

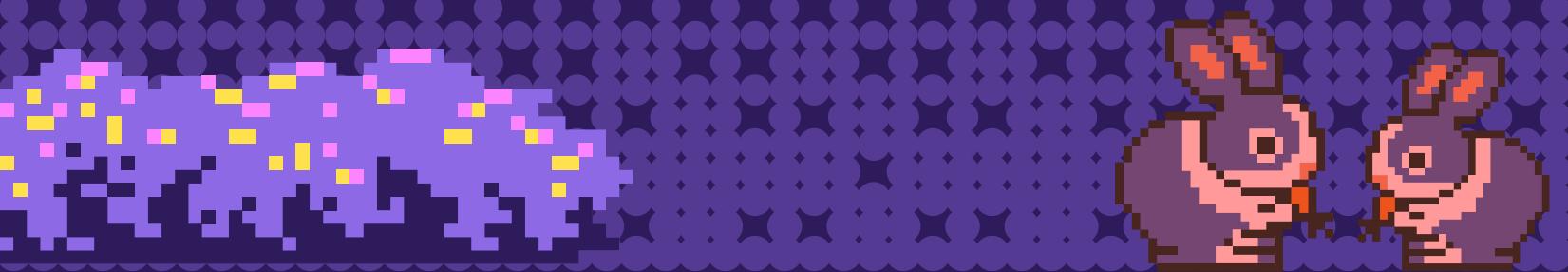
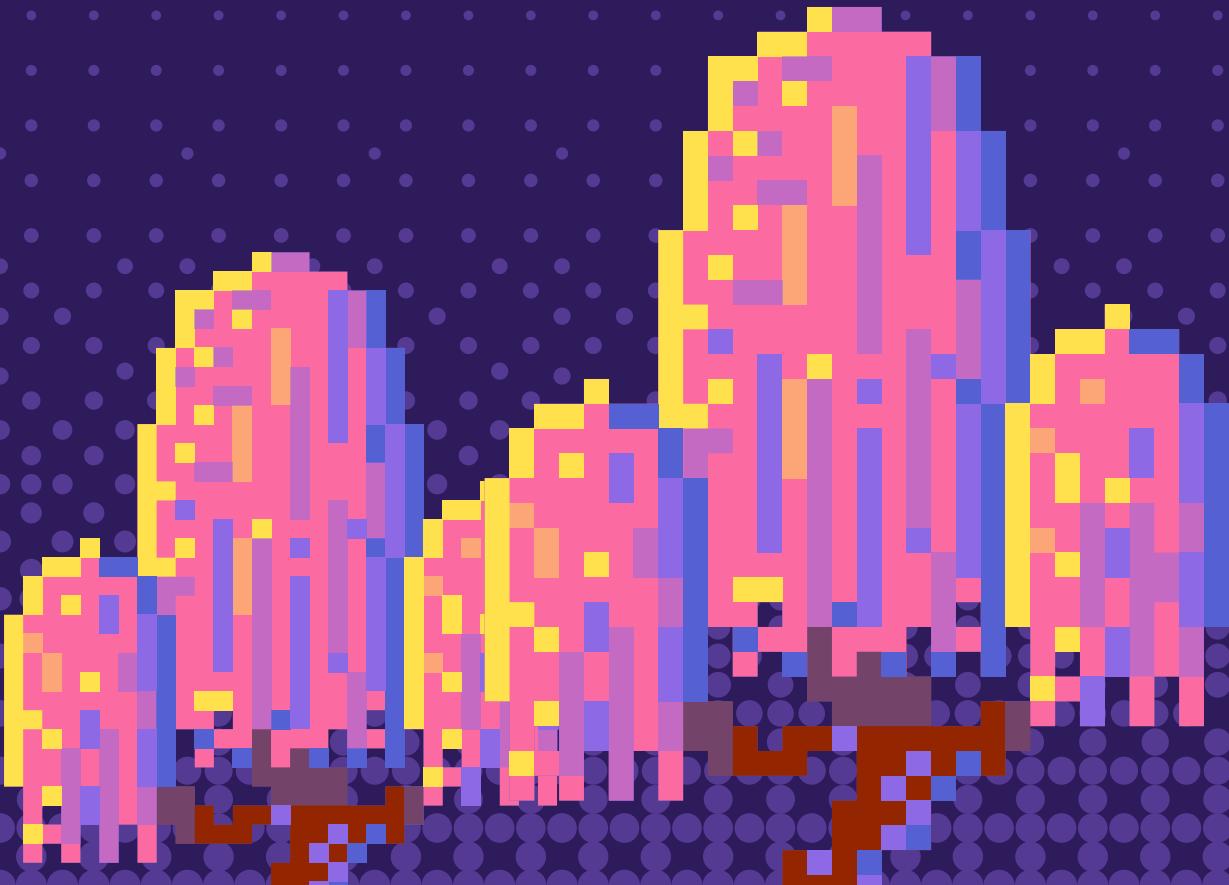
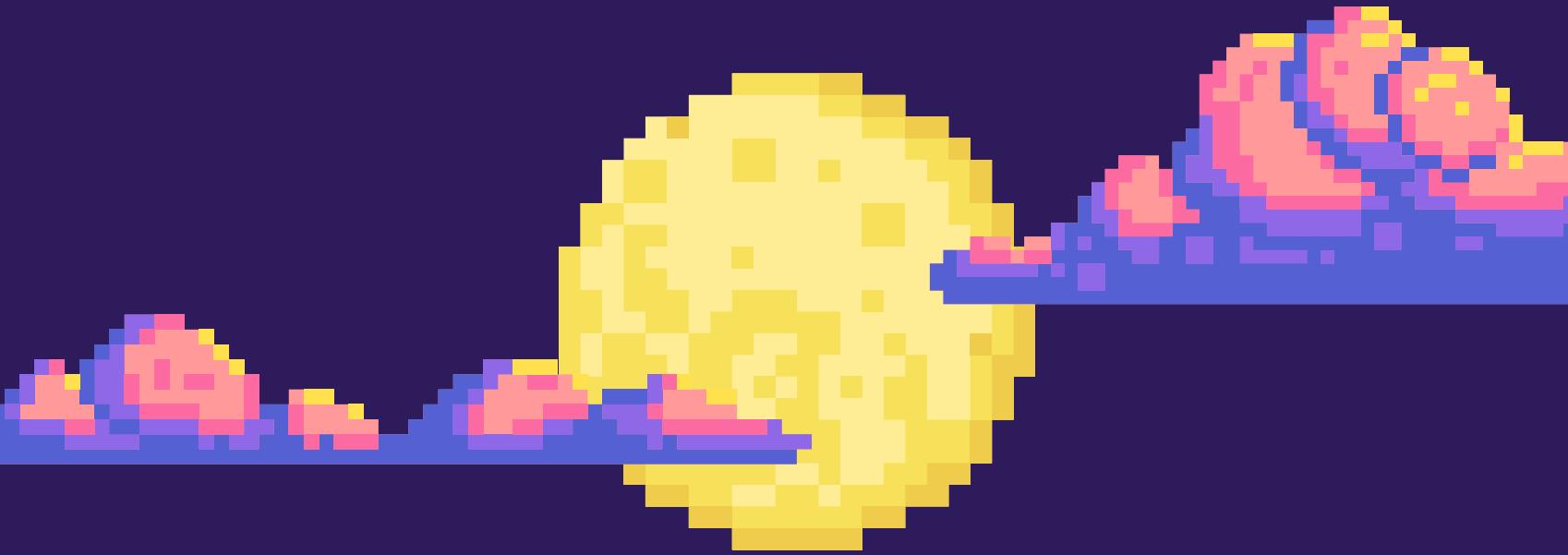


ALGORITMOS PARALELOS

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INTRODUCCION

La animación por computadora es una técnica clave en áreas como videojuegos, cine y simulaciones, que crea la ilusión de movimiento a través de imágenes sucesivas (fotogramas). Usando herramientas como Python y librerías como matplotlib y numpy, se pueden generar animaciones simples y dinámicas, como un dinosaurio caminando moviéndose en un fondo.



OBJETIVOS

- Crear una animación fluida: Generar una animación donde los objetos, como el dinosaurio y las nubes, se muevan suavemente sobre un fondo fijo. El objetivo es lograr un movimiento continuo y natural entre los fotogramas.
- Visualizar objetos sobre un fondo: Utilizar una matriz de fondo que sirva como base para colocar los objetos (nubes, piedras, dinosaurio). El fondo debe permanecer estático, mientras los objetos se desplazan sobre él.
- Representar objetos con matrices de píxeles: Crear objetos (como el dinosaurio y las nubes) usando matrices de píxeles para definir su forma y color, y colocarlos de manera correcta en el escenario.
- Optimizar la generación de fotogramas: Utilizar múltiples hilos para dividir el trabajo de crear los fotogramas, mejorando la velocidad de procesamiento y asegurando que la animación se mantenga fluida, incluso con muchos elementos en pantalla.

LIBRERIAS USADAS

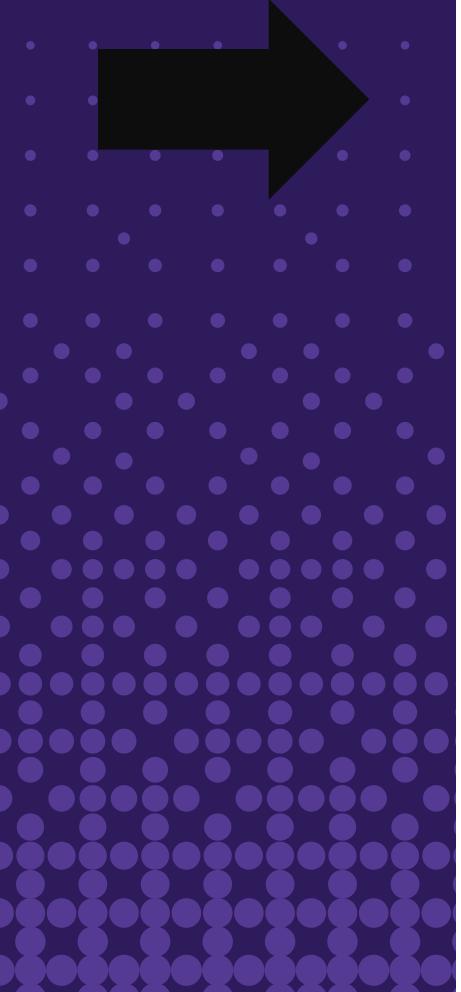
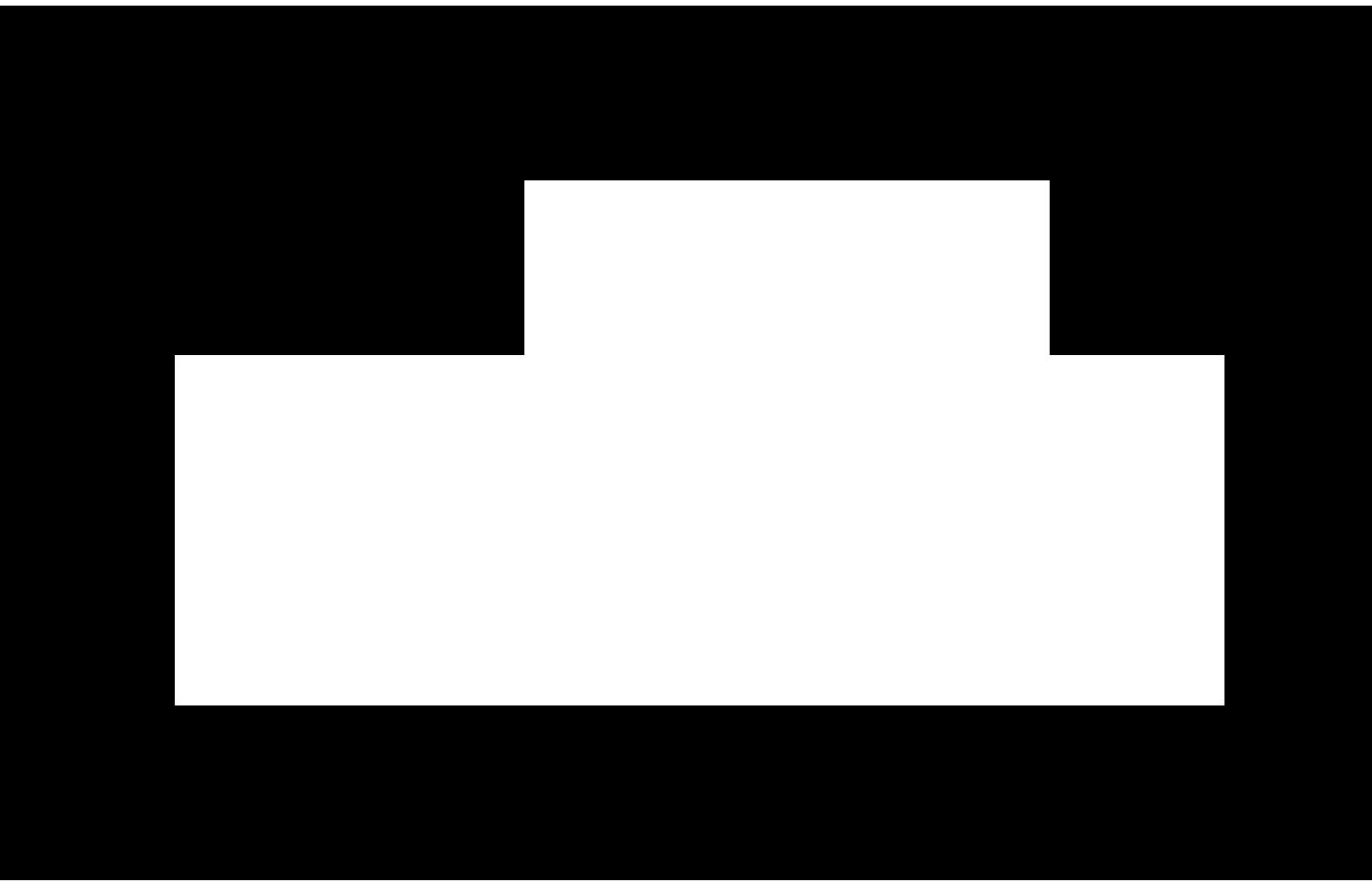
```
import matplotlib.pyplot as plt  
import matplotlib.animation as animation  
import numpy as np  
import threading  
import random  
from PIL import Image
```

CONFIGURACION DEL ESCENARIO

```
NUM_FRAMES = 120
ANCHO_ESCENARIO = 100
ALTO_ESCENARIO = 40
NUM_HILOS = 4
```

```
piedra = np.array([
    [0,0,0,0,0,0,0,0],
    [0,0,0,1,1,1,0,0],
    [0,1,1,1,1,1,1,0],
    [0,1,1,1,1,1,1,0],
    [0,0,0,0,0,0,0,0]
])
```

```
piedra = np.array([
    [0,0,0,0,0,0,0,0],
    [0,0,0,1,1,1,0,0],
    [0,1,1,1,1,1,1,0],
    [0,1,1,1,1,1,1,0],
    [0,0,0,0,0,0,0,0]
])
imagen_rgb = np.ones(*piedra.shape, 3)) * 255
imagen_rgb[piedra == 1] = [100, 100, 100]
```



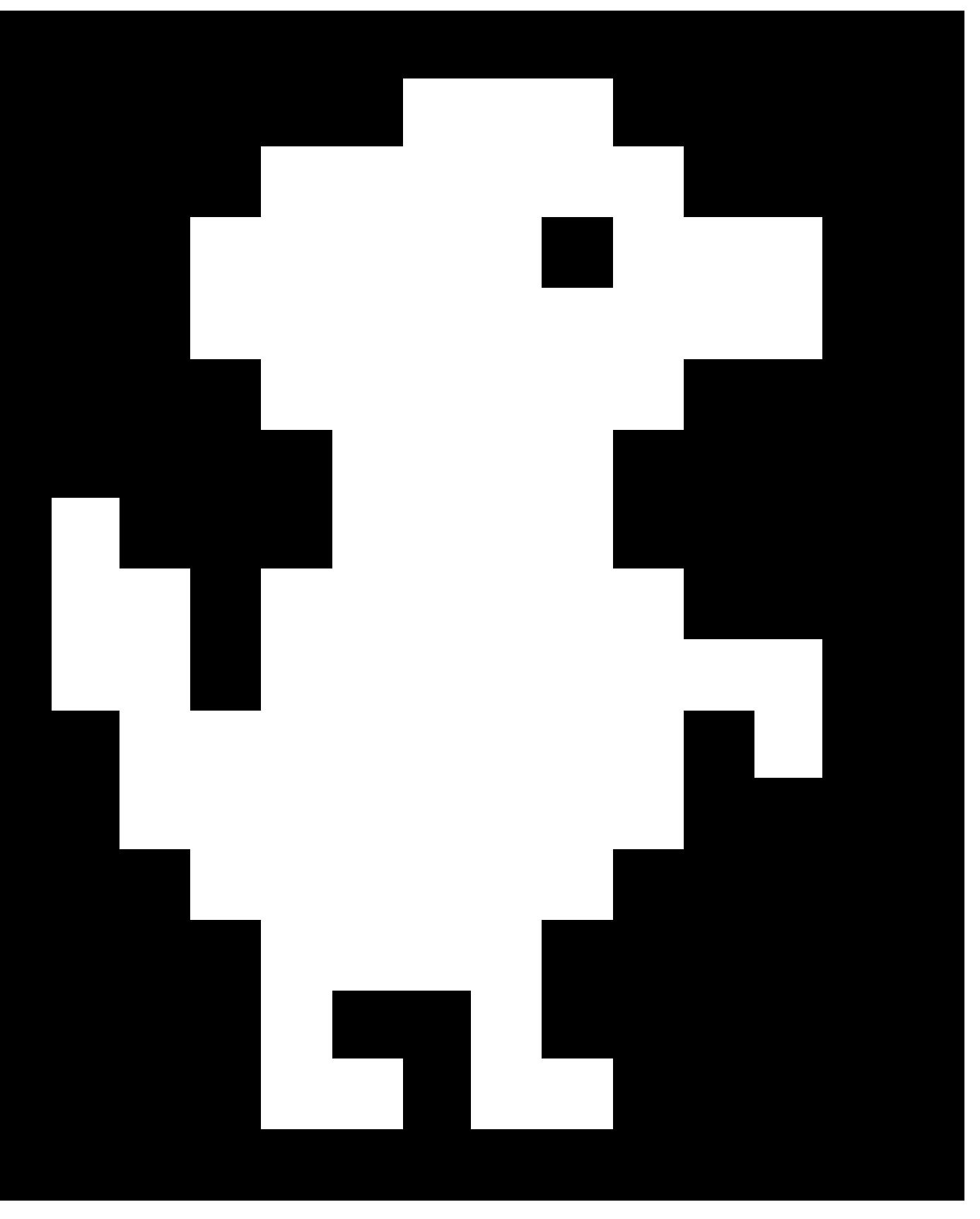
```
nube = np.array([
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    [0,0,0,1,1,1,1,1,1,1,1,0,0,0,0],
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])
```

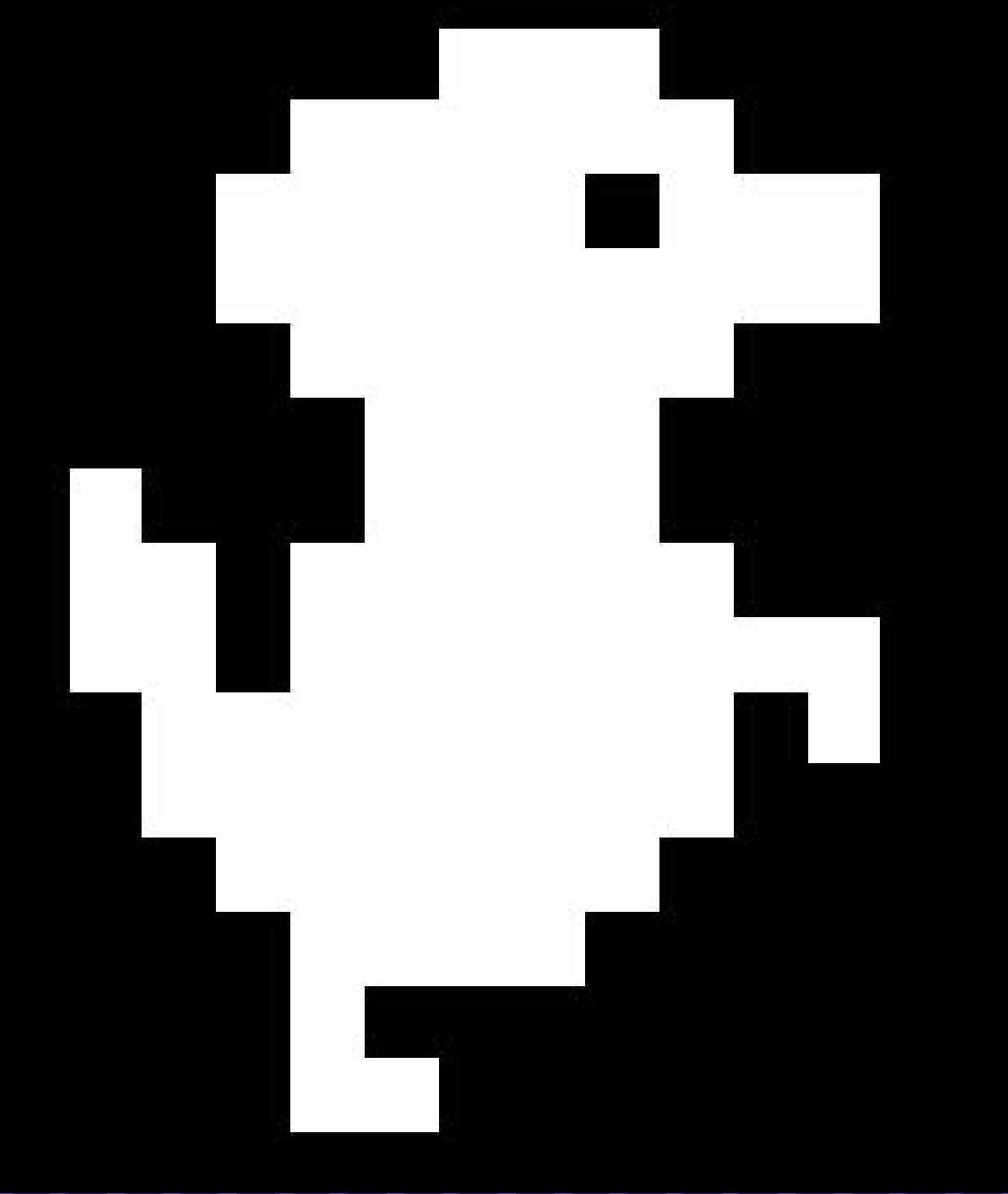
```
nube = np.array([
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    [0,0,1,1,1,1,1,1,1,1,1,1,0,0,0],
    [0,1,1,1,1,1,1,1,1,1,1,1,1,0,0],
    [0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]
])

imagen_rgb = np.ones((*nube.shape, 3)) * 255
imagen_rgb[nube == 1] = [222, 255, 251]
```

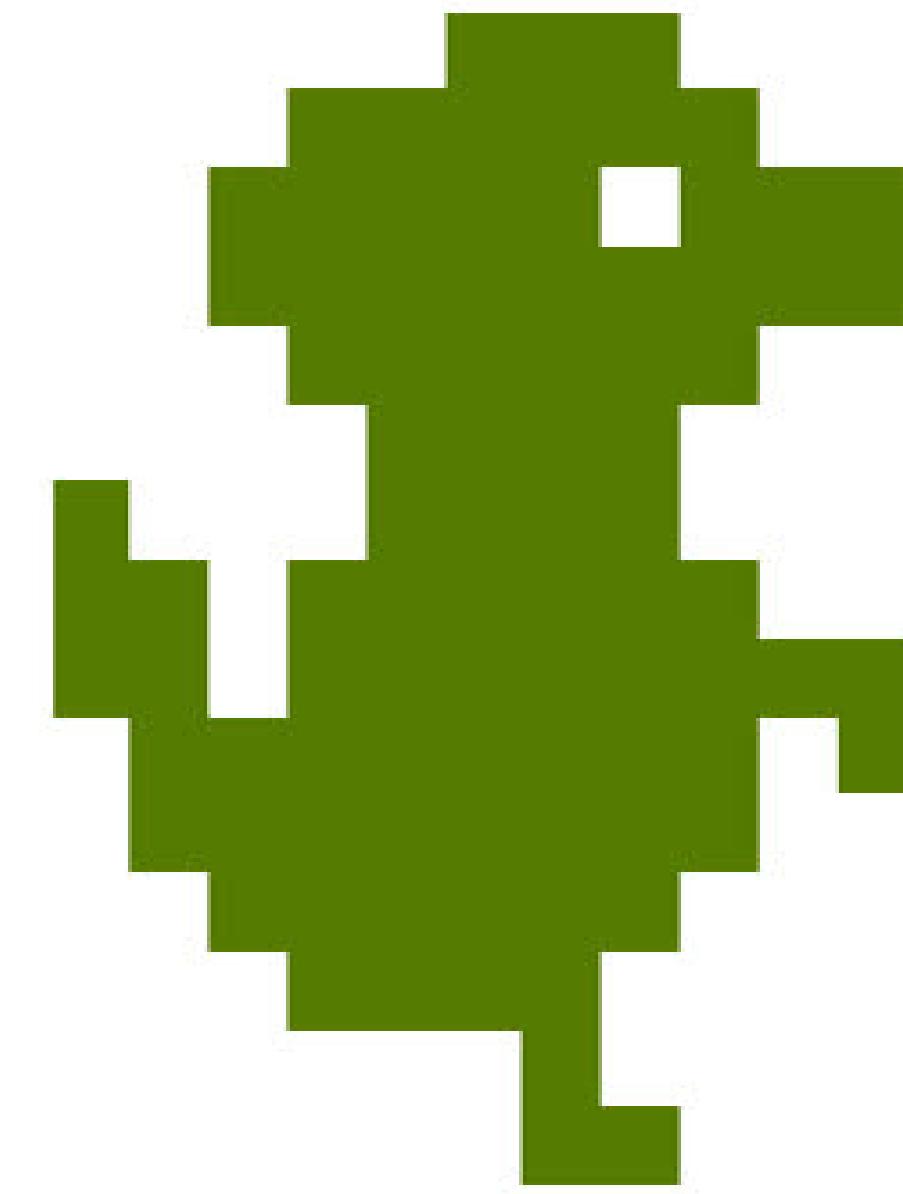


```
dino = np.array([
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    [0,0,0,0,1,1,0,1,1,0,0,0,0,0],
    [0,0,0,0,0,0,0,0,0,0,0,0,0,0]
])
```





```
dino = crear_dinosaurio(mover_izq, not mover_izq)
```



```
color = [85, 124, 0] # Verde
```

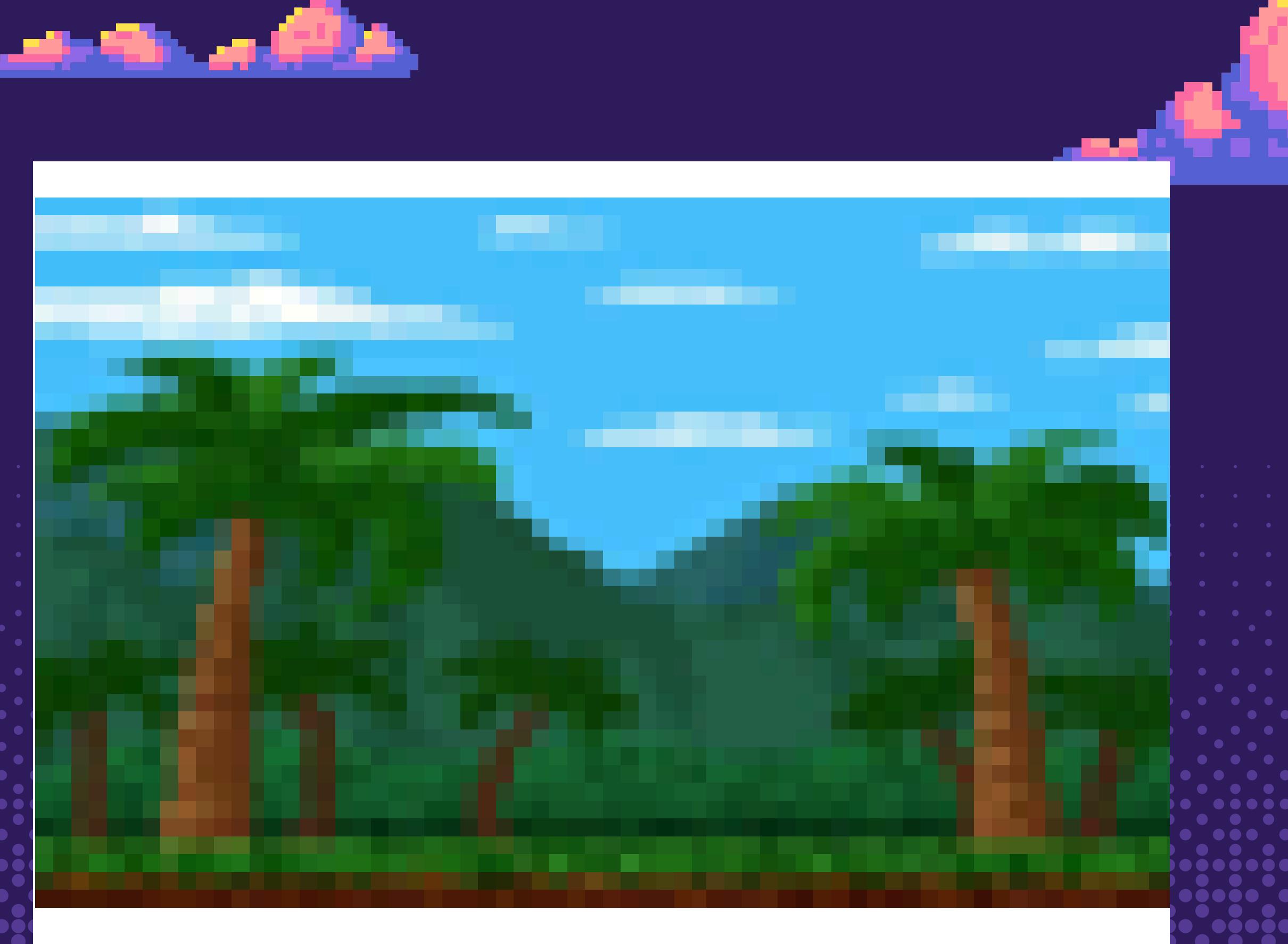
```
if mover_izq:  
    dino[14:16, 4:6] = 0  
if mover_der:  
    dino[14:16, 7:9] = 0  
return dino
```

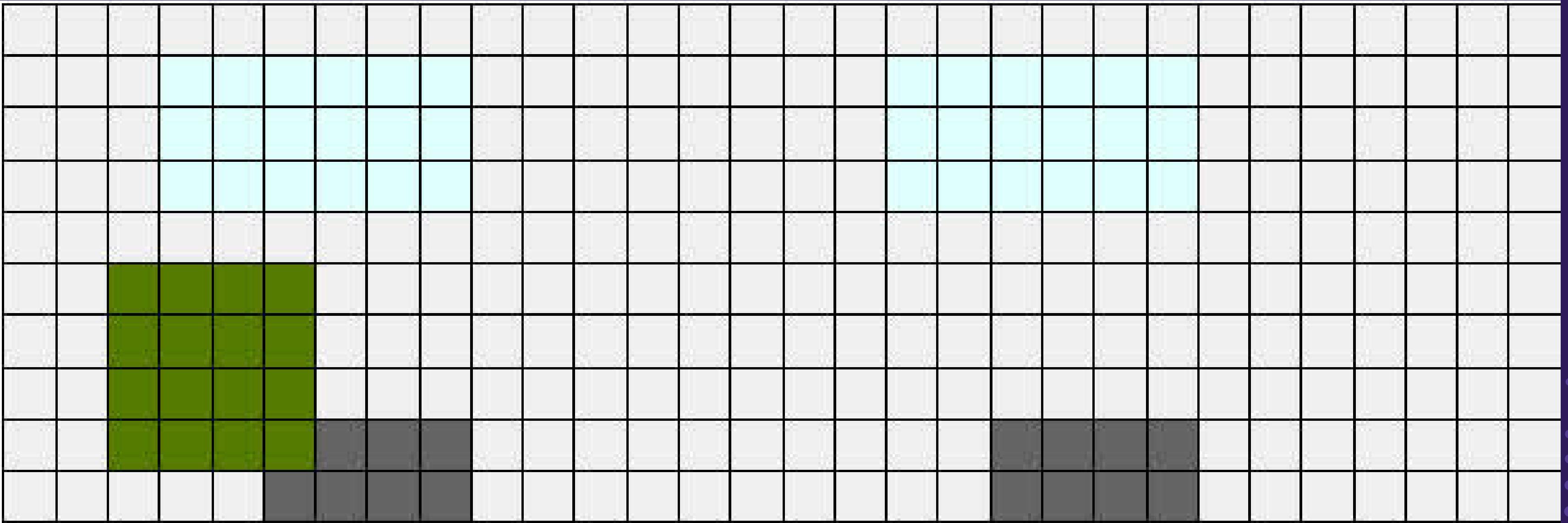
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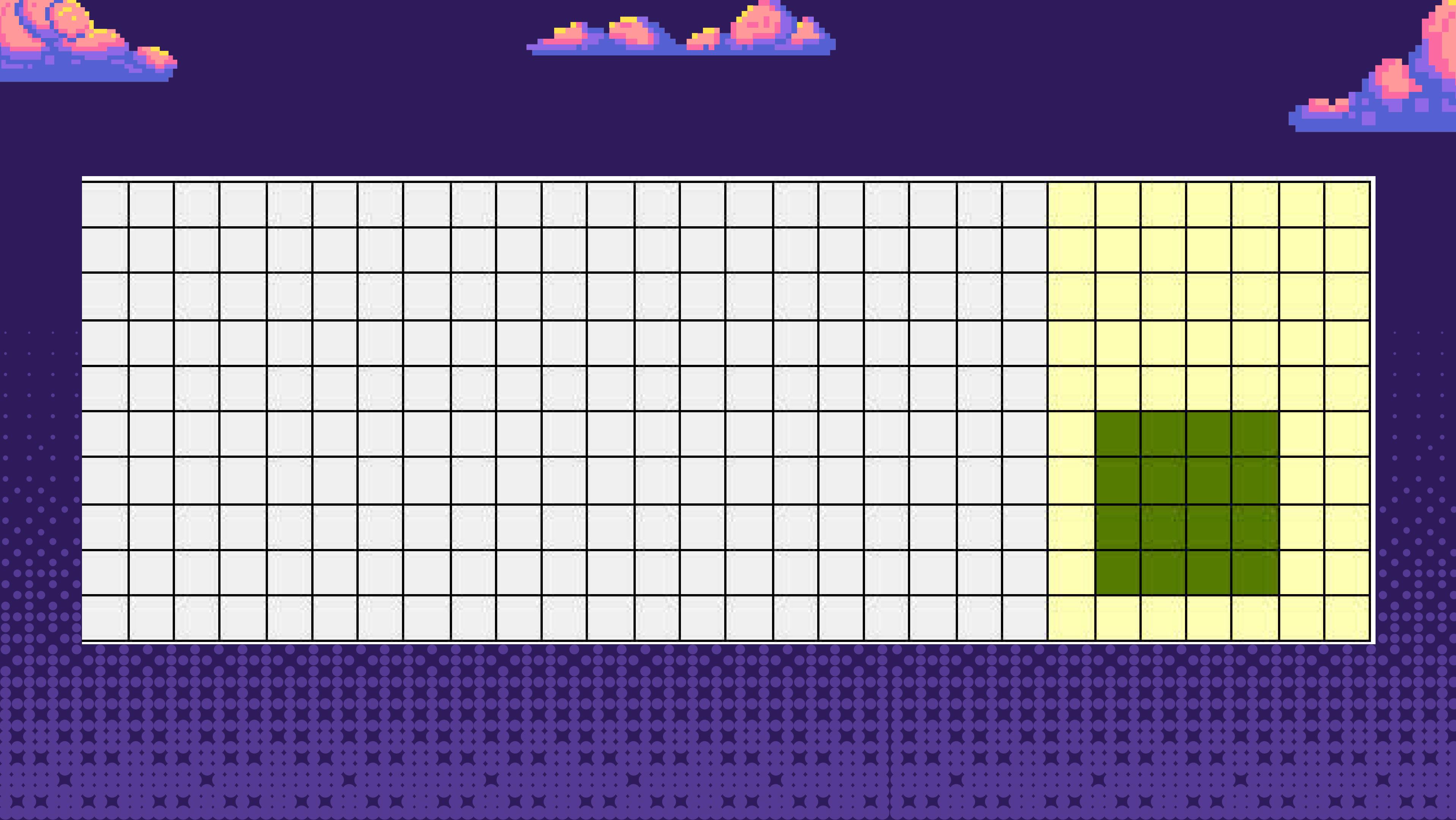


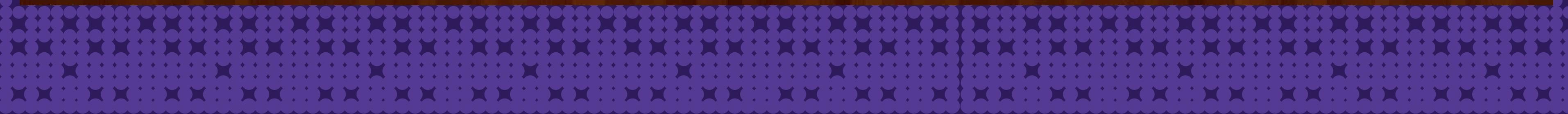
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