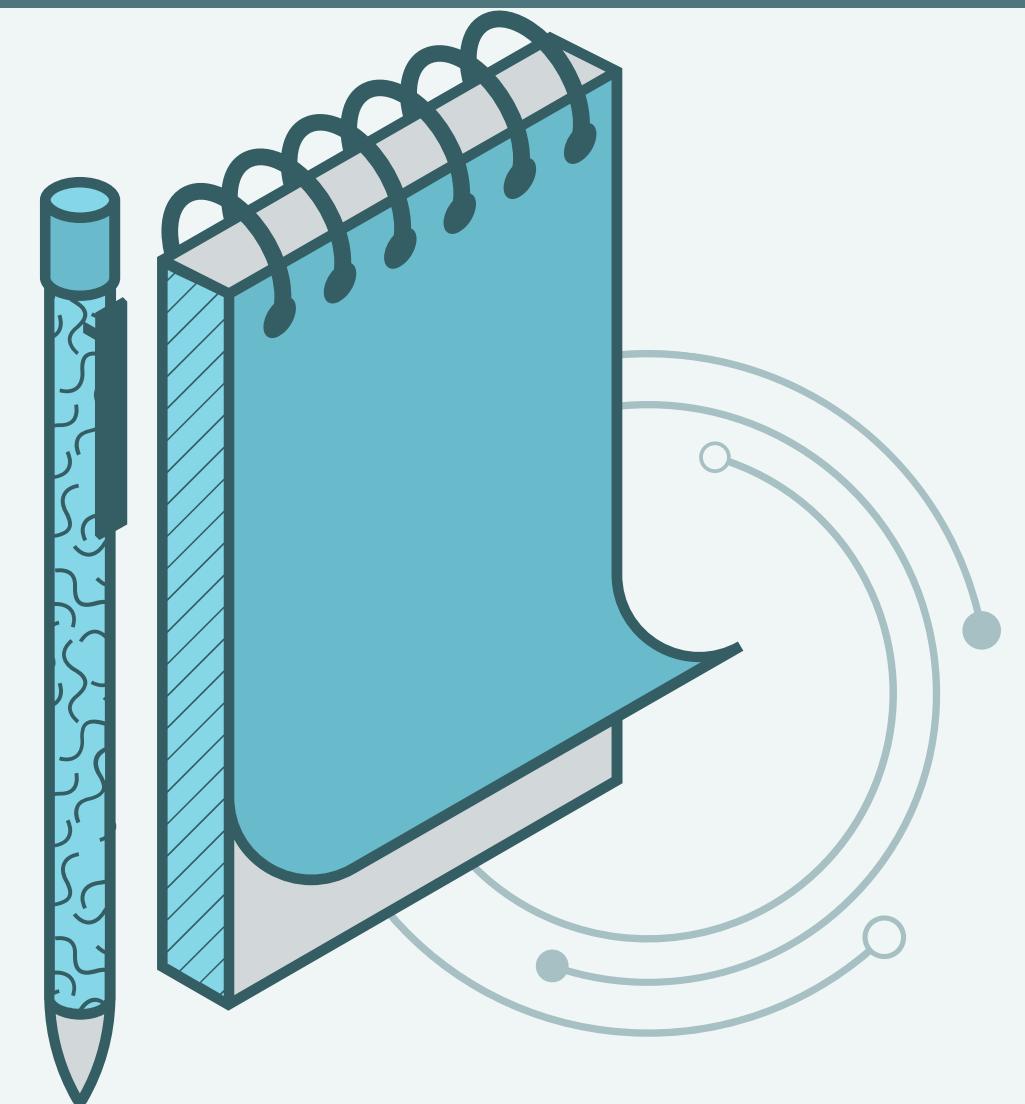




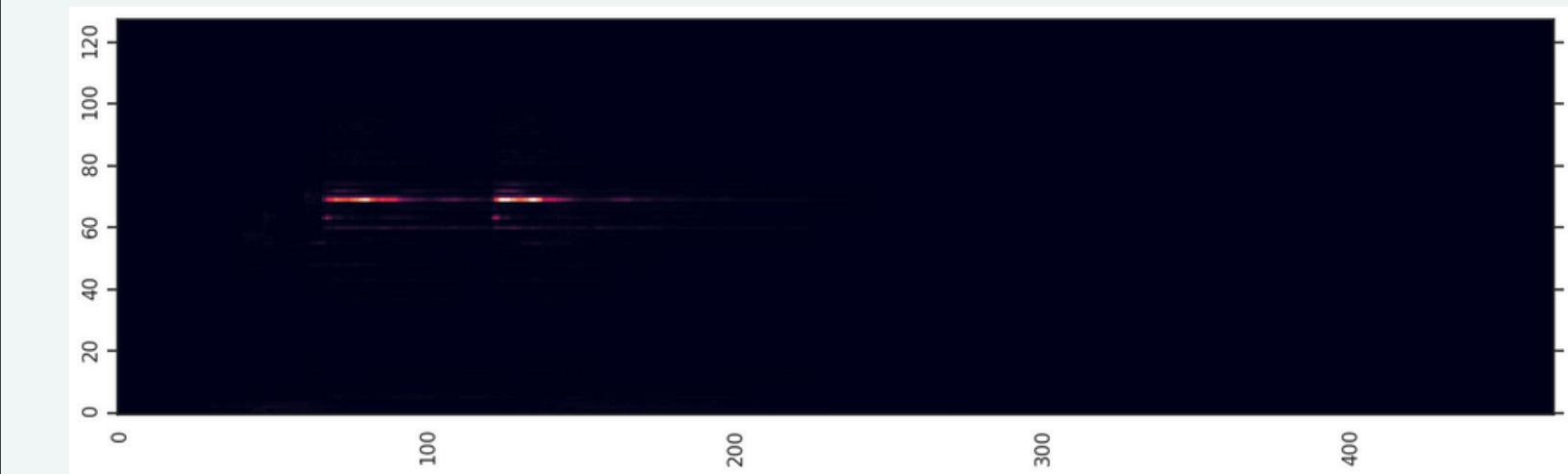
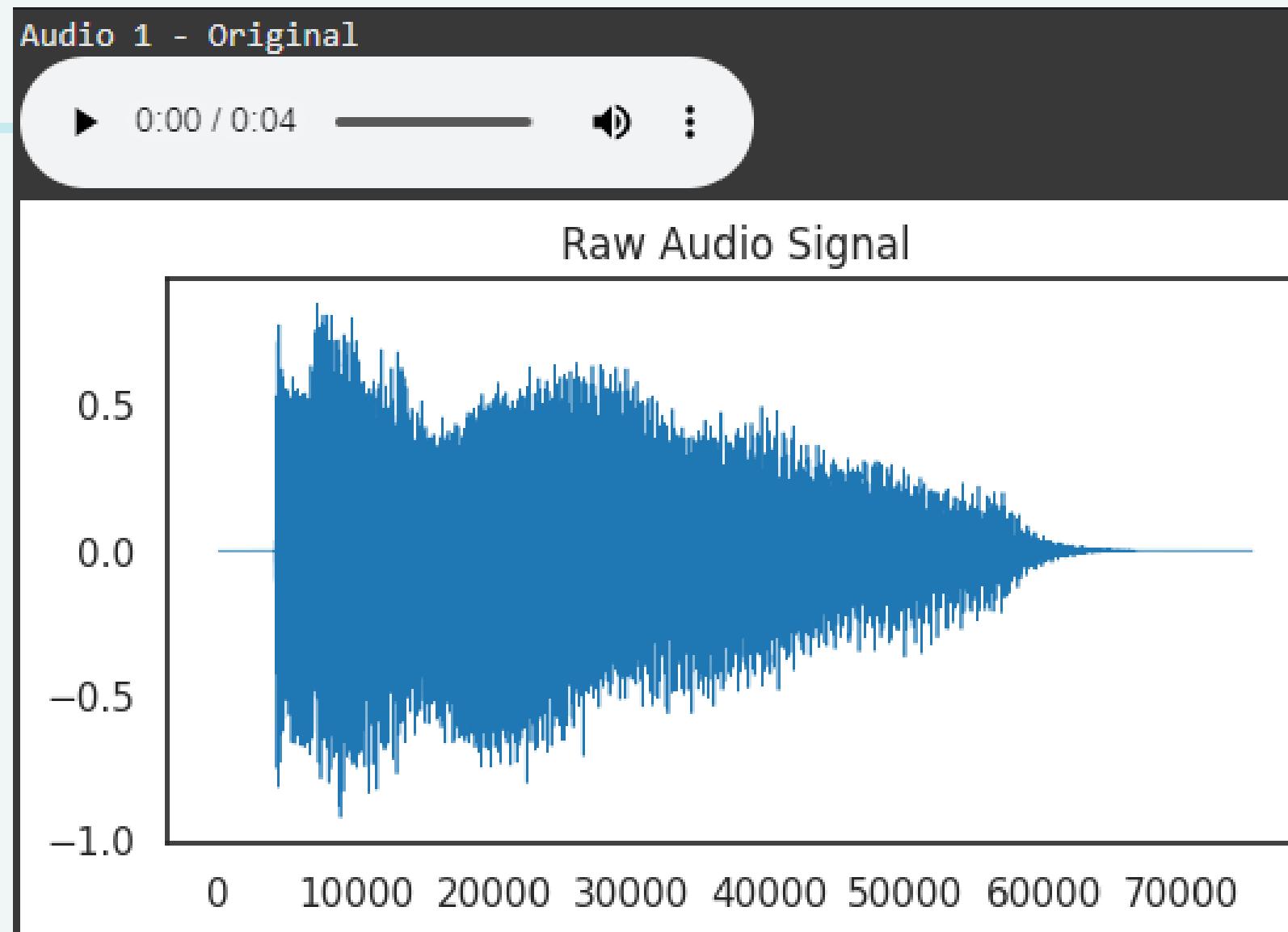
Proyecto Realizado por Mauricio, Jorge, Alejandro.

INTRODUCCIÓN

Presentamos nuestra IA GuitarChord, diseñada específicamente para reconocer acordes de guitarra acústica y eléctrica. Mediante un entrenamiento exhaustivo, nuestro algoritmo es capaz de identificar con precisión una variedad de acordes, convirtiéndose en una herramienta invaluable para músicos novatos.



PRÉPROCESAMENTO DE ÁUDIO



Melspectrogram



CREACIÓN DEL DATASET

DEFINICIÓN DE CLASES

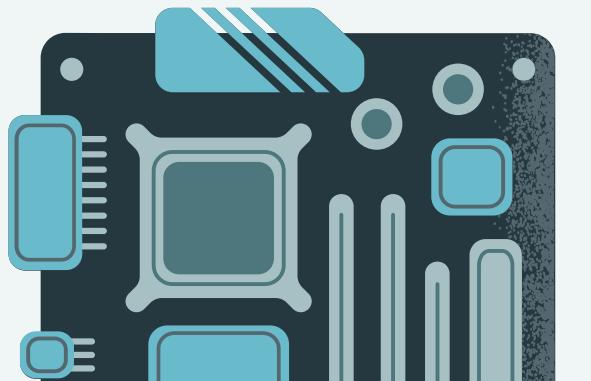
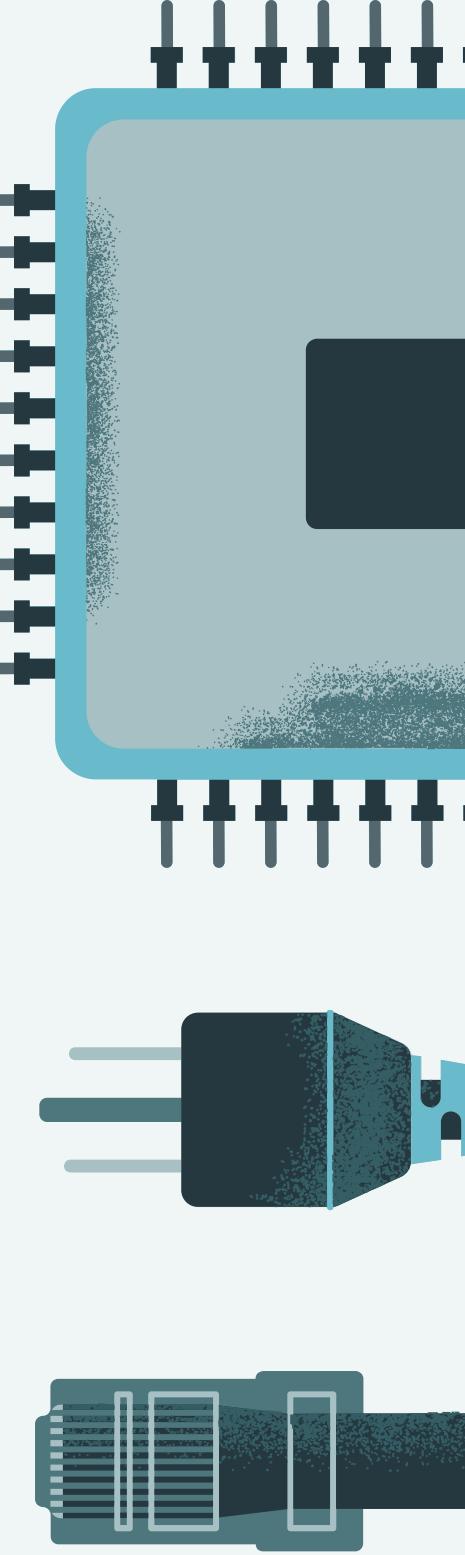
Definición de Clases

Se le asignaran números para identificar las distintas clases que utilizaremos para el proyecto de clasificación.

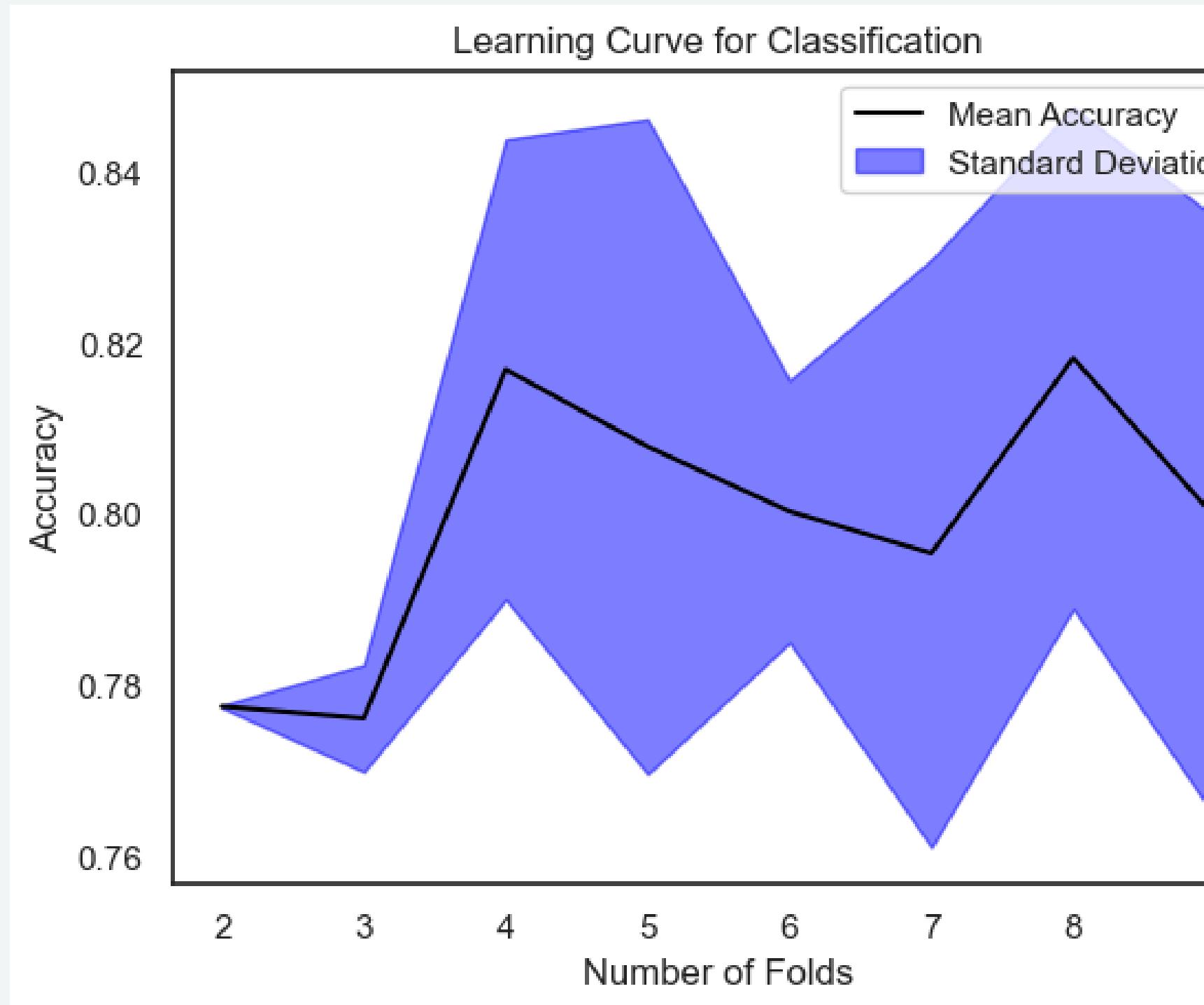
A_m - 0, B_b - 1, B_{dim} - 2, C - 3, D_m - 4, E_m - 5, F - 6, G - 7

El numero total de clase son 8.

ENTRENAMIENTO DE MODELOS: PRIMERAS PREDICCIONES

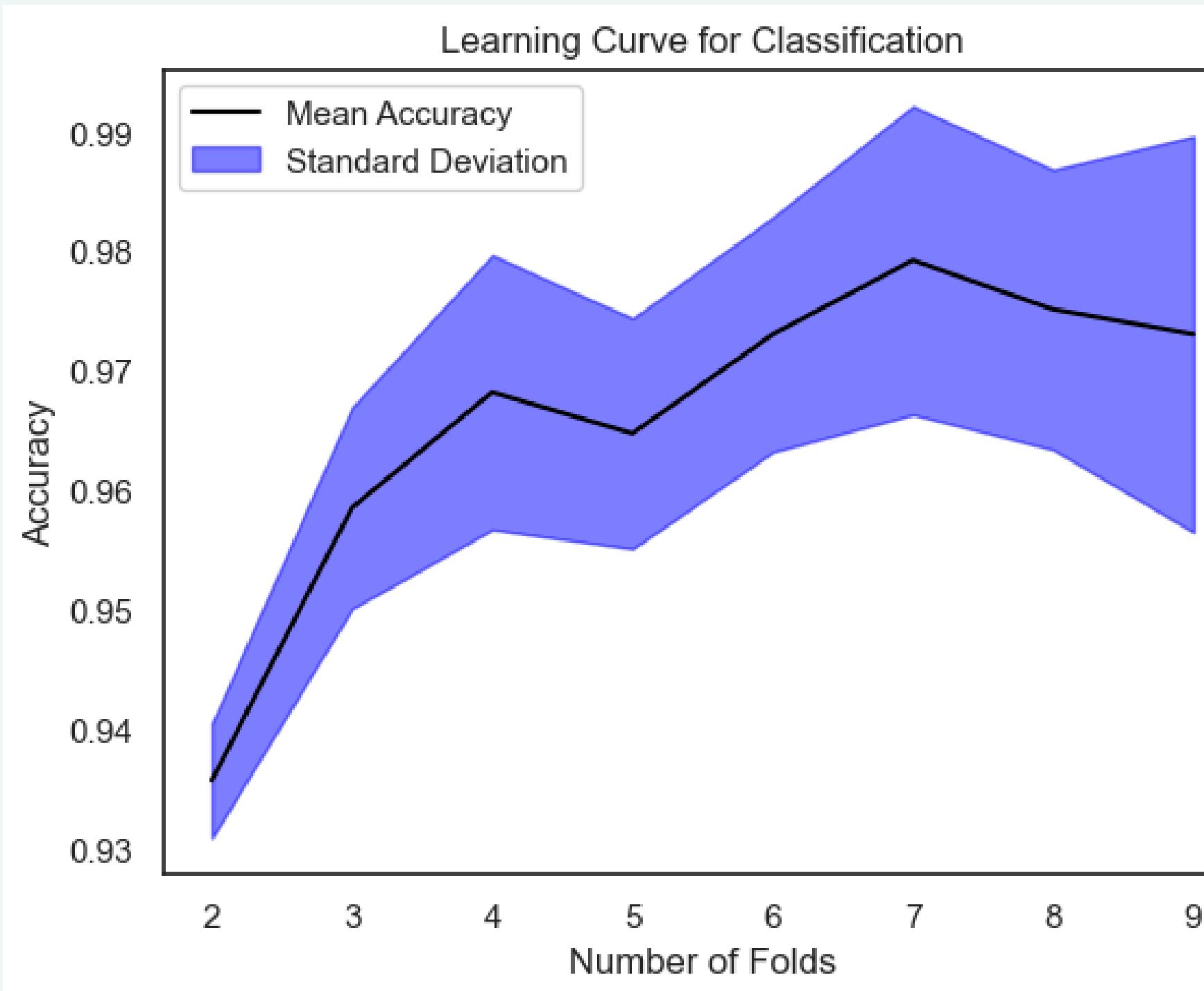


DECISIONTREECLASSIFIER()



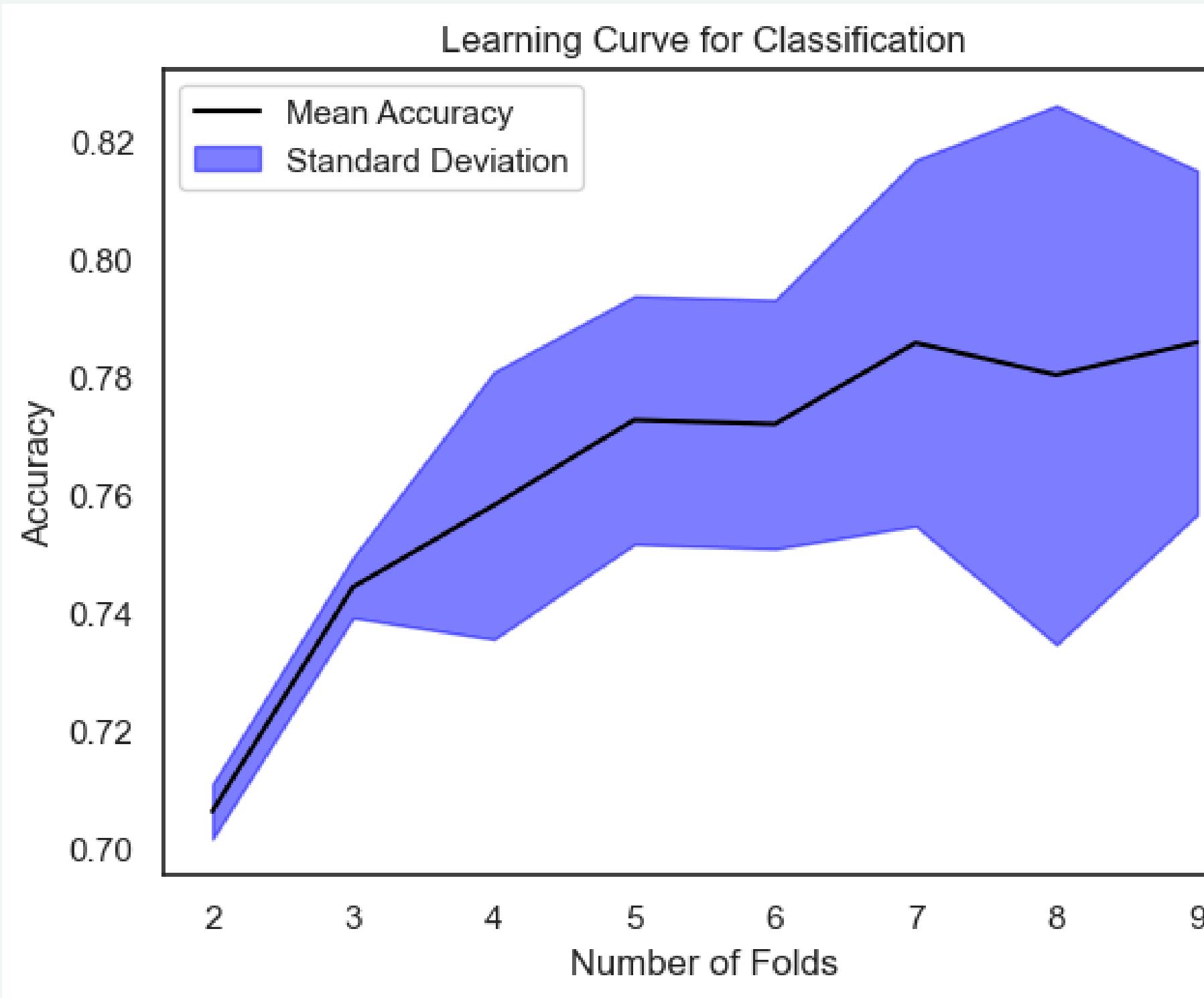
n_folds = 2: Mean Accuracy = 0.7775, Std = 0.0002
n_folds = 3: Mean Accuracy = 0.7761, Std = 0.0063
n_folds = 4: Mean Accuracy = 0.8169, Std = 0.0269
n_folds = 5: Mean Accuracy = 0.8079, Std = 0.0383
n_folds = 6: Mean Accuracy = 0.8003, Std = 0.0154
n_folds = 7: Mean Accuracy = 0.7954, Std = 0.0344
n_folds = 8: Mean Accuracy = 0.8182, Std = 0.0293
n_folds = 9: Mean Accuracy = 0.7996, Std = 0.0351

RANDOMFORESTCLASSIFIER():



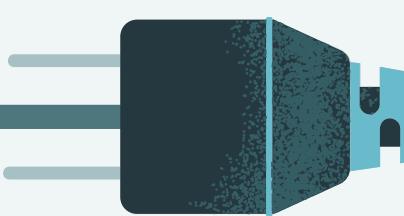
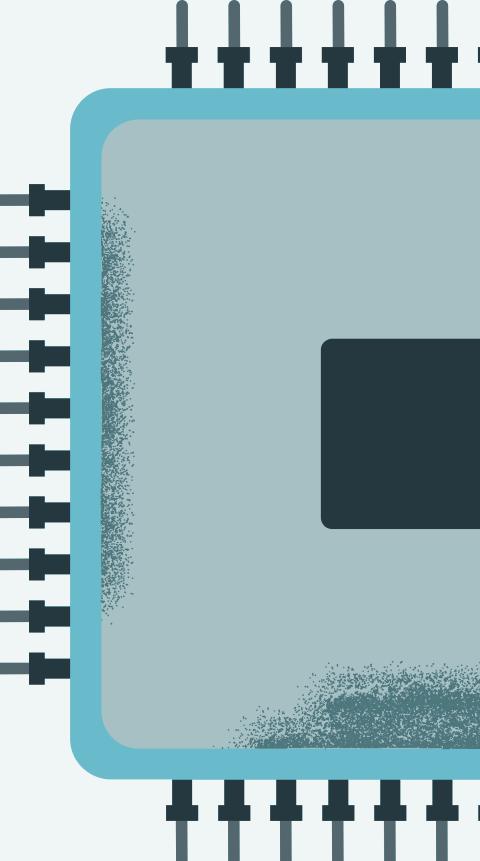
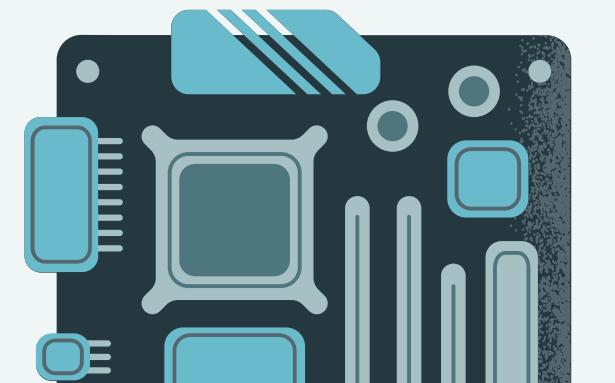
nfolds = 2: Mean Accuracy = 0.9357, Std = 0.0048
nfolds = 3: Mean Accuracy = 0.9585, Std = 0.0084
nfolds = 4: Mean Accuracy = 0.9682, Std = 0.0115
nfolds = 5: Mean Accuracy = 0.9648, Std = 0.0096
nfolds = 6: Mean Accuracy = 0.9730, Std = 0.0098
nfolds = 7: Mean Accuracy = 0.9792, Std = 0.0129
nfolds = 8: Mean Accuracy = 0.9751, Std = 0.0117
nfolds = 9: Mean Accuracy = 0.9731, Std = 0.0165

SUPPORT VECTOR MACHINE()



nfolds = 2: Mean Accuracy = 0.7063, Std = 0.0046
nfolds = 3: Mean Accuracy = 0.7443, Std = 0.0051
nfolds = 4: Mean Accuracy = 0.7581, Std = 0.0227
nfolds = 5: Mean Accuracy = 0.7726, Std = 0.0210
nfolds = 6: Mean Accuracy = 0.7719, Std = 0.0211
nfolds = 7: Mean Accuracy = 0.7857, Std = 0.0310
nfolds = 8: Mean Accuracy = 0.7803, Std = 0.0457
nfolds = 9: Mean Accuracy = 0.7858, Std = 0.0292

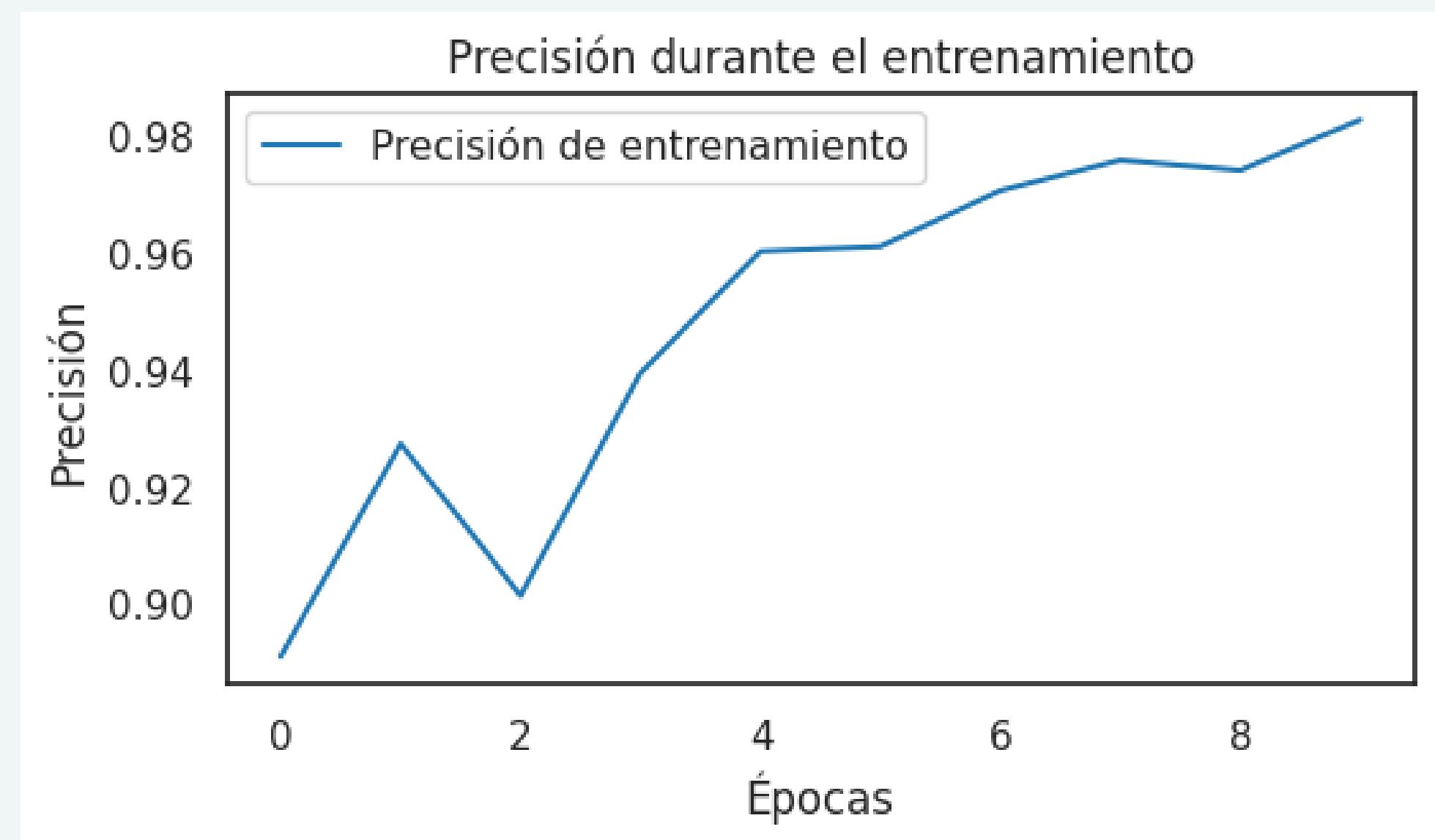
CLASIFICACION CON REDES NEURONALES



MODELO 3 CAPAS OCULTAS

Utilizamos los siguientes parámetros:

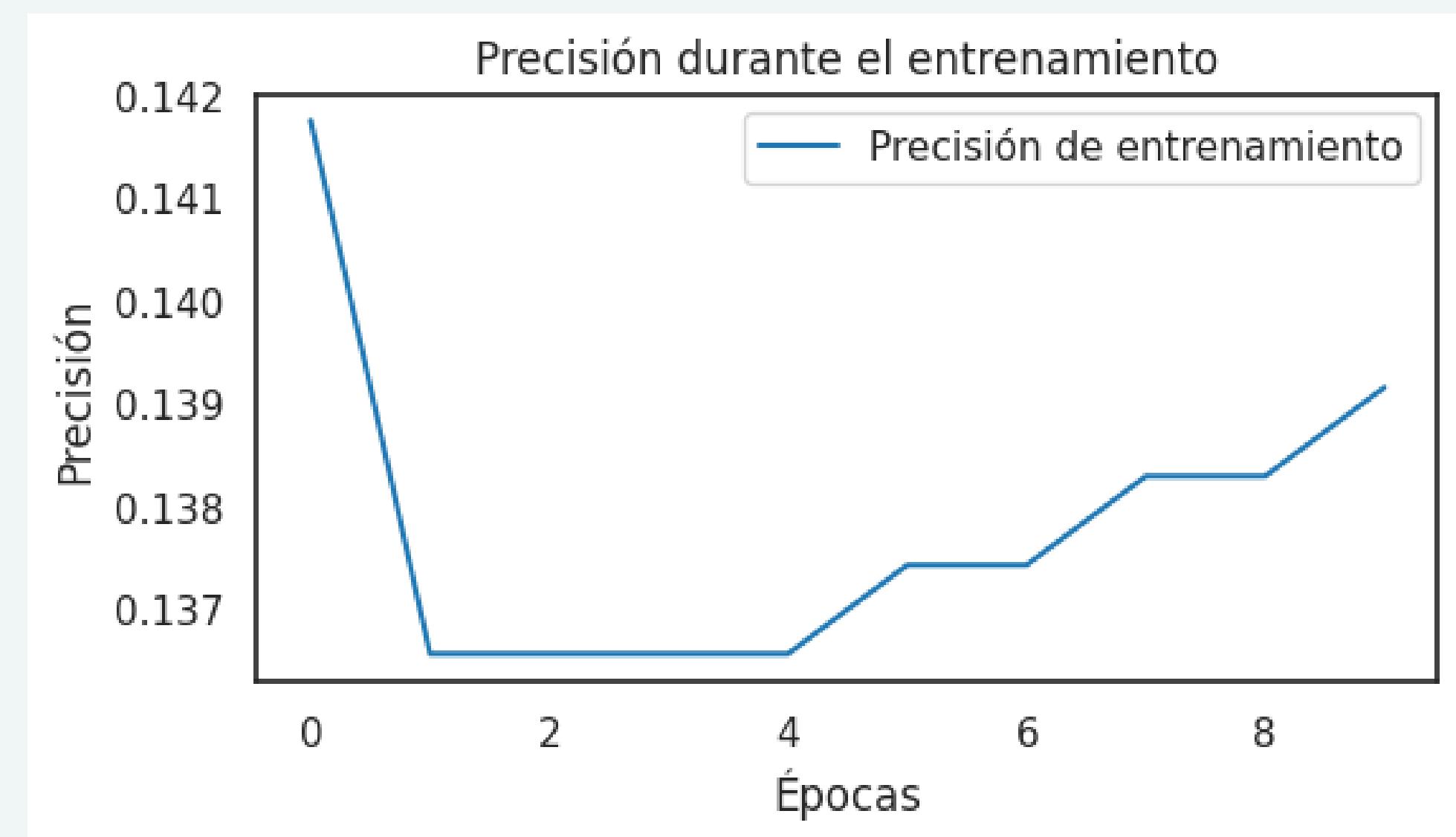
1. **Tipo de capas ocultas:** 3 capas Densas (128, 64, 32, Relu)
2. **Función de activación:** Softmax
3. **Compilación:**
 - 3.1. **Optimizer:** Adam
 - 3.2. **Loss:** sparse categorical crossentropy



MODELO G CAPAS OCULTAS

Utilizamos los siguientes parámetros:

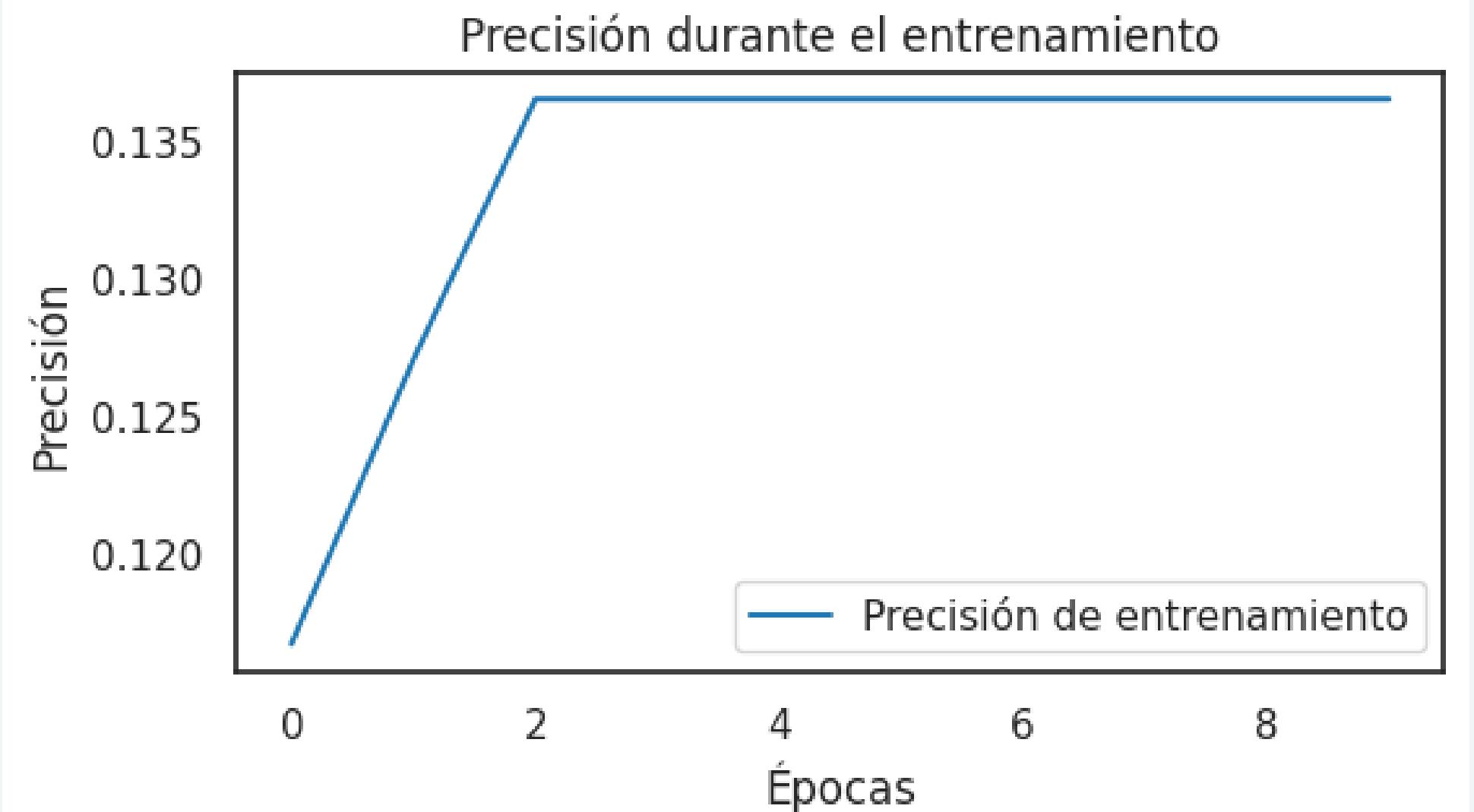
1. **Tipo de capas ocultas:** 6 capas Densas (256, 128, 64, 32, 16, 8, Relu)
2. **Función de activación:** Softmax
3. **Compilación:**
 - 3.1. **Optimizer:** Adam
 - 3.2. **Loss:** sparse categorical crossentropy

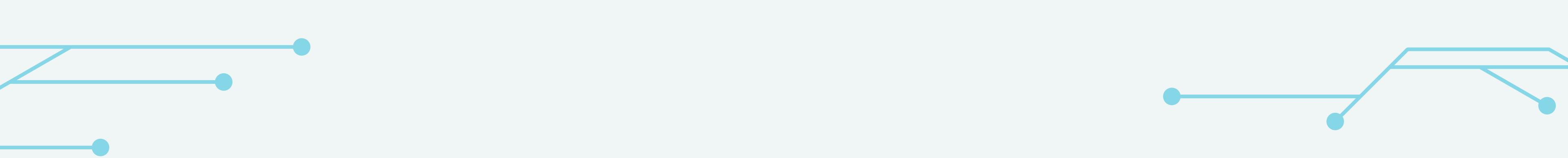


MODELO 10 CAPAS OCULTAS

Utilizamos los siguientes parámetros:

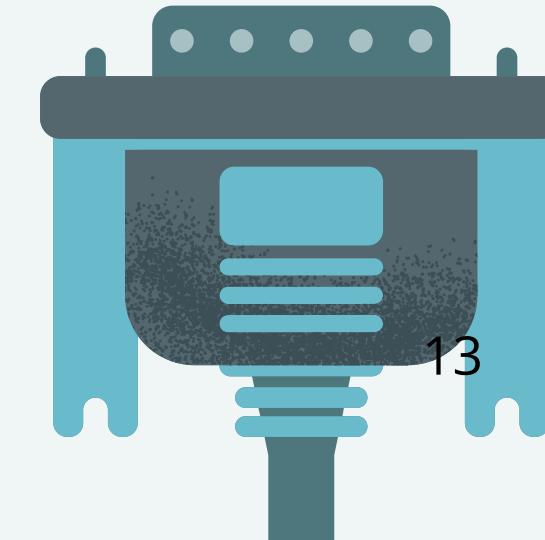
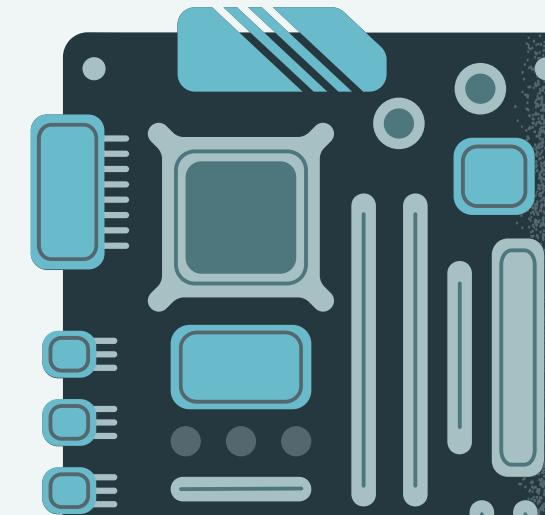
1. **Tipo de capas ocultas:** 10 capas Densas (512, 256, 128, 64, 32, 16, 8, 4, 2, Relu)
2. **Función de activación:** Softmax
3. **Compilación:**
 - 3.1. **Optimizer:** Adam
 - 3.2. **Loss:** sparse categorical crossentropy





www.unsitiogenial.es

MUCHAS GRACIAS



RECURSOS

