TP4 - Aprendizaje no supervisado

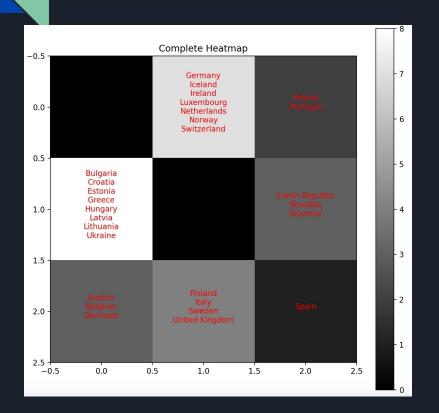
Grupo 1 Santiago José Hirsch Matías Ignacio Luchetti Santiago Tomás Medin Mariano Agopian

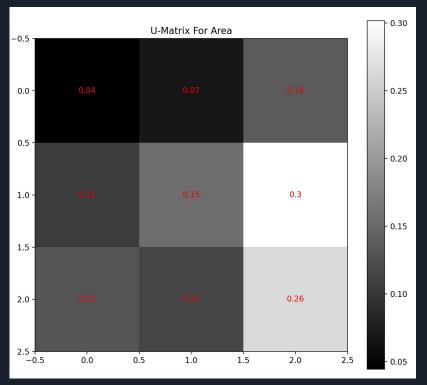
Ejercicio 1 - Europa

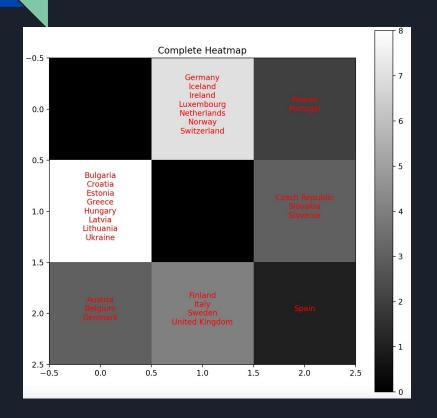


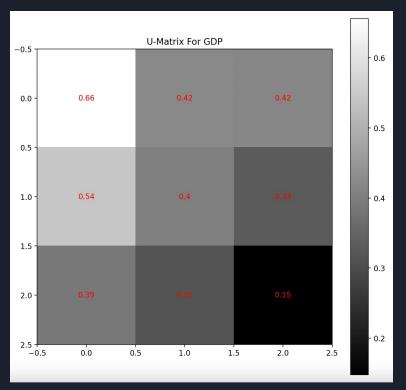
Parámetros

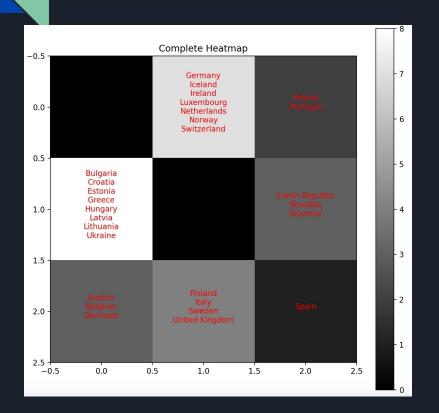
- Learning Rate = 0.1
- Initial Radius = cant neuronas
- Distance = Euclidean
- Initial Weights = Set based
- Epochs = 500 * cant neuronas

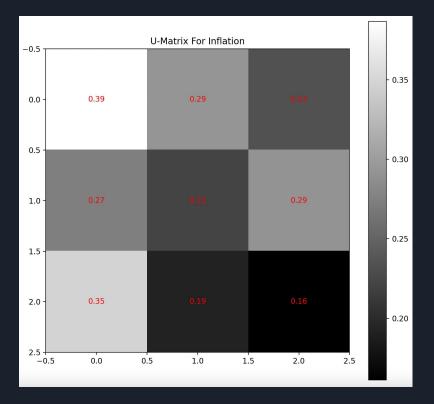


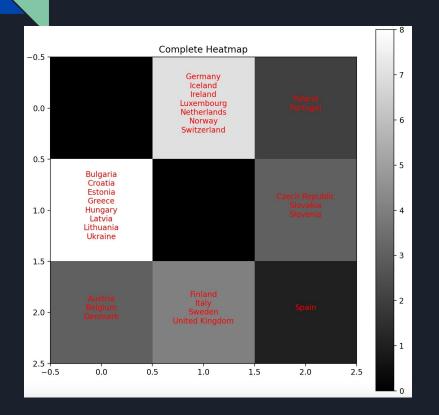


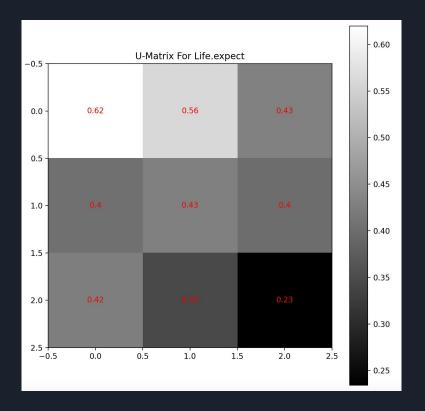


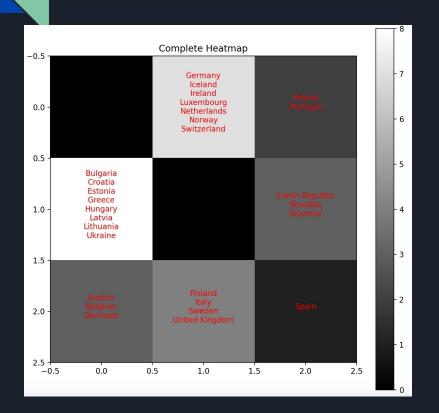


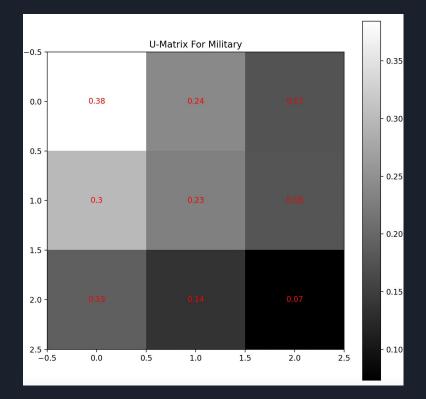


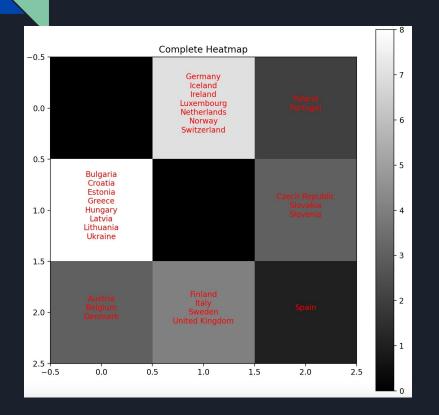


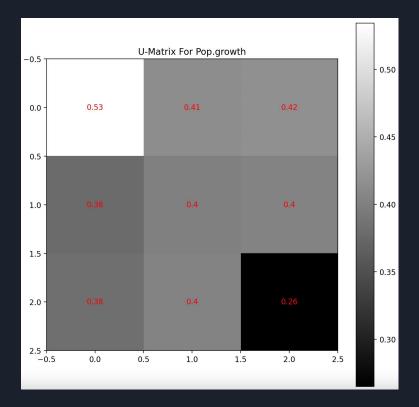


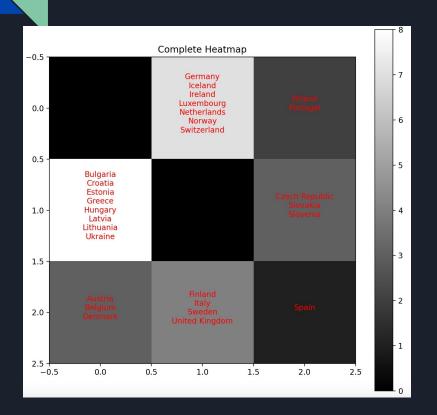


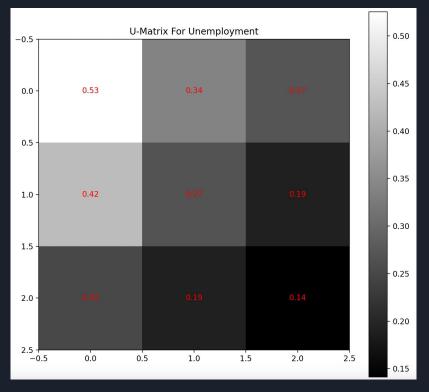






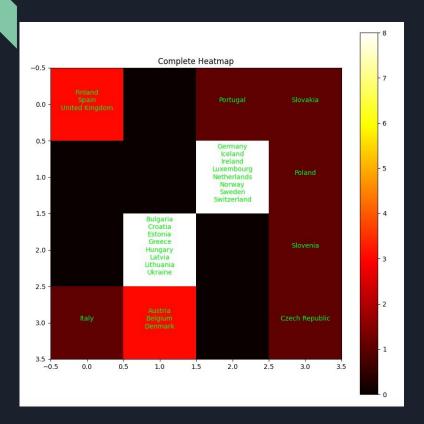


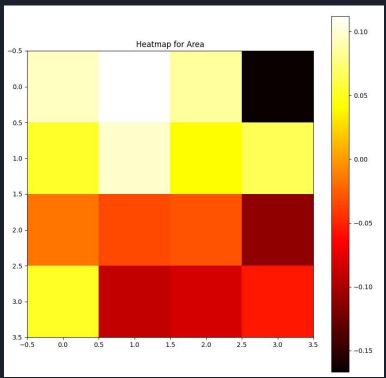


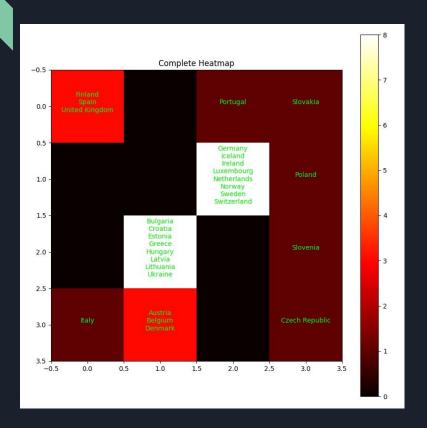


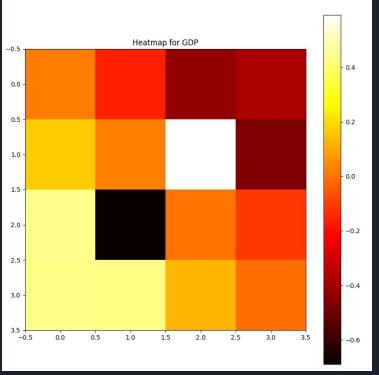
Conclusiones sobre la U-Matrix

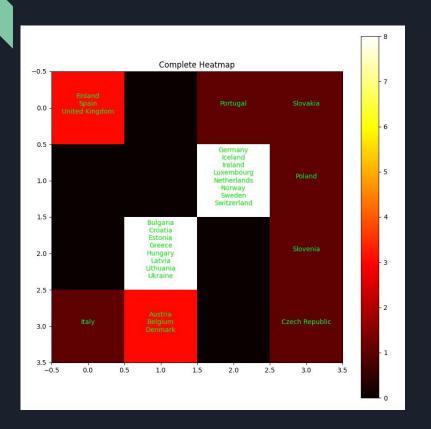
- Patrones y clusters
- Valores altos
- Valores bajos

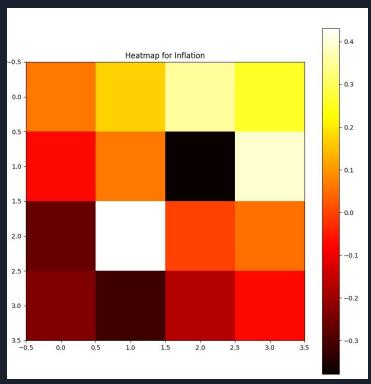


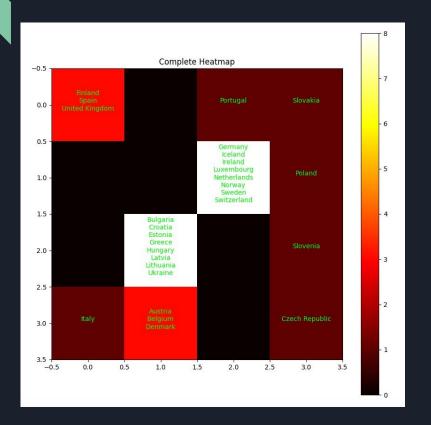


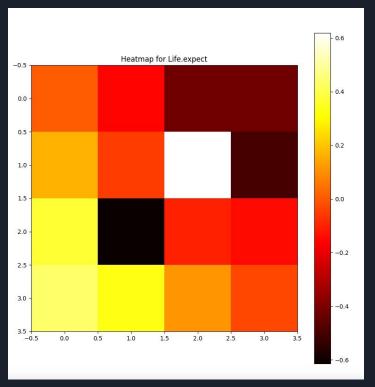


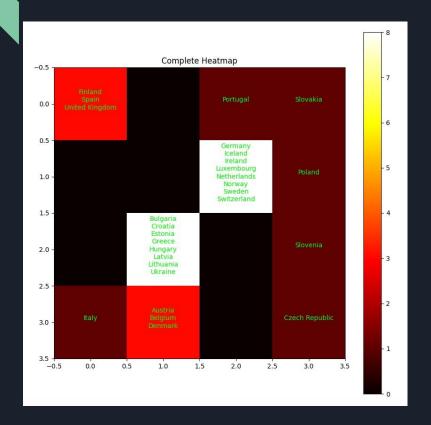


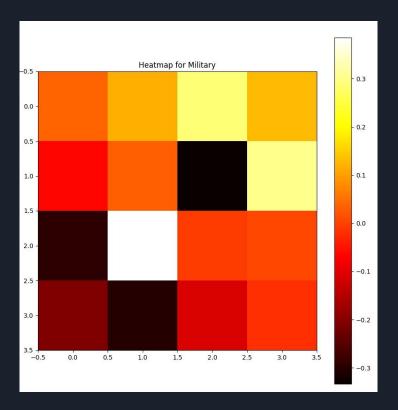


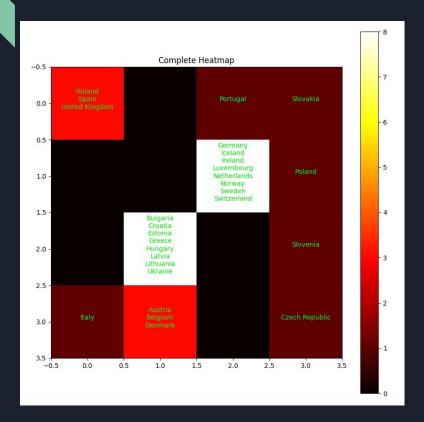


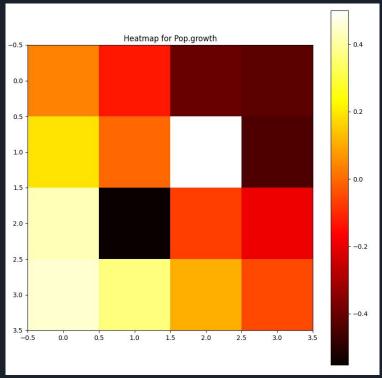


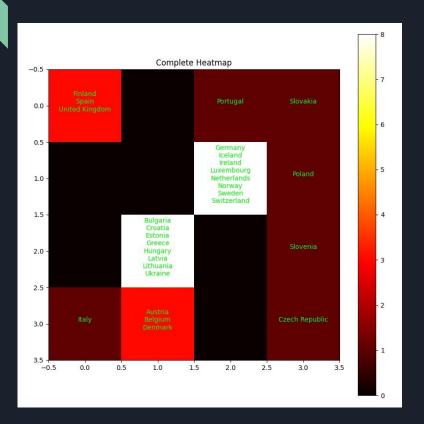


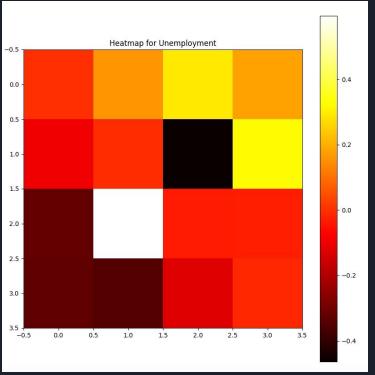




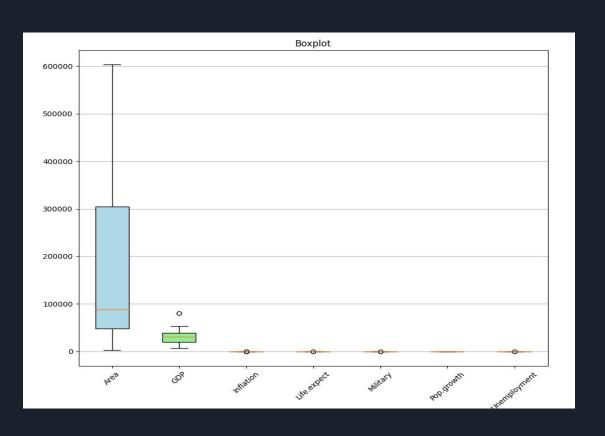




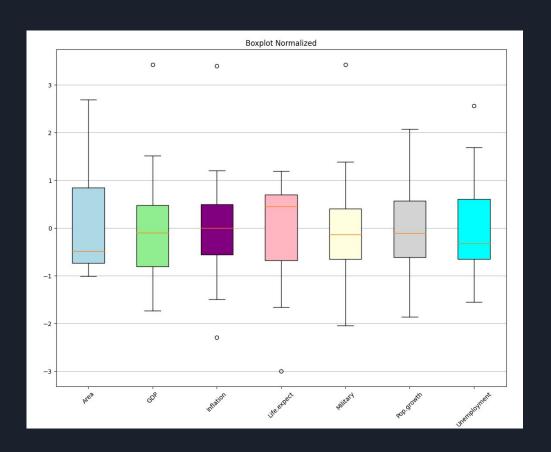




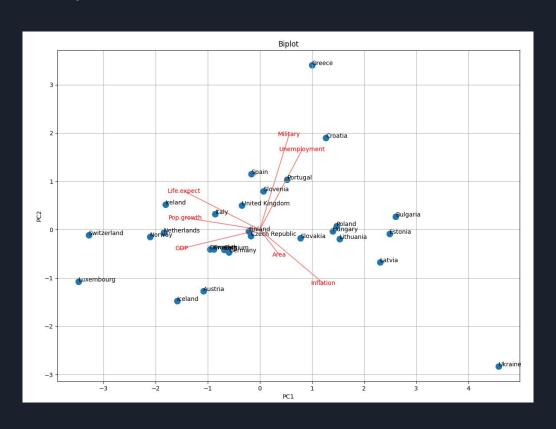
PCA - Boxplot sin normalizar



PCA - Boxplot normalizado



PCA - Biplot PC1-PC2

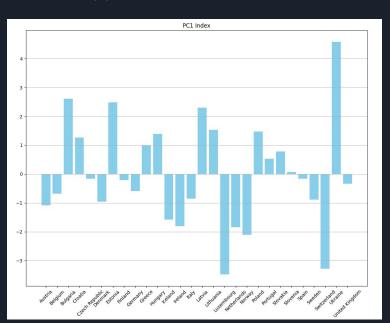


Modelo de Oja

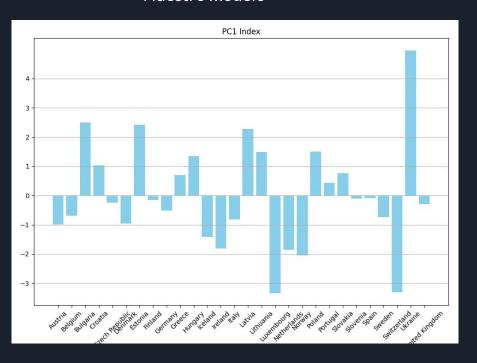
Parámetros:

- Initial weights = Random(0,1)
- Learning Rate = 0.1
- Epochs = 1000

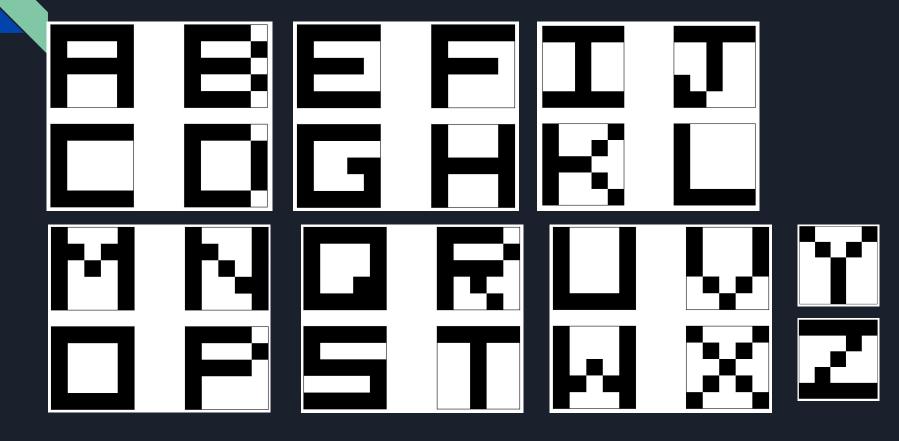
Librería sklearn



Nuestro modelo



Ejercicio 2 - Patrones



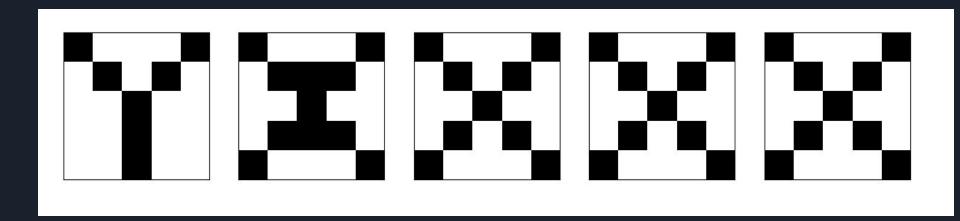
Combinación de letras más ortogonales



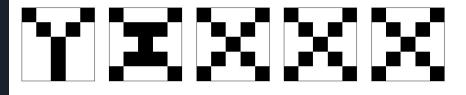
Producto escalar promedio: 1,6667

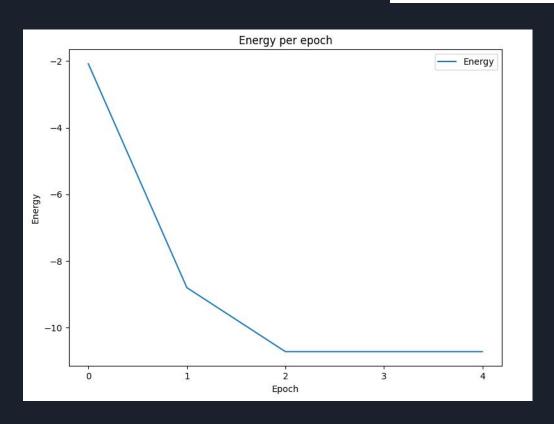
Max dot product: 3 Max appearances: 2

Probamos con una letra extranjera



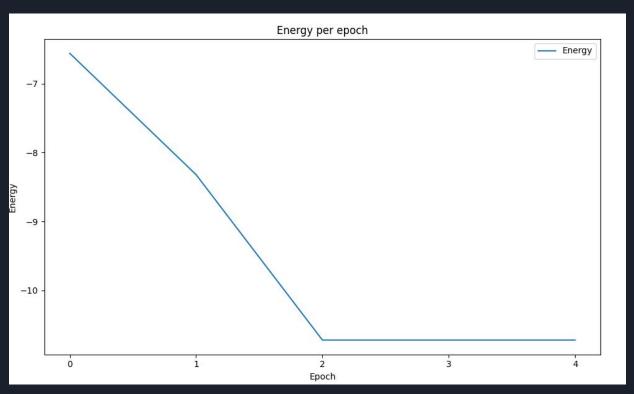












Secuencias más comunes para Input F con ruido 0.2





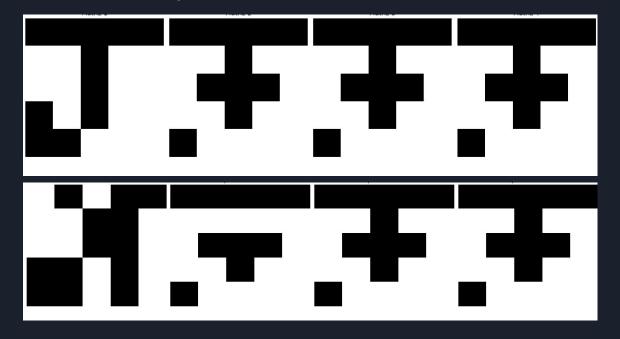
Secuencias más comunes para Input F con ruido 0.4



Estados Espurios



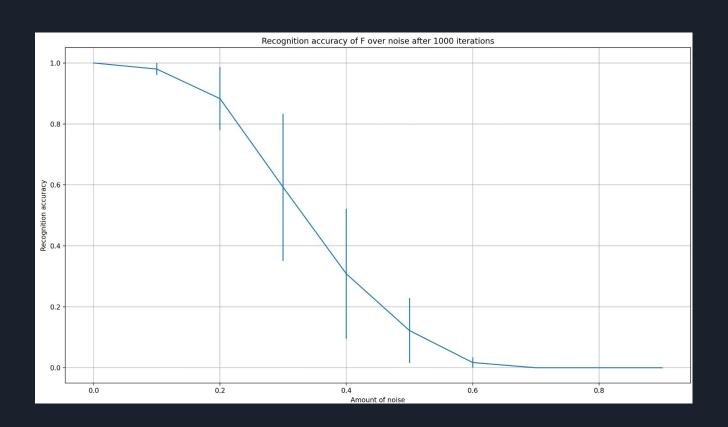
Estados Espurios



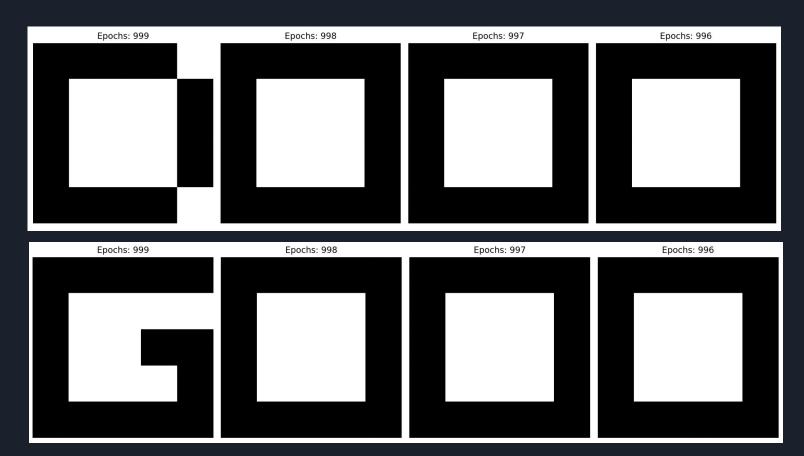
Ya te conozco...

Es el mismo resultado que dio con F y 0,4 de ruido!

Precisión en base al ruido



Peor combinación



Peor combinación



Peor Combinación

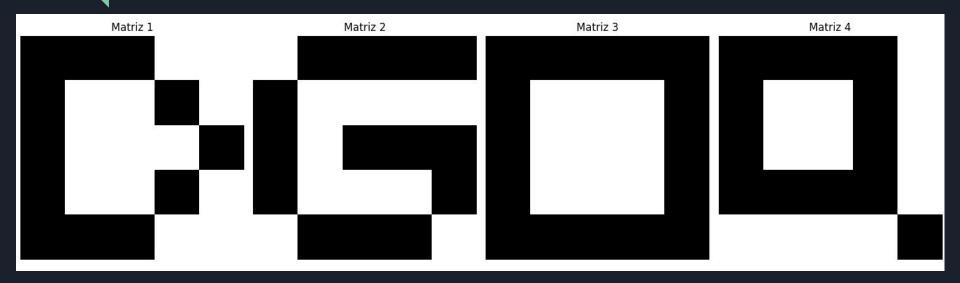


Producto escalar promedio: 20

Max dot product: 23

Max appearances: 1 (O y Q)

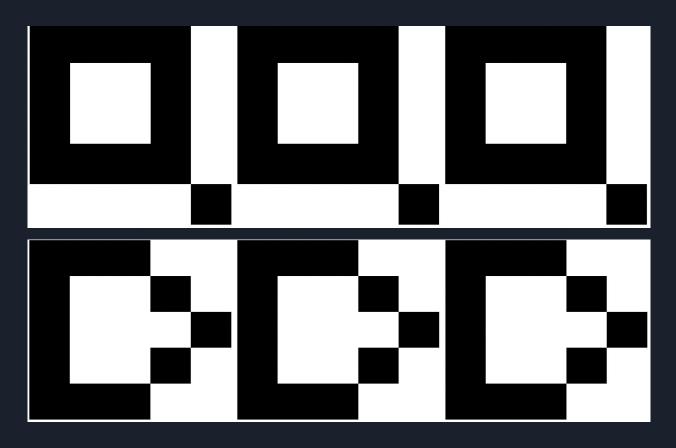
Veámoslo de otra manera



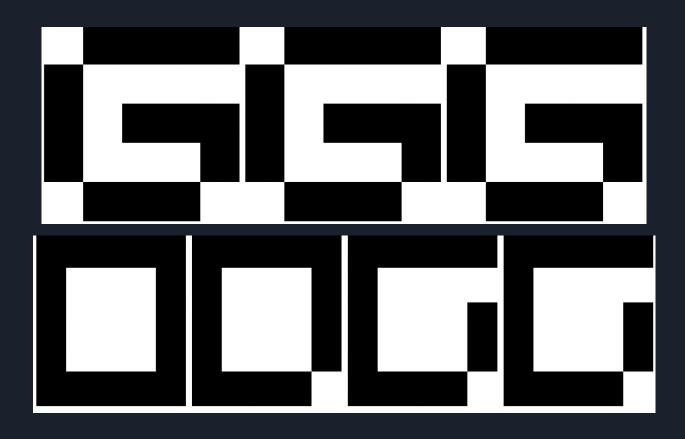
Producto escalar promedio: 5,7

Max dot product: 9 Max appearances: 1

Ahora un poquito mejor

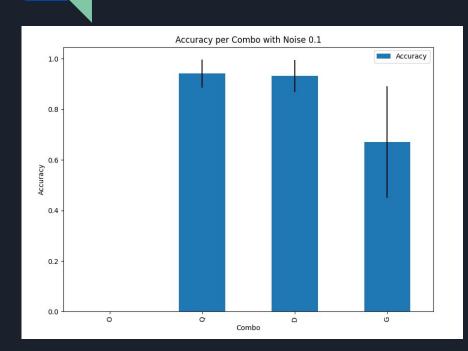


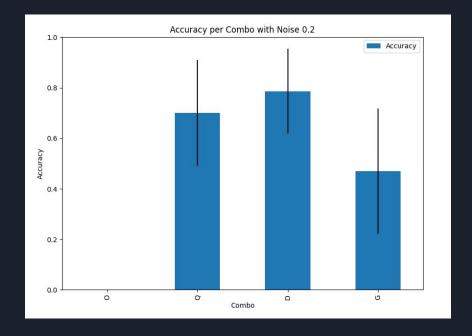
Ahora un poquito mejor





Precisión por Letra con distintos ruidos





Estados en los que termina la O

