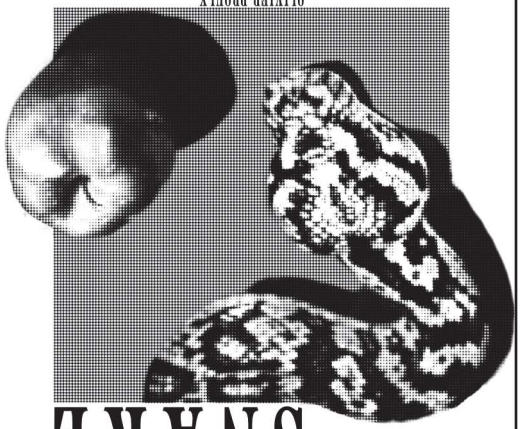
PICO-8 VIDEO COMPUTER SYSTEM

SINGLE PLAYER
JOUEUR UNIQUE
UN JUGADOR
EINZELSPIELER
GIOCATORE SINGOLO

VIDEO GAME
JEUX VIDEO
JUEGOS VIDEO
TELE-SPIELE
VIDEO GIOCHI

SNAKE



OLIVIER PROULX

Welcome

Hi, my name is Olivier. I am a game developer, and soon, you will be too.

In following this zine, you will make your own version of the classic game snake.

This version of snake will be made using PICO-8, which can be used for free in your browser at pico-8-edu.com

Once you get to the website, you can press the play button in the center of the screen, this will launch the engine.

You will be met with a terminal prompt. Press escape to toggle between the terminal and the development environment.

By default, you should be in the code editor window, which is the only window we will need to use.

Setup

To start, we need to define some important variables we will need for later.

Type the following at the top of the code editor.

```
X=8 Y=8 LST=0 SNK={}
```

X and Y will represent the position of the front of our snake.

LST represents the last input from the player

SNK will be a list of the snake body parts

Below those variables, we will add some functions.

```
FUNCTION _INIT()
 RNDFOOD()
 GROW()
END

FUNCTION _UPDATE()
 INPUT()
 SLOWUPDT()
END

FUNCTION _DRAW()
 CLS(1)
 RNDRSNK()
 RNDRFOOD()
END
```


Input

At the top of the code editor, you should see a number 0 with a + next to it.

Press the +, and you will create a new code tab. In this tab, we will handle getting input.

We can get input from the arrow keys using the following code.

```
FUNCTION INPUT()
 IF(BTN(⬅)) THEN LST = 0 END
 IF(BTN(➡)) THEN LST = 1 END
 IF(BTN(⬆)) THEN LST = 2 END
 IF(BTN(⬇)) THEN LST = 3 END
END
```

To type the special arrow characters press shift and type L, R, U, D.

Now we will take this input, and feed it into a function that will modify the values of X and Y.

```
FUNCTION MOVE()
 IF(LST==0) THEN X-=1 END
 IF(LST==1) THEN X+=1 END
 IF(LST==2) THEN Y-=1 END
 IF(LST==3) THEN Y+=1 END
 X = X%16
 Y = Y%16
END
```


Utility

Now, we will need to make a new tab. In this tab, we will be writing a couple of utility functions for later.

The first is a slow update. If we were to add the move function to the regular update loop, the snake would move 30 times every second. To avoid this, our slow update will only run code a fraction of that.

```
T=0 SPD=5
FUNCTION SLOWUPDT()
 IF(T%(30/SPD)==0) THEN
  MOVE()
  UPDTSNK()
  EATFOOD()
 END
 T+=1
END
```

We will also need a function for printing to the screen scaled by a multiple. Our snake operates on a grid 8 times smaller than the screen, and so we will need to multiply its coordinates by 8.

```
FUNCTION PS(S,X,Y,C)
 PRINT(S,X*8,Y*8,C)
END
```


Snake

Now, we will need to make a new tab. This tab will be responsible for the snake logic.

We will write a function to render all the segments of the snake, to update all the segments of the snake, and to grow the snake by one segment.

```
FUNCTION RNDRSNK()
 FOR I=1,#SNK DO
  PS("■",SNK[I][1],SNK[I][2],3)
 END
END

FUNCTION UPDTSNK()
 LX = SNK[#SNK][1]
 LY = SNK[#SNK][2]
 FOR I=#SNK,2,-1 DO
  SNK[I] = SNK[I-1]
 END
 SNK[1]={X,Y}
END

FUNCTION GROW()
 SNK[#SNK+1] = {LX,LY}
END
```

To get the rectangle text character, press shift and 8.

This character 8 is a #.

Food

Last but not least, we will implement the food. Just like the other pages, we will create a new tab for this one.

First with a function that will generate a random location for the food in a 16x16 grid.

```
FX=0 FY=0
FUNCTION RNDFOOD()
 FX = FLR(RND()*16)
 FY = FLR(RND()*16)
END
```

Next, we will need a way to render the food to the screen.

```
FUNCTION RNDRFOOD()
 PS("●",FX,FY,8)
END
```

To get the circle text character, press shift and G.

Finally, we need a way for the snake to eat the food.

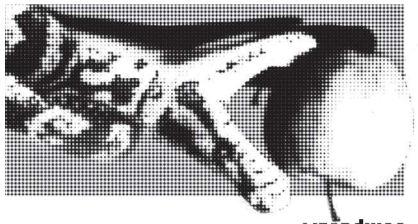
```
FUNCTION EATFOOD()
 IF(X==FX AND Y==FY) THEN
  RNDFOOD()
  GROW()
 END
END
```


End

Thats it! You have now written a game.

Give yourself a pat on the back.

If you want to play the game, press escape to toggle back to the terminal. Type run and press enter and your game should run.

To stop the game press escape.

If you would like to save the game, press escape to toggle to the terminal. Type save and press enter, this will save a file to your computer.