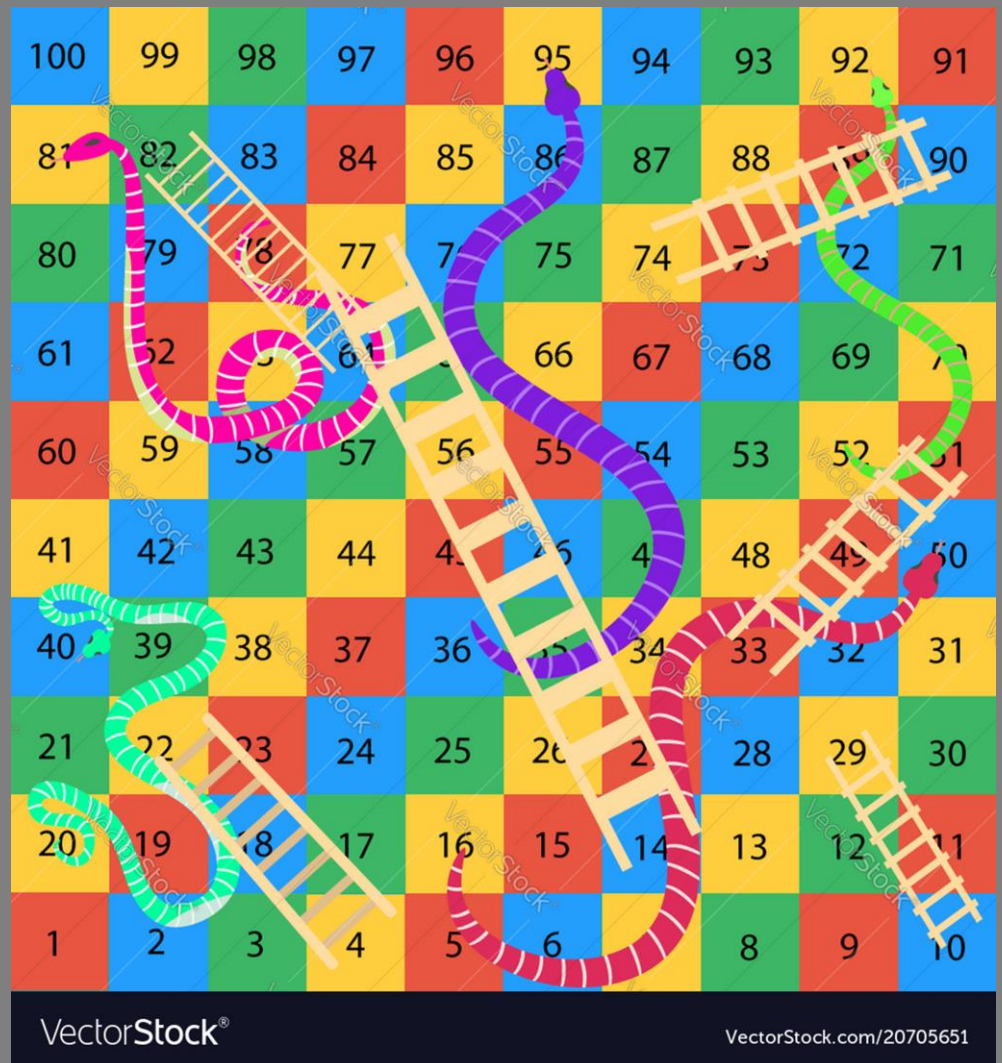


Programming Fundamentals



Snake and Ladder

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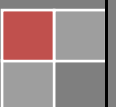
Roll No : 0268-BSCS-2019

Section : E2

Submitted to Sir Farhat

Semester Final Project

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Introduction:

As the name suggests this game is all about snakes and ladders. Following shows the information about the positions of snakes and ladders

Ladders:

- ❖ 1st ladder (4th -----22nd)
- ❖ 2nd ladder (10th -----29th)
- ❖ 3rd ladder (14th -----77th)
- ❖ 4th ladder (33rd -----52nd)
- ❖ 5th ladder (64th -----82th)
- ❖ 6th ladder (74th -----90th)

Snakes:

- ❖ 1st snake (40th -----20th)
- ❖ 2nd snake (50th -----16th)
- ❖ 3rd snake (81st -----78th)
- ❖ 4th snake (92nd -----52nd)
- ❖ 5th snake (95th -----36th)

System requirements:

- ❖ Windows & or Higher
- ❖ 1 GB RAM
- ❖ DEV C++

Construction:

First open DEV-C++ and open the source file and click on new button. Now include the header files **iostream, string, ctime, stdlib.h** and **using namespace std**. The reason for using string header file is because we have to use a string array in our program. And the reason for using ctime and stdlib is because we have to generate a random numbers to roll a dice. Now declared a function where u have to draw the board and do the calculations. Now declared 1d array and and other variables, the reason for using 1 D array is to get the input easily we can do that in 2D array as well but it would be complicated. After initializing the 1D array use the for loop to initialize the 2D array. I am doing this in a function. In main you have to simply cin the names of players that are playing this game, for this purpose declared two variables of string data type. Now use the name of the function **func** and pass the variables.

First it will ask the user to enter the names of players. Suppose I have entered **Farhatullah** and **Fahad** and after pressing enter button it will show the next screen which contains the board

```

C:\Users\fahad\Desktop\sna ke 2d.exe
Player 1:Farhatullah (X)
Player 2:Fahad (Z)

100 99 98 97 96 958 94 93 928 91
81S 82L 83 84 85 86 87 88 89 90L
80 79 78 77L 76 75 74L 73 72 71
61 62 63 64L 65 66 67 68 69 70
60 59 58 57 56 55 54 53 52 51L
41 42 43 44 45 46 47 48 49 50S
40S 39 38 37 36 35 34 33L 32 31
21 22L 23 24 25 26 27 28 29L 30
20 19 18 17 16 15 14L 13 12 11
01 02 03 04L 05 06 07 08 09 10L

Player 1's turn.
Enter any key to roll the dice

!Farhatullah's position at no 0
!Fahad's position at no 0
  
```

Now a board is appeared which contains the player names, Player's current positions and player's turn. In each turn the compiler generate a random number which works as a dice and after each turn the position of player will change on the board and it will continue to indicate the current position on the right side which is the scorecard.

```

C:\Users\fahad\Desktop\sna ke 2d.exe
Player 1:Farhatullah (X)
Player 2:Fahad (Z)

100 99 98 97 96 958 94 93 928 91
81S 82L 83 84 85 86 87 88 89 90L
80 79 78 77L 76 75 74L 73 72 71
61 62 63 64L 65 66 67 68 69 70
60 59 58 57 56 55 54 53 52 51L
41 42 43 44 45 46 47 48 49 50S
40S 39 38 37 36 35 34 33L 32 31
21 22L 23 24 25 26 27 28 29L 30
20 19 18 17 16 15 14L 13 12 11
01 02 03 04L 05 06 07 08 09 10L

Player 1's turn.
Enter any key to roll the dice
f

Dice is roooooollling

The number is 6
Farhatullah is moving to number 6
Press any key to continue . . . _

!Farhatullah's position at no 0
!Fahad's position at no 0
  
```

As you see a message appeared which shows that players 1 turn and the number he got after rolling the dice which is six and when you press the enter button the player 1 will move to 6th number.

```

C:\Users\fahad\Desktop\snafe 2d.exe
Player 1:Farhatullah
(X)
Player 2:Fahad
(Z)
100 99 98 97 96 95S 94 93 92S 91
81S 82L 83 84 85 86 87 88 89 90L
80 79 78 77L 76 75 74L 73 72 71
61 62 63 64L 65 66 67 68 69 70
60 59 58 57 56 55 54 53 52 51L
41 42 43 44 45 46 47 48 49 50S
40S 39 38 37 36 35 34 33L 32 31
21 22L 23 24 25 26 27 28 29L 30
20 19 18 17 16 15 14L 13 12 11
01 02 03 04L 05 X 07 08 09 10L

Player 2's turn.
Enter any key to roll the dice

!Farhatullah's position at no 6
!Fahad's position at no 0

```

Now X is appeared on number 6 and the position in the scorecard also changed and now the program is asking the player 2 to roll the dice.

```

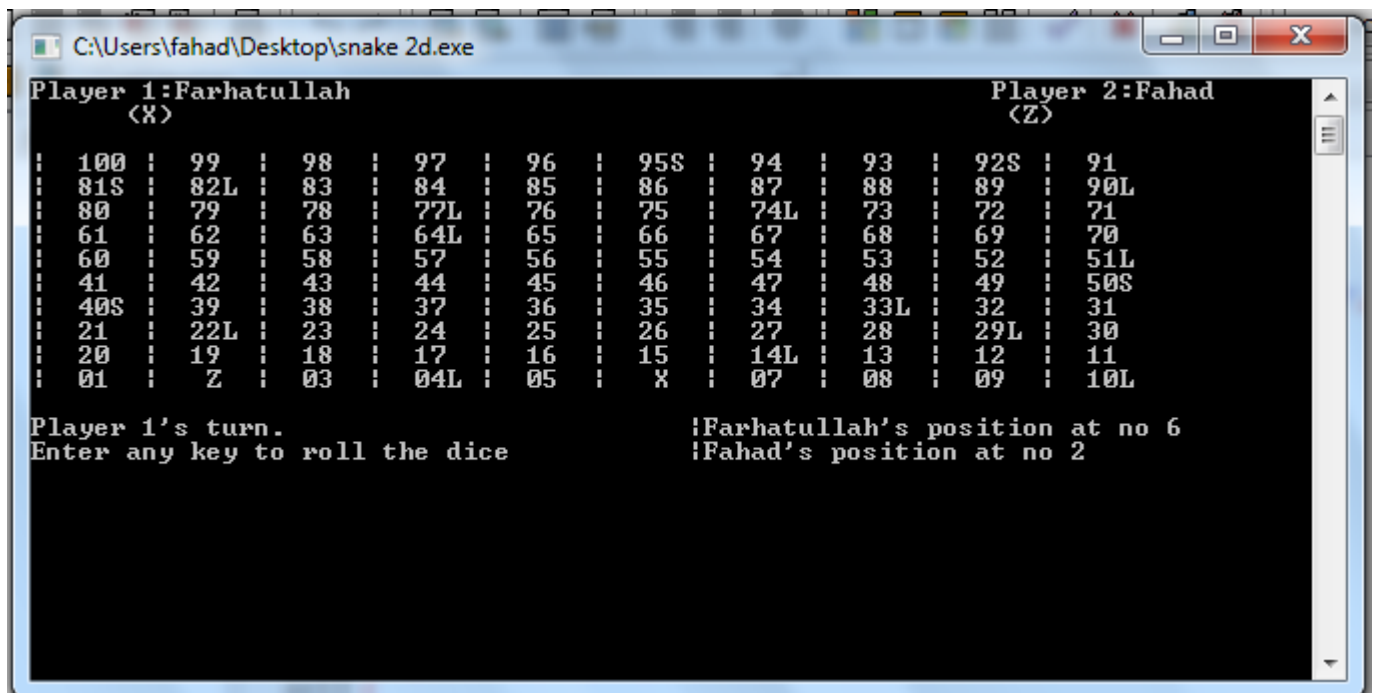
C:\Users\fahad\Desktop\snafe 2d.exe
Player 1:Farhatullah
(X)
Player 2:Fahad
(Z)
100 99 98 97 96 95S 94 93 92S 91
81S 82L 83 84 85 86 87 88 89 90L
80 79 78 77L 76 75 74L 73 72 71
61 62 63 64L 65 66 67 68 69 70
60 59 58 57 56 55 54 53 52 51L
41 42 43 44 45 46 47 48 49 50S
40S 39 38 37 36 35 34 33L 32 31
21 22L 23 24 25 26 27 28 29L 30
20 19 18 17 16 15 14L 13 12 11
01 02 03 04L 05 X 07 08 09 10L

Player 2's turn.
Enter any key to roll the dice
u
Dice is rooooooollling
The number is 2
Fahad is moving to number 2
Press any key to continue . . .

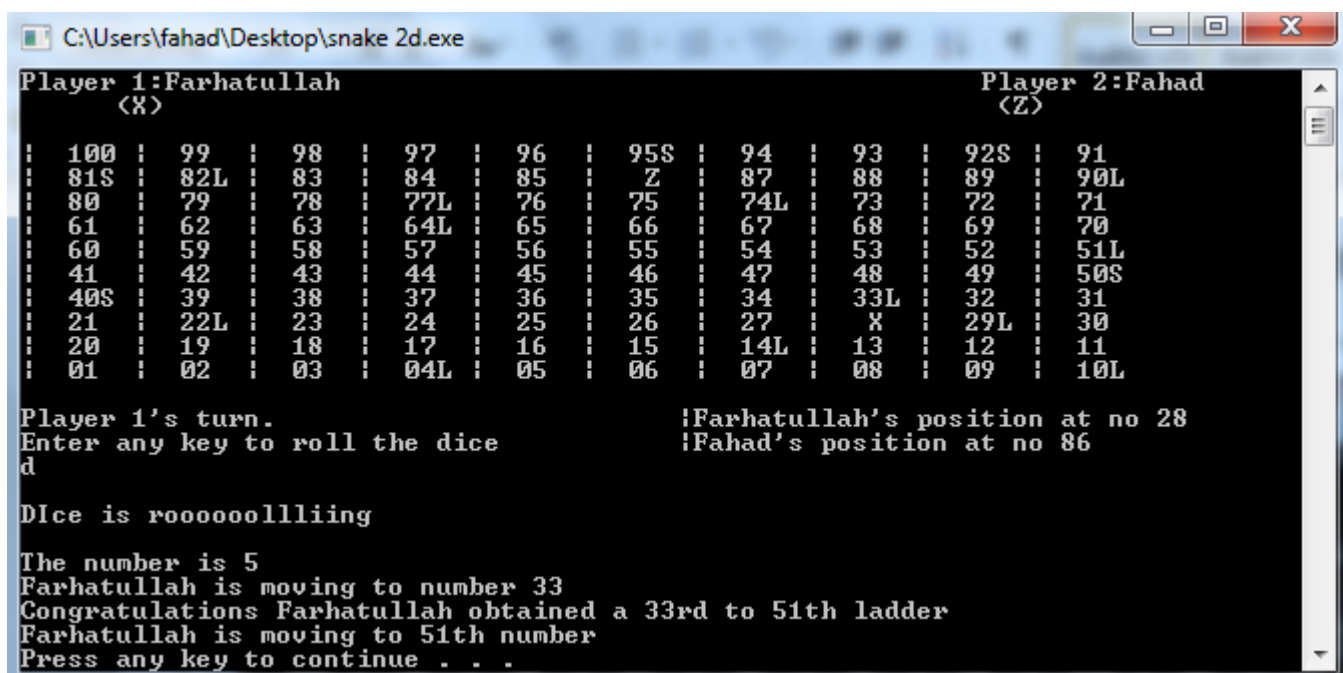
!Farhatullah's position at no 6
!Fahad's position at no 0

```

Now after rolling the dice it shows a message about the position on which player 2 is going to move which is 2 and after pressing enter button the position of player 2 will also change on the board and in the scorecard as well. So after pressing the enter Z will appear on the board on no 2. As you can see in the screen shot.



I have clearly mentioned about the positions of ladder. So if the user gets a ladder it will jump to that number where the ladder ends.



Now player 1 got a ladder, he was moving to no 33 and there he got a ladder 33rd to 51th number. So instead of moving to number 33 he is moving to number 51st, and the position of player 1 will also change on board as well as on the scorecard. As you can see in the screenshot that X is on the 51 number.


```

C:\Users\fhad\Desktop\snae 2d.exe
Player 1:Farhatullah (X)
Player 2:Fahad (Z)

100 99 98 97 96 95S 94 93 92S 91
81S 82L 83 84 85 86 87 88 89 90L
80 79 78 77L 76 75 74L 73 72 71
61 62 63 64L 65 66 67 68 69 70
60 59 58 57 56 55 54 53 52 51L
41 42 43 44 45 46 47 48 49 50S
40S 39 38 37 36 35 34 33L 32 31
21 22L 23 24 25 26 27 28 29L 30
20 19 18 17 16 15 14L 13 12 11
01 02 03 04L 05 06 07 08 09 10L

Player 2's turn.
Enter any key to roll the dice

!Farhatullah's position at no 51
!Fahad's position at no 86

```

And if the player moves to the number where the mouth of snake is it will move to that number where the tail of snake is. Suppose player moves to number 95 where the snake is it will to that number where the tail of that snake is. As you can see in the screenshot

```

C:\Users\fhad\Desktop\snae 2d.exe
Player 1:Farhatullah (X)
Player 2:Fahad (Z)

100 99 98 97 96 95S 94 93 92S 91
81S 82L 83 84 85 86 87 88 89 90L
80 79 78 77L 76 75 74L 73 72 71
61 62 63 64L 65 66 67 68 69 70
60 59 58 57 56 55 54 53 52 51L
41 42 43 44 45 46 47 48 49 50S
40S 39 38 37 36 35 34 33L 32 31
21 22L 23 24 25 26 27 28 29L 30
20 19 18 17 16 15 14L 13 12 11
01 02 03 04L 05 06 07 08 09 10L

Player 2's turn.
Enter any key to roll the dice
s

!Farhatullah's position at no 56
!Fahad's position at no 93

Dice is roooooollliing
The number is 2
Fahad is moving to number 95
YIKES.....b Snbke
Fahad is moving to 36th number
Press any key to continue . . .

```

It is showing a message that player 2 has moved to number 95 and a snake appeared so it will move to number 36 and after pressing the enter the position of snake will also change. Now Z is at number 36 and the position of player also changed in scorecard

```

C:\Users\fahad\Desktop\sake 2d.exe
Player 1:Farhatullah (X)
Player 2:Fahad (Z)
100 99 98 97 96 95S 94 93 92S 91
81S 82L 83 84 85 86 87 88 89 90L
80 79 78 77L 76 75 74L 73 72 71
61 62 63 64L 65 66 67 68 69 70
60 59 58 57 X 55 54 53 52 51L
41 42 43 44 45 46 47 48 49 50S
40S 39 38 37 Z 35 34 33L 32 31
21 22L 23 24 25 26 27 28 29L 30
20 19 18 17 16 15 14L 13 12 11
01 02 03 04L 05 06 07 08 09 10L

Player 1's turn.
Enter any key to roll the dice

!Farhatullah's position at no 56
!Fahad's position at no 36

```

The game will continue as long as any one player does not reach to number 100, and in a case that a player is at a number like **96, 97, 98**, and **99** and if after adding the number of dice the sum becomes greater than **100**. It will stay to that previous position, Its position will not change.

```

C:\Users\fahad\Desktop\sake 2d.exe
Player 1:Farhatullah (X)
Player 2:Fahad (Z)
100 99 98 X 96 95S 94 93 92S 91
81S 82L 83 84 85 86 87 88 89 90L
80 79 78 77L 76 75 74L Z 72 71
61 62 63 64L 65 66 67 68 69 70
60 59 58 57 56 55 54 53 52 51L
41 42 43 44 45 46 47 48 49 50S
40S 39 38 37 36 35 34 33L 32 31
21 22L 23 24 25 26 27 28 29L 30
20 19 18 17 16 15 14L 13 12 11
01 02 03 04L 05 06 07 08 09 10L

Player 1's turn.
Enter any key to roll the dice

!Farhatullah's position at no 97
!Fahad's position at no 73

Dice is rooooooollling
The number is 4
Farhatullah is moving to number 97
Press any key to continue . . .

```

As you see that number of dice is 4 which makes the sum greater than **100**. So **X** will not move its position. And if a player gets a number which makes the sum equal to **100**. That player will be the **winner**.


```

C:\Users\fahad\Desktop\snafe 2d.exe
80 79 78 77L 76 X 74L 73 72 71
61 62 63 64L 65 66 67 68 69 70
60 59 58 57 56 55 54 53 52 51L
41 42 43 44 45 46 47 48 49 50S
40S 39 38 37 36 35 34 33L 32 31
21 22L 23 24 25 26 27 28 29L 30
20 19 18 17 16 15 14L 13 12 11
01 02 03 04L 05 06 07 08 09 10L

Player 2's turn.
Enter any key to roll the dice
!Farhatullah's position at no 75
!Fahad's position at no 98
;
Dice is rooooooollliing
The number is 2
Fahad is moving to number 100
Press any key to continue . . .
Congratulations Fahad wins....
Fahad got
.....CHICKEN DINNER.....
-----
Process exited after 50.86 seconds with return value 0
Press any key to continue . . .

```

As you see Player 2 wins the game because his became 100 so a message appeared congratulating him.

And now as our game is finished but there is a chance of memory leakage so I am going to delete the memory which I dynamically allocated.

```

    break;
}
}
}
n++;
i++;
++q;
if(q==3)
{q=1;
}
}
while(sum1[1]!=100&&sum[1]!=100);
winner(sum,sum1,a,b);
delete []sum;
delete []sum1;
}
int main()
{
    string player1,player2;

    cout<<"Enter player's 1 name :";
    cin>>player1;
    cout<<"Enter Player's 2 name :";
    cin>>player2;
    cout<<"L for Ladders \nS for Snakes";
    func(player1,player2);
}

```

I hope you liked my assignment.

_____.