# Trabajo Práctico N4

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**Actividad 1.1**

```
MOV B,0x0300 ; Con B recorreremos los píxeles de la pantalla
MOV C,0x0333 ; Con A recorreremos cada color

; 7 6 5 4 3 2 1 0
; R R R G G G B B


lazo:

MOVB [B], CL
INC B ;Incrementamos la dirección al siguiente píxel
CMP B,0x0400
JZ fin
IN 0x0006
CMP A, 0x0032
JZ colorAmarillo
IN 0x0006
CMP A, 0x0031
JZ colorAzul
JMP lazo

fin:
HLT

colorAzul:
MOV C, 0x0333
JMP lazo
colorAmarillo:
MOV C, 252
JMP lazo
```

**Actividad 1.2**

 Prints a 16x16 sprite into the visual display

```
JMP boot
```

```
vslDisplay EQU 0x300

sprite:
DB "\xFF\xFF\xFF\xFF\xFF\xC4\xC4\xC4"
DB "\xC4\xC4\xFF\xFF\xFF\xFF\xFF\xFF"
DB "\xFF\xFF\xFF\xFF\xC4\xC4\xC4\xC4"
DB "\xC4\xC4\xC4\xC4\xC4\xFF\xFF\xFF"
DB "\xFF\xFF\xFF\xFF\x8C\x8C\x8C\xF4"
DB "\xF4\x8C\xF4\xFF\xFF\xFF\xFF\xFF"
DB "\xFF\xFF\xFF\x8C\xF4\x8C\xF4\xF4"
DB "\xF4\x8C\xF4\xF4\xF4\xFF\xFF\xFF"
DB "\xFF\xFF\xFF\x8C\xF4\x8C\x8C\xF4"
DB "\xF4\xF4\x8C\xF4\xF4\xF4\xFF\xFF"
DB "\xFF\xFF\xFF\x8C\x8C\xF4\xF4\xF4"
DB "\xF4\x8C\x8C\x8C\x8C\xFF\xFF\xFF"
DB "\xFF\xFF\xFF\xFF\xFF\xF4\xF4\xF4"
DB "\xF4\xF4\xF4\xF4\xFF\xFF\xFF\xFF"
DB "\xFF\xFF\xFF\xFF\x8C\x8C\xC4\x8C"
DB "\x8C\x8C\xFF\xFF\xFF\xFF\xFF\xFF"
DB "\xFF\xFF\xFF\x8C\x8C\x8C\xC4\x8C"
DB "\x8C\xC4\x8C\x8C\x8C\xFF\xFF\xFF"
DB "\xFF\xFF\x8C\x8C\x8C\x8C\xC4\xC4"
DB "\xC4\xC4\x8C\x8C\x8C\x8C\xFF\xFF"
DB "\xFF\xFF\xF4\xF4\x8C\xC4\xF4\xC4"
DB "\xC4\xF4\xC4\x8C\xF4\xF4\xFF\xFF"
DB "\xFF\xFF\xF4\xF4\xF4\xC4\xC4\xC4"
DB "\xC4\xC4\xC4\xF4\xF4\xF4\xFF\xFF"
DB "\xFF\xFF\xF4\xF4\xC4\xC4\xC4\xC4"
DB "\xC4\xC4\xC4\xC4\xF4\xF4\xFF\xFF"
DB "\xFF\xFF\xFF\xFF\xC4\xC4\xC4\xFF"
DB "\xFF\xC4\xC4\xC4\xFF\xFF\xFF\xFF"
DB "\xFF\xFF\xFF\x8C\x8C\x8C\xFF\xFF"
DB "\xFF\xFF\x8C\x8C\x8C\xFF\xFF\xFF"
DB "\xFF\xFF\x8C\x8C\x8C\x8C\xFF\xFF"
DB "\xFF\xFF\x8C\x8C\x8C\x8C\xFF\xFF"

boot:
MOV C, sprite ; C points to the sprite
MOV D, vslDisplay ; D points to the fb

.loop:
MOVB AL, [C]; Print all the pixels
INC C
```

```
INC D
CMP A, 0xC4
JZ cambiarVerde
MOVB [D], AL
CMP D, 0x400
JNZ .loop
HLT
cambiarVerde:
MOVB AL, 0x15
MOVB [D], AL
JMP .loop
```

**Actividad 1.3**

```
MOV B, 0x2FE

MOV C, 5


MOVB [B], 224

loop:

CMP B, 0x30F
JE excepciones
CMP B, 0x3F0
JE excepciones

CMP B, 0x400
JNC FINAL
MOVB [B], 224
excepciones:
INC B
DEC C

JNZ loop


MOV C, 5
SUB B, 0x4
ADD B, 0x10
```

```
CMP B, 0x400
JC loop

FINAL:

HLT
```

**Actividad 2.1**

```
int led = 6;


void setup(){

  Serial.begin(9600);
  pinMode(2, INPUT);
  pinMode(3, INPUT);

  for(int i = 0; i<8; i = i+1){

    pinMode(i, OUTPUT);

  }

  attachInterrupt(digitalPinToInterrupt(2), interrupcion_uno, RISING);

  attachInterrupt(digitalPinToInterrupt(3), interrupcion_dos, RISING);
}

void loop(){

  digitalWrite(led, HIGH);
  delay(800);
  digitalWrite(led,LOW);

  led = led + 1;

  if(led > 13){

  led = 6;

  }
```

```
}

void interrupcion_uno(){


  for (int i = 0; i < 40; i = i + 1) {

    digitalWrite(7, HIGH);
    delay(50);
    digitalWrite(7, LOW);
    delay(50);

  }
  digitalWrite(7,HIGH);
  delay(1000);
  digitalWrite(7,LOW);

}

void interrupcion_dos(){

  for (int i = 0; i < 40; i = i + 1) {

    digitalWrite(12, HIGH);
    delay(50);
    digitalWrite(12, LOW);
    delay(50);

  }

  digitalWrite(12,HIGH);
  delay(1000);
  digitalWrite(12,LOW);


}
```