

Project report

Clear screen

For this, I used code below.

```
mov al, 06H      ;scroll up
mov bh, 00H
mov cx, 0000H
mov dx, 184FH
INT 10H
```

Graphic mode

Then, I insert the program into graphic mode.

```
mov al, 13H
mov AH, 0
INT 10H
```

Init Socre

In order to show the score, I inserted a init score function to show the score in the page.

```
mov DL, '0'
mov AH, 2
INT 21h
```

Border

The game has a border that defines the edges of the game. For this, I inserted 2 pixels and extended them to draw a line.

Main loop

The whole game is inside a loop which repeats until the user loses.

Main Functions

Shift down

It is a function that moves the shapes down. It has a simple algorithm that is the code below.

```
mov color, 0
call draw_shape
mov dx, start_row_sq
add dx, block_size
mov start_row_sq, dx
mov color, 14
call draw_shape
call fall_delay
```

First, the color is set to 0 to remove the last effect of the shape, then **draw shape** is called which draws our shape. Then, the **row** of the shape is added by a block size which sets the start row of the shape at the new position.

shift right, left

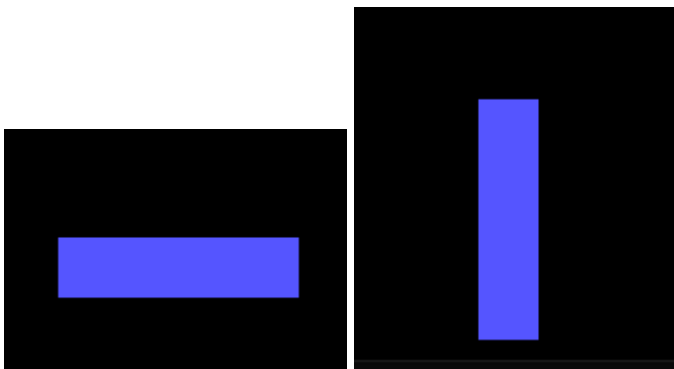
It is similar to shift right, the difference is that the column is changed instead of the row.

delay function

The shapes come down so fast, so we set a delay in order to make them fall slower and also by block size.

Rotate

By pressing **w**, The shapes rotate 90 clockwise. Like others, the new shapes have a new function to be drawn.



input checking

For checking user inputs, At first, we use code below to make the keyboard responsive.

```
mov ah, 1
int 16h
```

Then, we should make it non-blocking, so code below is used for handling user inputs.

```
mov ah, 00h
int 16h
```

```
push ax
mov ah, 6 ; direct console I/O
mov dl, 0FFh ; input mode
int 21h
pop ax

cmp al, 'd'
je d_key_pressed

cmp al, 'D'
je d_key_pressed

cmp al, 'A'
je l_key_pressed

cmp al, 'a'
je l_key_pressed

cmp al, 's'
je s_key_pressed

cmp al, 'S'
je s_key_pressed

cmp al, 'W'
je w_key_pressed

cmp al, 'w'
je w_key_pressed
```

Shape initialization

When each shape comes down, the value of its first location is initialized to get ready for the next fall.