################
#                     #
#                     #
#                     #
#  P                  #
G:\Programming Fundamentals (Fall 2022)\Week 4>
#                     #
#                     #
#######################
```

Goal: Move Pacman on the Console

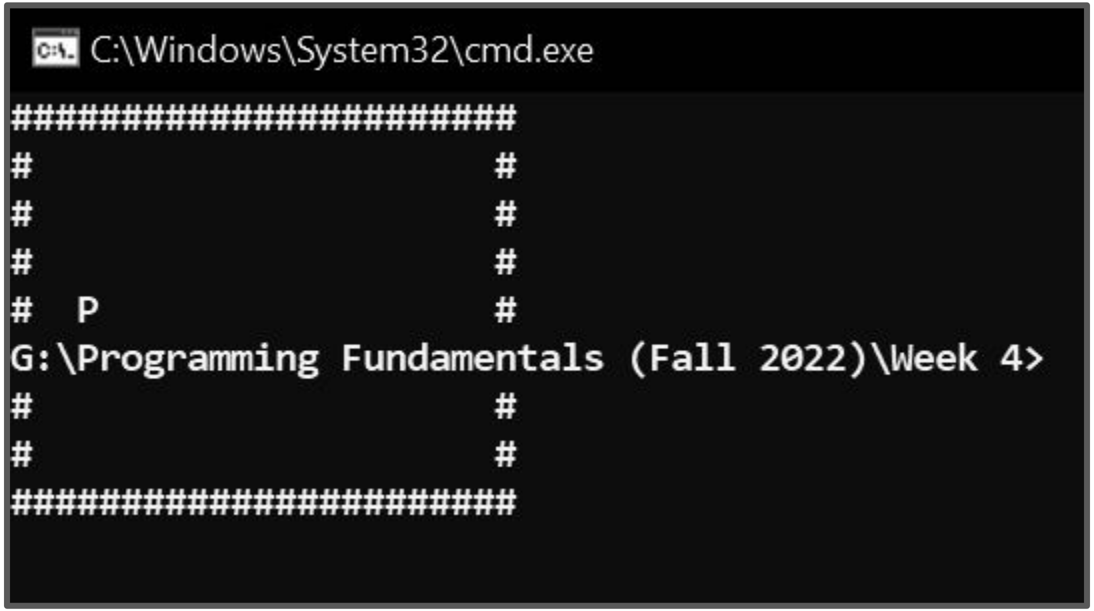
Since the program terminates, therefore, the text is overlapped.



```
#######################
#                     #
#                     #
#                     #
#  P                  #
G:\Programming Fundamentals (Fall 2022)\Week 4>
#                     #
#                     #
#######################
```

Goal: Move Pacman on the Console

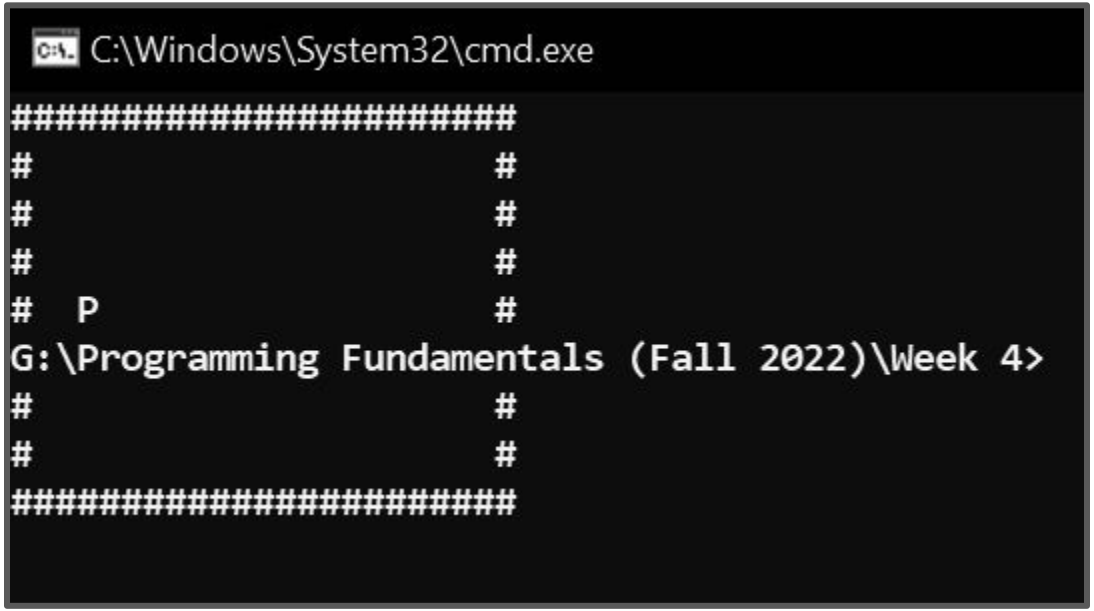
Now, we want that the program keeps running.



```
#######################
#                     #
#                     #
#                     #
#  P                  #
G:\Programming Fundamentals (Fall 2022)\Week 4>
#                     #
#                     #
#######################
```

Goal: Move Pacman on the Console

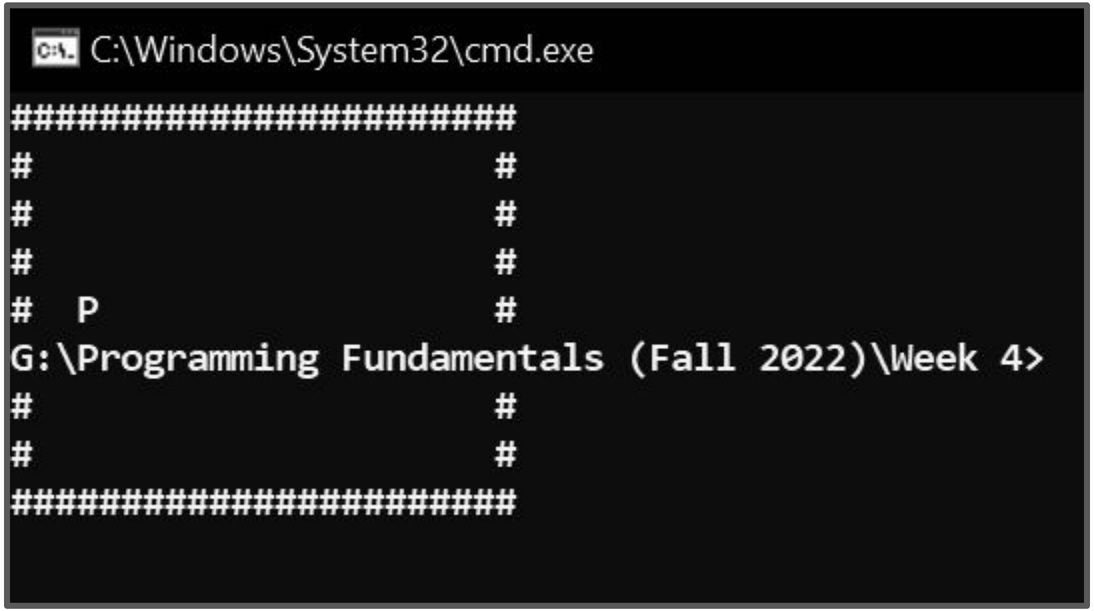
How, can we do that?



```
#######################
#                     #
#                     #
#                     #
#  P                  #
G:\Programming Fundamentals (Fall 2022)\Week 4>
#                     #
#                     #
#######################
```

Goal: Move Pacman on the Console

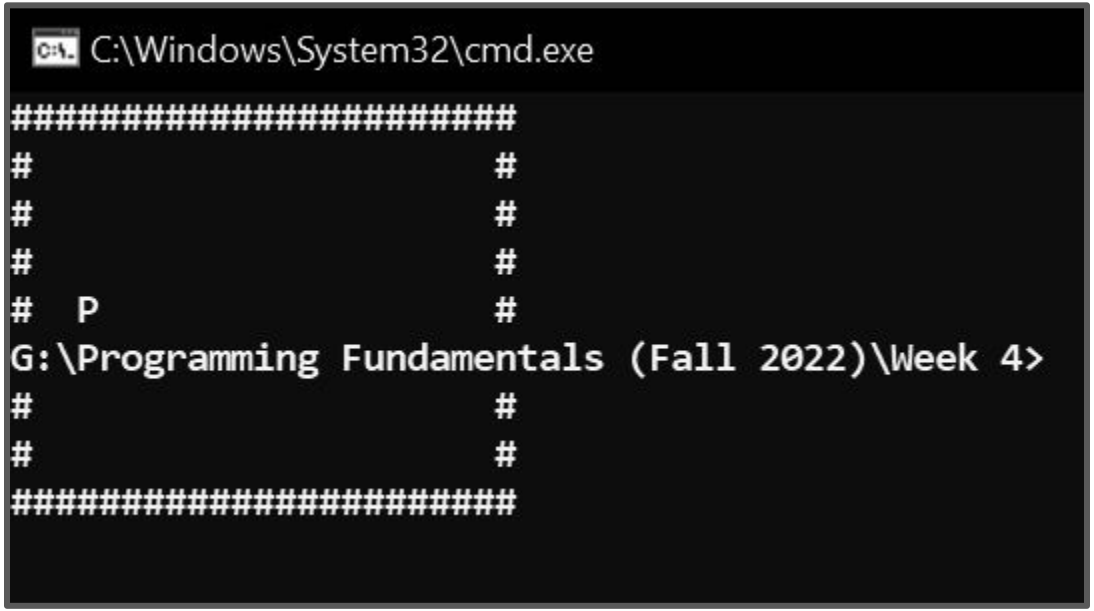
We have to place the code in the **while** loop.



```
#######################
#                     #
#                     #
#                     #
#  P                  #
G:\Programming Fundamentals (Fall 2022)\Week 4>
#                     #
#                     #
#######################
```

Goal: Move Pacman on the Console

Let’s keep printing the pacman on the same coordinates.



```
#######################
#                     #
#                     #
#                     #
#  P                  #
G:\Programming Fundamentals (Fall 2022)\Week 4>
#                     #
#                     #
#######################
```

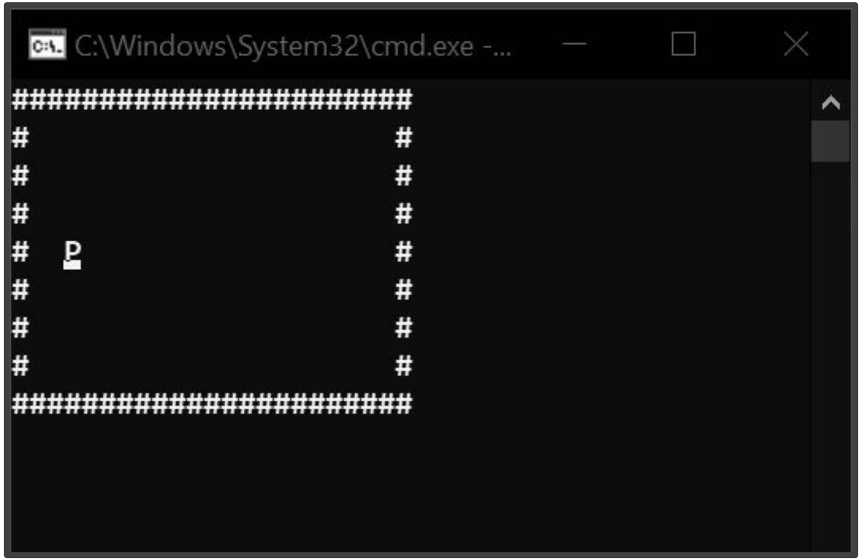
Goal: Move Pacman on the Console

```
#include <iostream>
#include <windows.h>
using namespace std;

void gotoxy(int x, int y);
void printMaze();

main()
{
       system("cls");
       printMaze();
       while (true)
       {
         gotoxy(3, 4);
         cout << "P";
       }
}
```

```
void printMaze()
{
    cout << "#######################" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#######################" << endl;
}
void gotoxy(int x, int y)
{
    COORD coordinates;
    coordinates.X = x;
    coordinates.Y = y;
SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE
), coordinates);
}
```

Goal: Move Pacman on the Console

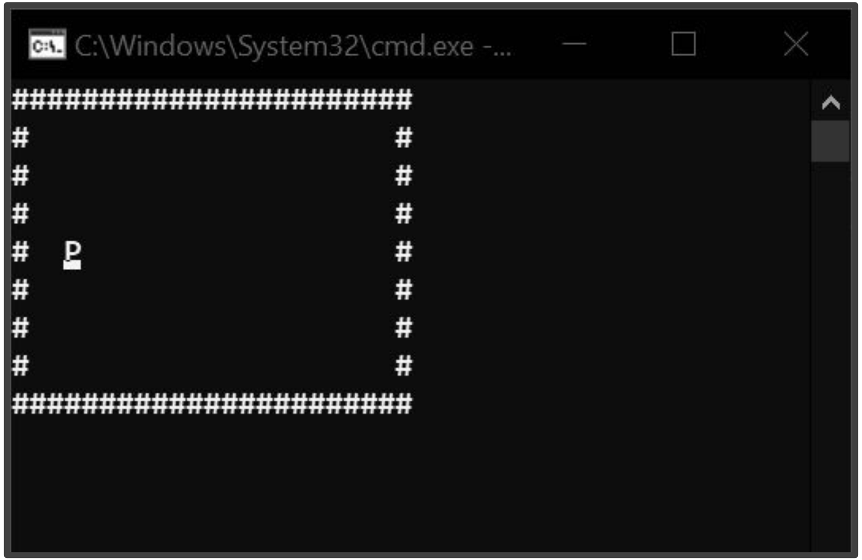
Now, the program is running continuously, and the pacman is keep on printing on the (3,4) coordinates.



```
#########################
#                       #
#                       #
#                       #
#  P                    #
#                       #
#                       #
#                       #
#########################
```

Goal: Move Pacman on the Console

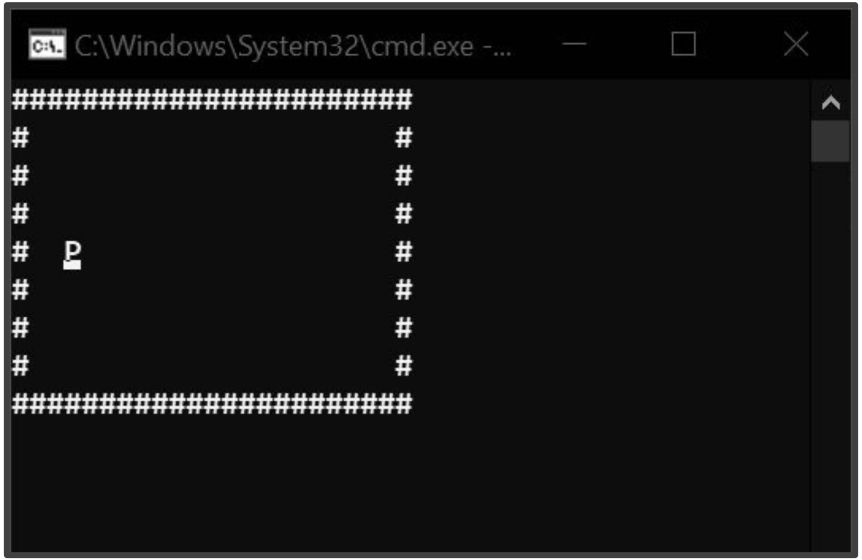
We have to move the pacman to the right side i.e., we have to update the x coordinate in the gotoxy function



```
#######################
#                     #
#                     #
#                     #
#  P                  #
#                     #
#                     #
#                     #
#######################
```

Goal: Move Pacman on the Console

Let's make the variables of x and y and then pass these variables in the gotoxy function.



```
#######################
#                     #
#                     #
#                     #
#  P                  #
#                     #
#                     #
#                     #
#######################
```

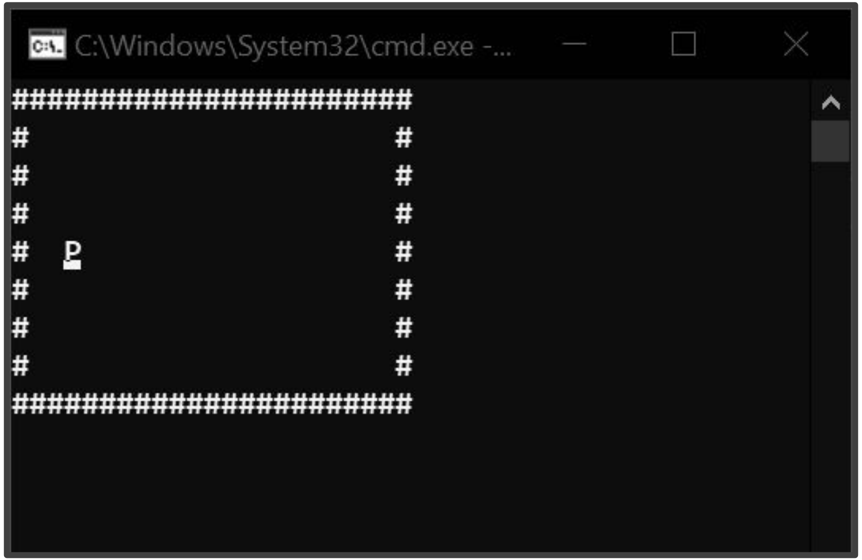
Goal: Move Pacman on the Console

```
#include <iostream>
#include <windows.h>
using namespace std;

void gotoxy(int x, int y);
void printMaze();

main()
{
       system("cls");
       printMaze();
       int x = 3;
       int y = 4;
       while (true)
       {
         gotoxy(x, y);
         cout << "P";
       }
}
```

```
void printMaze()
{
    cout << "#######################" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#######################" << endl;
}
void gotoxy(int x, int y)
{
    COORD coordinates;
    coordinates.X = x;
    coordinates.Y = y;
SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE
), coordinates);
}
```

Goal: Move Pacman on the Console

Now, in order to move the pacman towards right, we have to update the x variable by 1.



```
#######################
#                     #
#                     #
#                     #
#  P                  #
#                     #
#                     #
#                     #
#######################
```

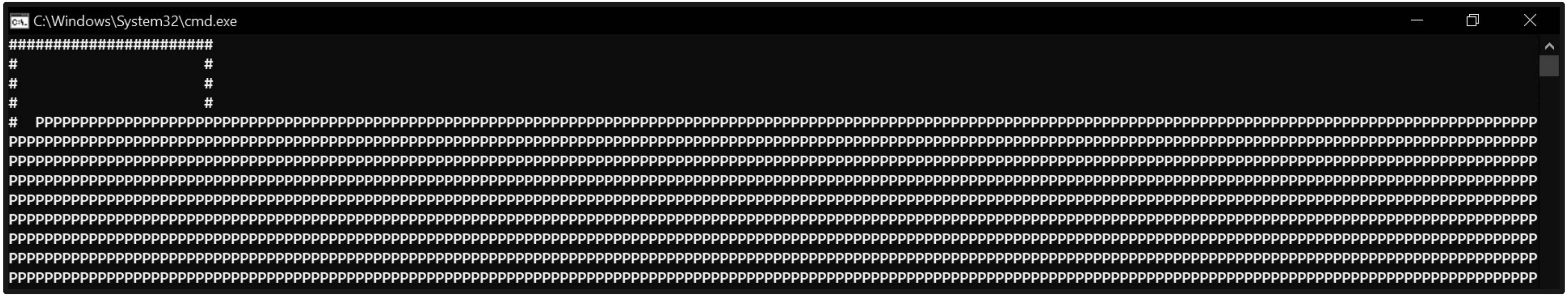
Goal: Move Pacman on the Console

```cpp
#include <iostream>
#include <windows.h>
using namespace std;

void gotoxy(int x, int y);
void printMaze();

main()
{
       system("cls");
       printMaze();
       int x = 3;
       int y = 4;
       while (true)
       {
         gotoxy(x, y);
         cout << "P";
         x = x + 1;
       }
}
```

```cpp
void printMaze()
{
    cout << "#######################" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#######################" << endl;
}
void gotoxy(int x, int y)
{
    COORD coordinates;
    coordinates.X = x;
    coordinates.Y = y;
SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE
), coordinates);
}
```

Goal: Move Pacman on the Console

After **Compiling and Executing** the program, the output becomes.



```
#######################
#                     #
#                     #
#                     #
#  PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
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```
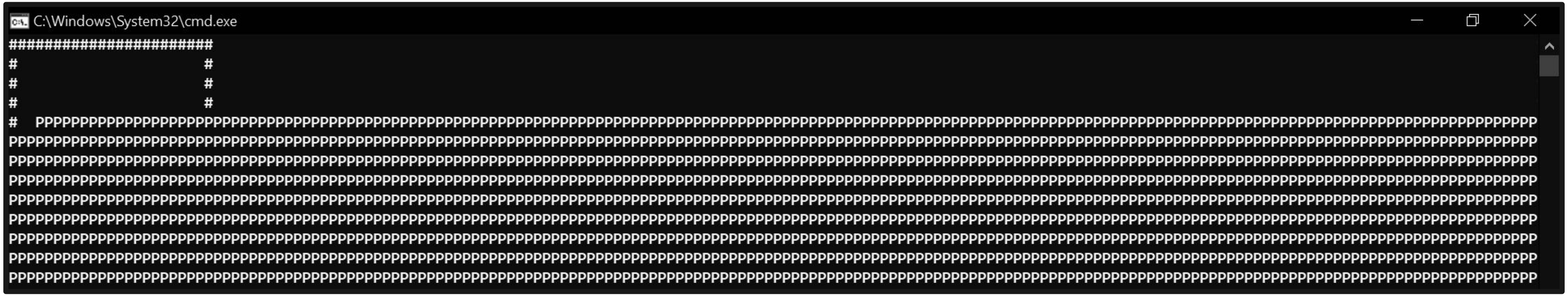

Goal: Move Pacman on the Console

It printed P on the (3, 4) coordinate, then on (4,4), then on (5,4) and keep on printing on the updated coordinates.



```
#######################
#                     #
#                     #
#                     #
#  PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
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```
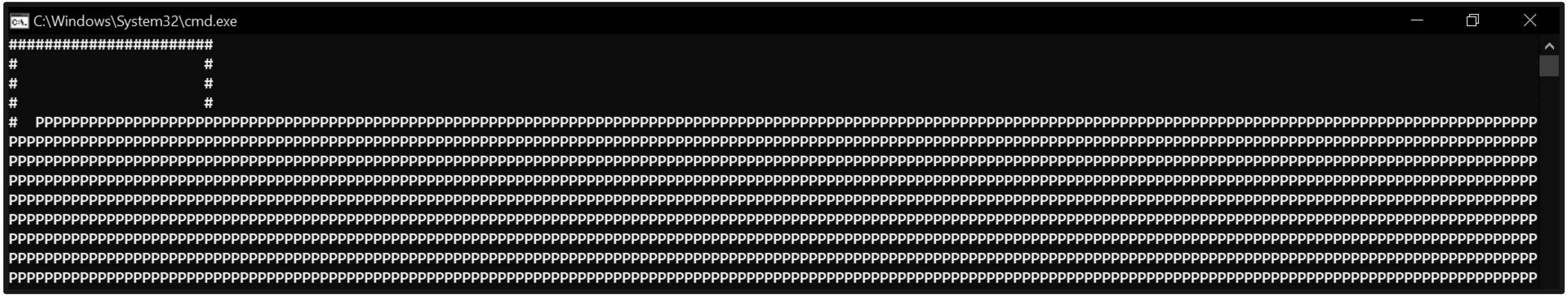

Goal: Move Pacman on the Console

Now, we want to print the pacman only till it reaches to (20, 4) coordinate then it should start back from the (3,4).



```
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#                     #
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#                     #
#  PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
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```
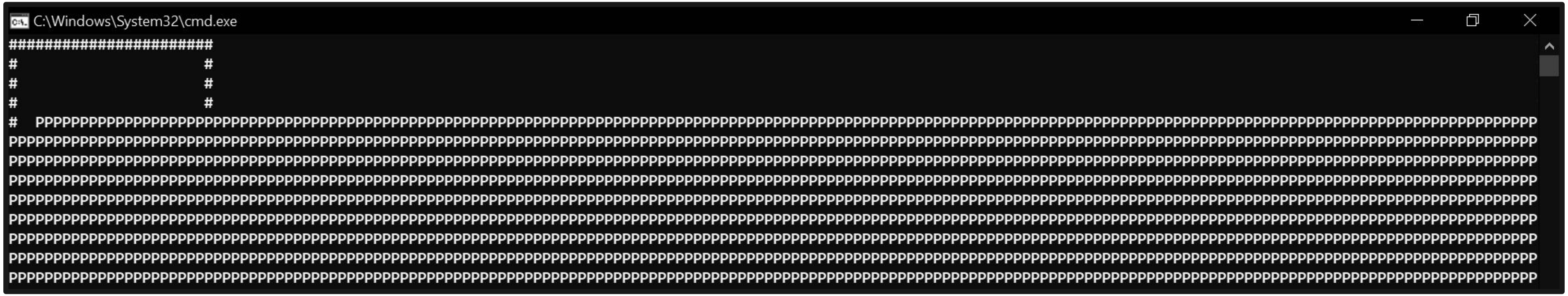

Goal: Move Pacman on the Console

How can we do that?



```
#######################
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```
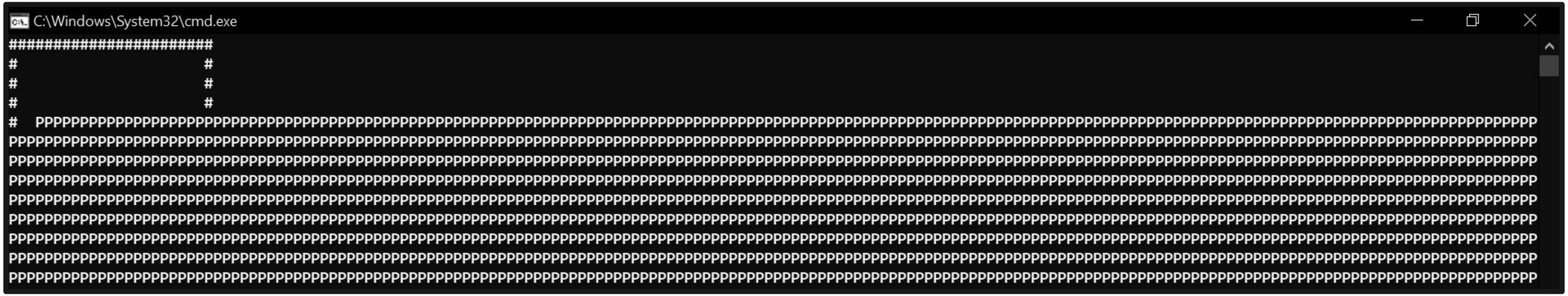

Goal: Move Pacman on the Console

We can apply the condition that if the Pacman reaches at x == 20 then we should start the x with 3 again.



C:\Windows\System32\cmd.exe

```
#######################
#                     #
#                     #
#                     #
#  PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
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```

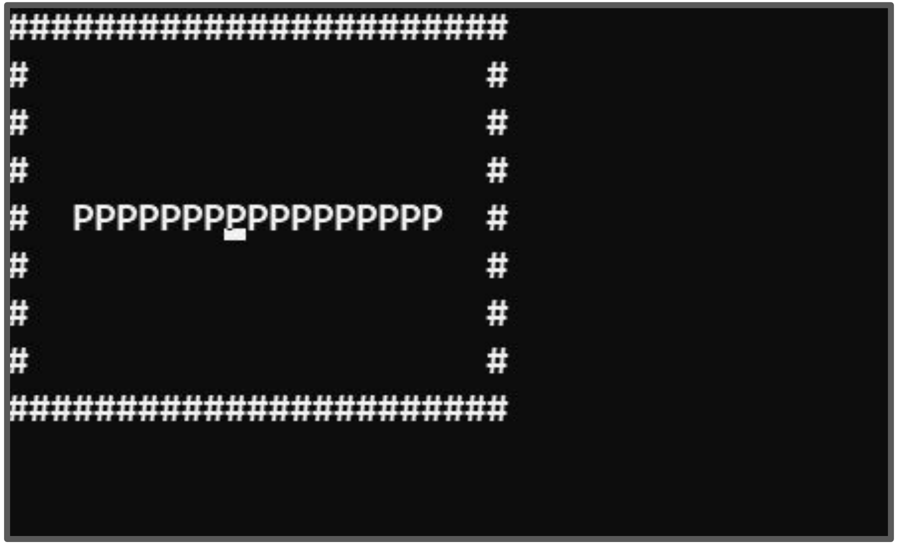
Goal: Move Pacman on the Console

```cpp
#include <iostream>
#include <windows.h>
using namespace std;
void gotoxy(int x, int y);
void printMaze();
main()
{
    system("CLS");
    printMaze();
    int x = 3;
    int y = 4;
    while (true)
    {
        gotoxy(x, y);
        cout << "P";
        x = x + 1;
        if(x == 20)
        {
            x = 3;
        }
    }
}
```

```cpp
void printMaze()
{
    cout << "#######################" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#######################" << endl;
}
void gotoxy(int x, int y)
{
    COORD coordinates;
    coordinates.X = x;
    coordinates.Y = y;
SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE
), coordinates);
}
```

Goal: Move Pacman on the Console

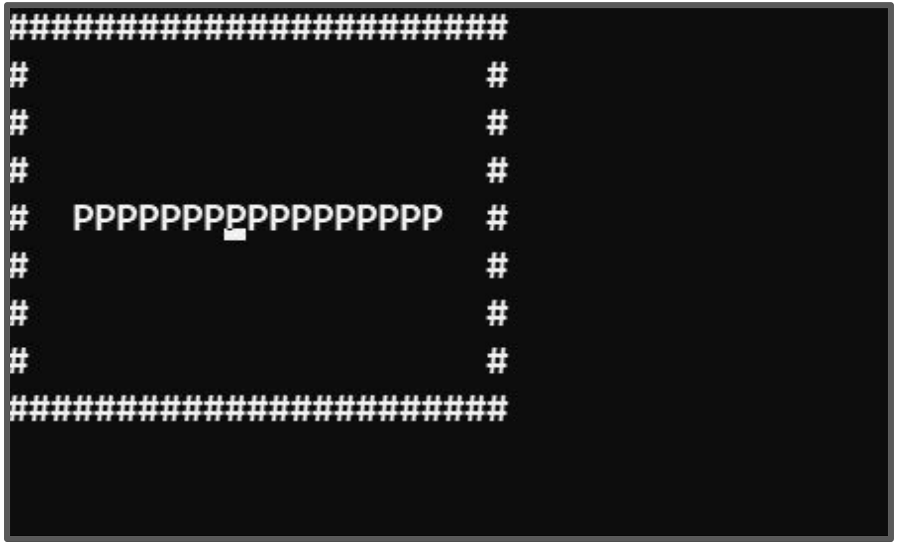
Now, the output becomes.



```
#######################
#                     #
#                     #
#                     #
#  PPPPPPPPPPPPPPPPP  #
#                     #
#                     #
#                     #
#######################
```

Goal: Move Pacman on the Console

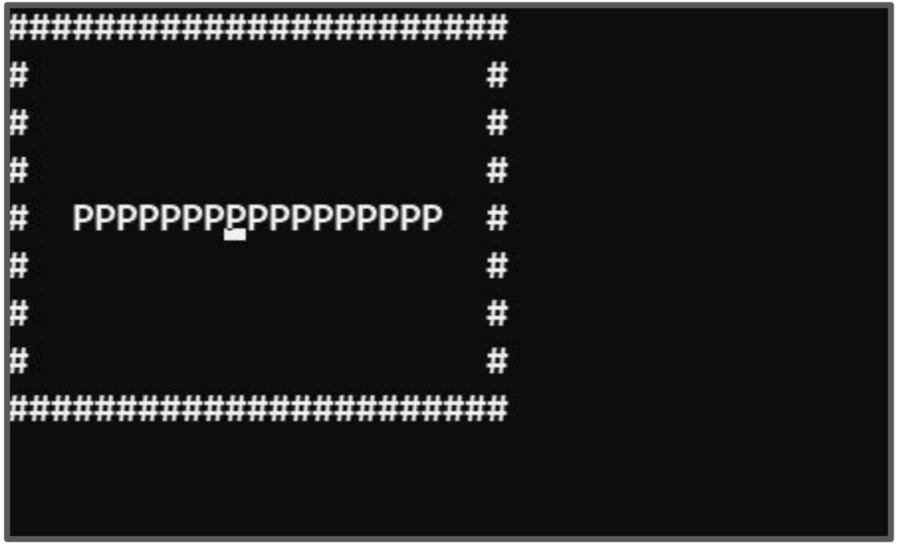
Now the only issue is that once the P is printed at some coordinate then it is placed there permanently.



```
#######################
#                     #
#                     #
#                     #
#  PPPPPPPPPPPPPPPPP  #
#                     #
#                     #
#                     #
#######################
```

Goal: Move Pacman on the Console

But, we want to place the empty space on the previous location of the Pacman once its x coordinate is updated.



```
#######################
#                     #
#                     #
#                     #
#  PPPPPPPPPPPPPPPPP  #
#                     #
#                     #
#                     #
#######################
```

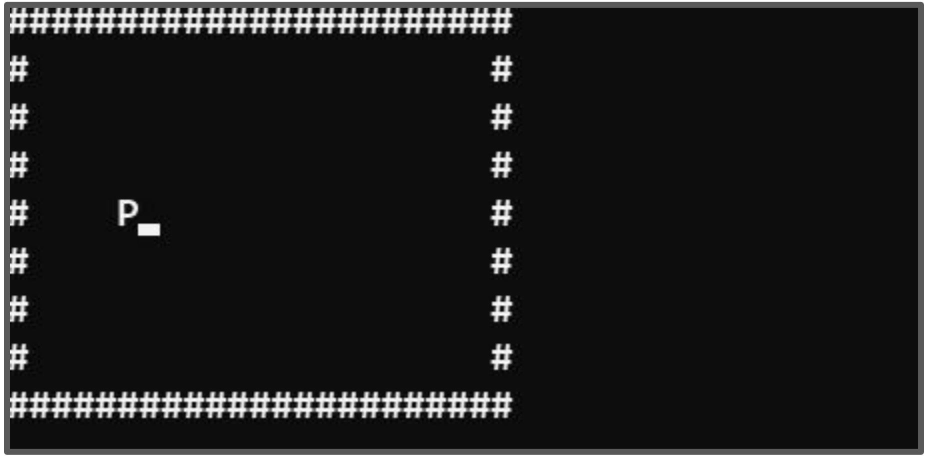
Goal: Move Pacman on the Console

```
#include <iostream>
#include <windows.h>
using namespace std;
void gotoxy(int x, int y);
void printMaze();
main(){
    system("CLS");
    printMaze();
    int x = 3;
    int y = 4;
    while (true)
    {
        gotoxy(x, y);
        cout << " ";
        x = x + 1;
        if(x == 20)
        {
            x = 3;
        }
        gotoxy(x, y);
        cout << "P";
    }
}
```

```
void printMaze()
{
    cout << "#######################" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#######################" << endl;
}
void gotoxy(int x, int y)
{
    COORD coordinates;
    coordinates.X = x;
    coordinates.Y = y;
SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE
), coordinates);
}
```

Goal: Move Pacman on the Console

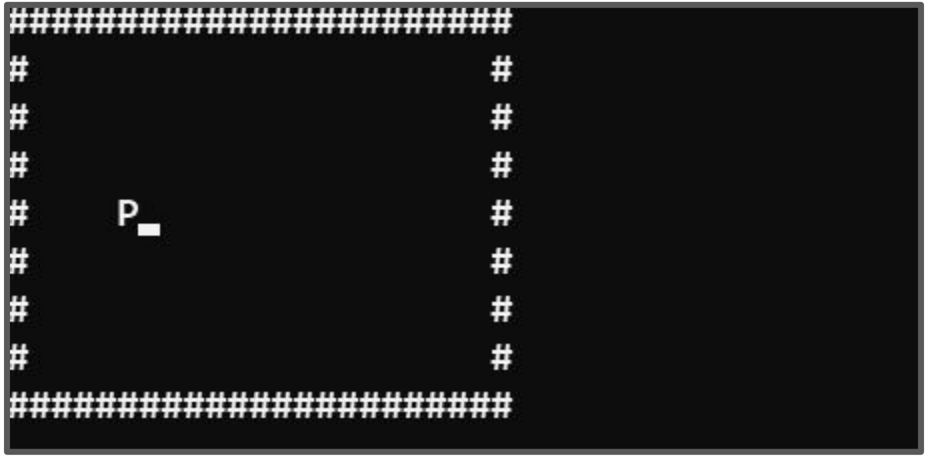
Now, after execution the output becomes.



```
#######################
#                     #
#                     #
#                     #
#    P                #
#                     #
#                     #
#                     #
#######################
```

Goal: Move Pacman on the Console

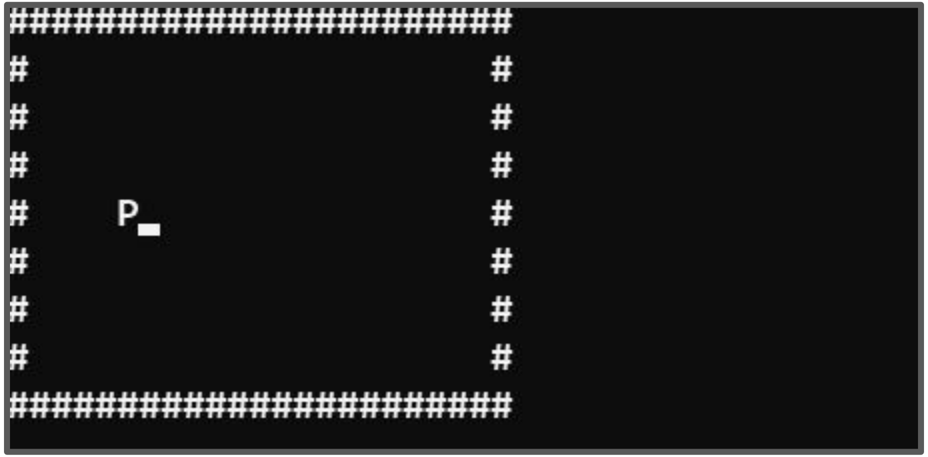
Now, the working is perfectly fine, but the pacman is moving very fast.



```
#######################
#                     #
#                     #
#                     #
#    P                #
#                     #
#                     #
#                     #
#######################
```

Goal: Move Pacman on the Console

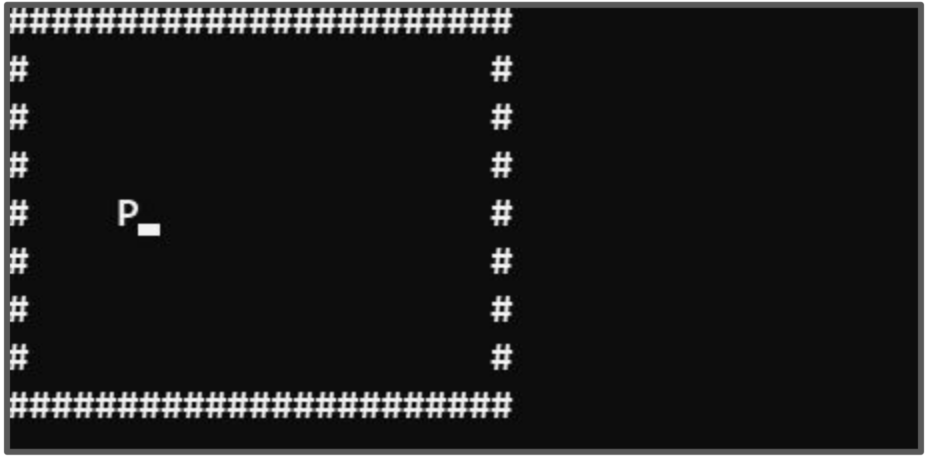
We have to let the code to stop for some seconds then the pacman should move on the next coordinate.



```
#######################
#                     #
#                     #
#                     #
#    P                #
#                     #
#                     #
#                     #
#######################
```

Goal: Move Pacman on the Console

In C++, if we want the code to not execute for some time, we have the following function Sleep(200), its input parameter is the time in milliseconds for which the code should not execute.



```
#######################
#                     #
#                     #
#                     #
#     P               #
#                     #
#                     #
#                     #
#######################
```

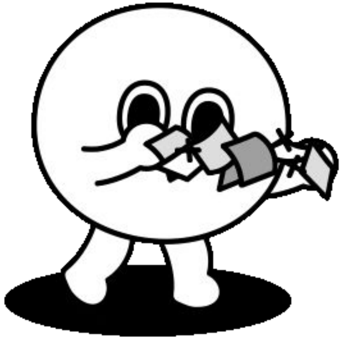
Goal: Move Pacman on the Console

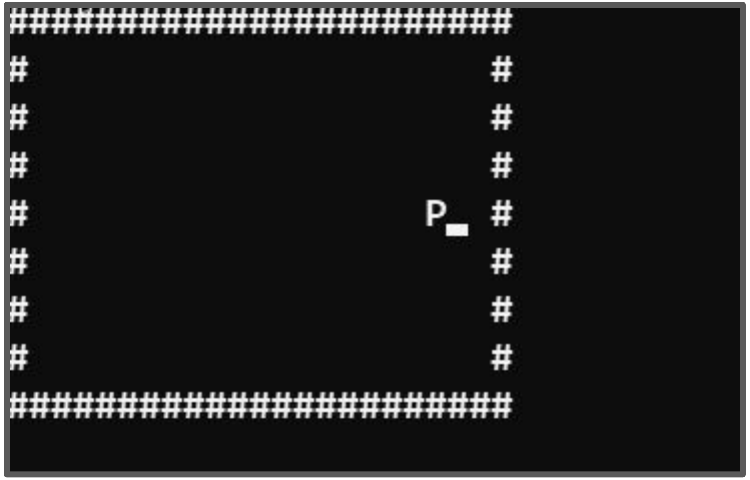
```cpp
#include <iostream>
#include <windows.h>
using namespace std;
void gotoxy(int x, int y);
void printMaze();
main(){
    system("CLS");
    printMaze();
    int x = 3;
    int y = 4;
    while (true)
    {
        gotoxy(x, y);
        cout << " ";
        x = x + 1;
        if(x == 20)
        {
            x = 3;
        }
        gotoxy(x, y);
        cout << "P";
        Sleep(200);
    }
}
```

```cpp
void printMaze()
{
    cout << "#######################" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#                     #" << endl;
    cout << "#######################" << endl;
}
void gotoxy(int x, int y)
{
    COORD coordinates;
    coordinates.X = x;
    coordinates.Y = y;
SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE
), coordinates);
}
```

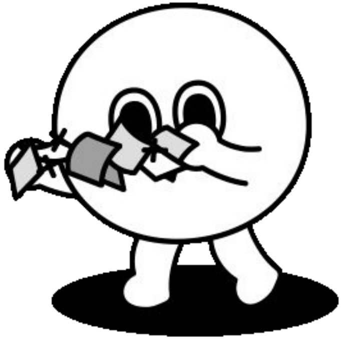
Goal: Move Pacman on the Console

Finally, the goal is achieved.





```
#######################
#                     #
#                     #
#                     #
#                  P_ #
#                     #
#                     #
#                     #
#######################
```



Learning Objective

Write a **C++ program** to display output on the console at a specific location using **gotoxy()** function.

Self Assessment

You have to convert your Vision, to concrete requirements. Following is the sample to write your requirements for your Business Application.

User Story ID	As a	I want to perform	So that I can
1	Admin	Calculate the Aggregate.	Calculate the aggregate of the students w.r.t. their fsc and ecat marks.