



SDAIA T5 DATA SCIENCE BOOTCAMP

Brain Tumor MRI

Deep Learning

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Agenda

Introduction

Dataset

Transfer Learning Models

Complex Neural Networks

Deployment

Tools

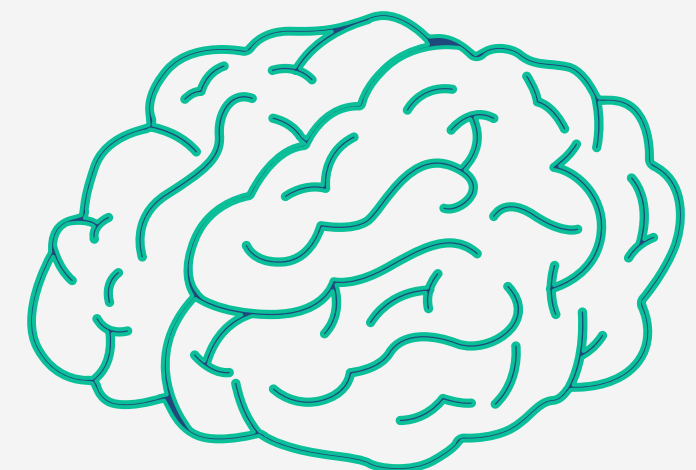
Conclusion

Introduction

A brain tumor is a collection, or mass, of abnormal cells in your brain. Brain tumors can be cancerous (malignant) or noncancerous (benign). When benign or malignant tumors grow. This can cause brain damage, and it can be life-threatening.

Inspiration

Building a model to determine whether there is a brain tumor or not and its type if any, using Convolutional Neural Networks



Dataset Information



Train



Validation

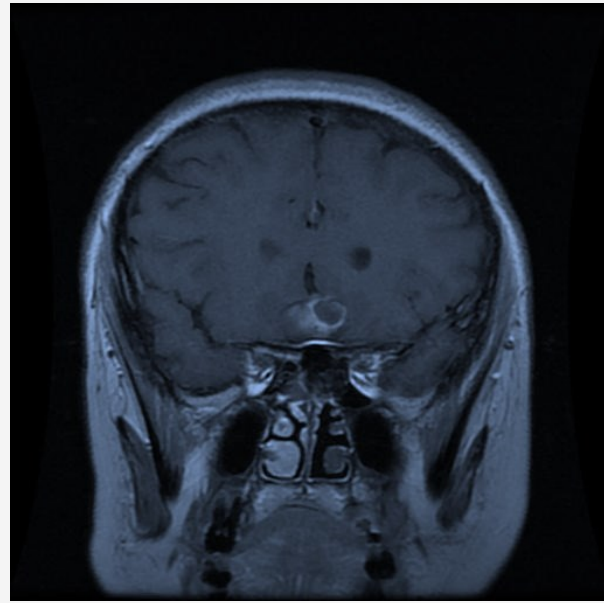


Test

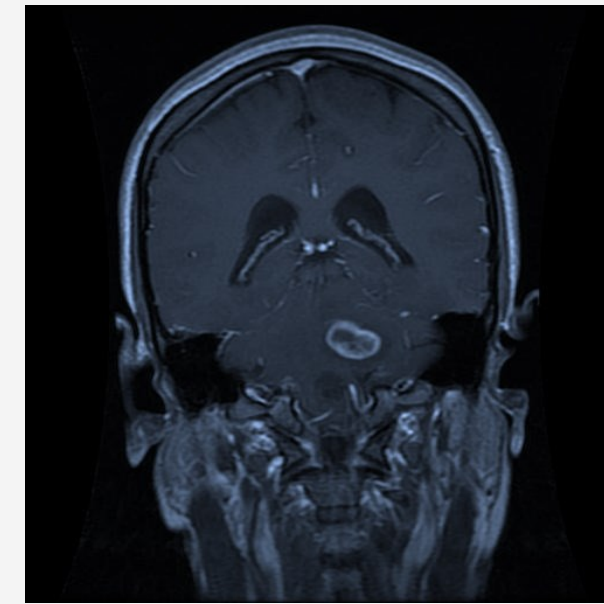
Four classes for each of them

Sample of Dataset

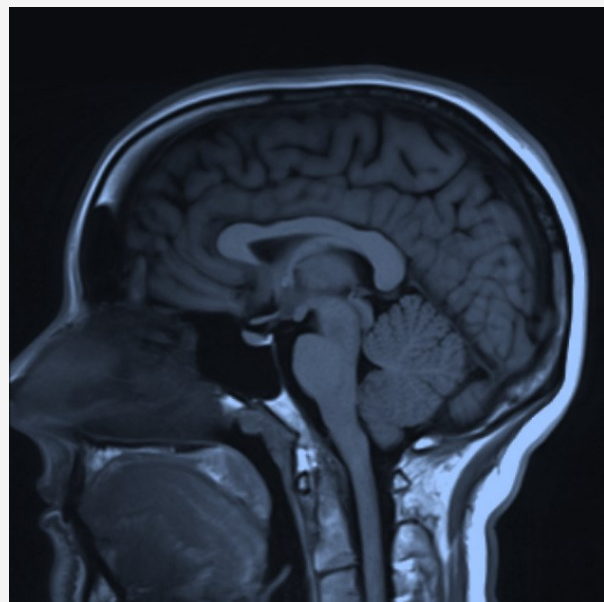
Pituitary



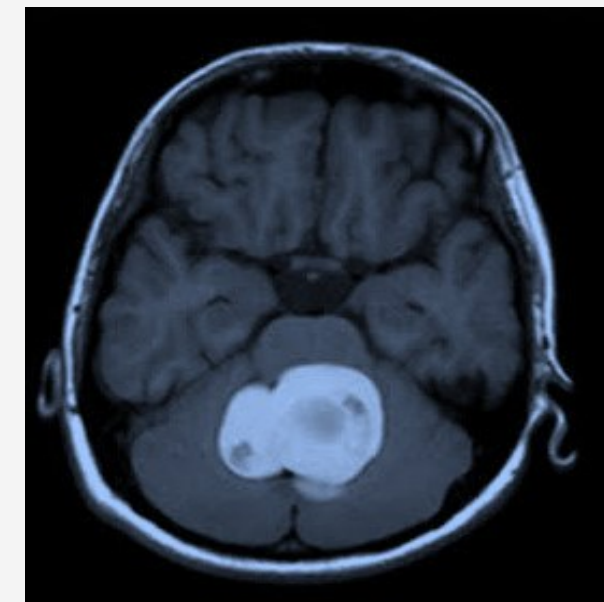
Glioma



Notumor



Meningioma



Transfer Learning Models

Model	Acuraccy	val_loss	val_accuracy
ResNet	0.86	3.6	0.77
VGG16	0.83	2.5	0.73
VGG19	0.63	11	0.58



Complex Neural Networks

01

Conv2D

Size of Filter = (7,7)

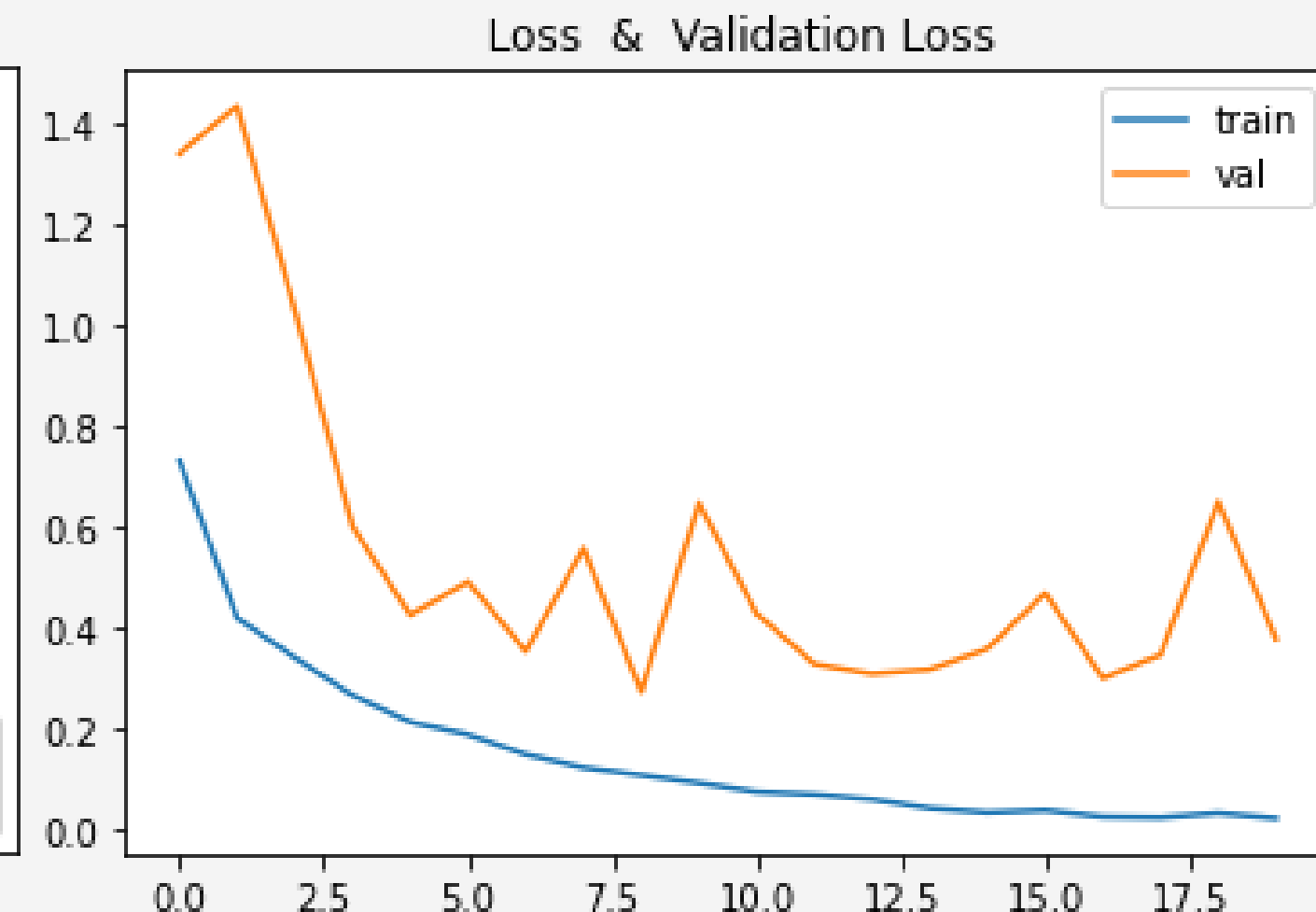
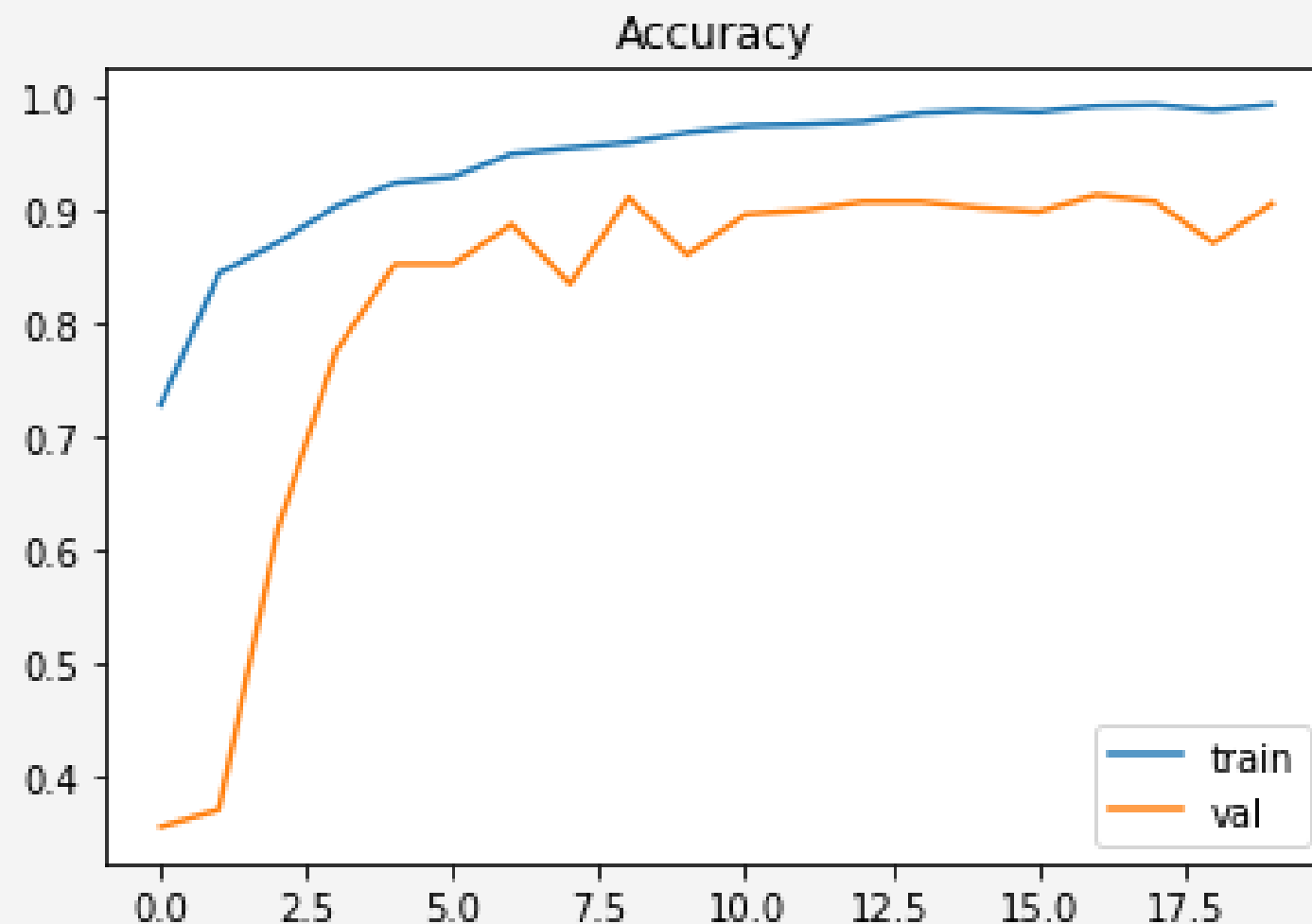
MaxPooling2D = 2.2

Dropout = 0.3

Dense = 1024

Activation = SoftMax

Optimizer = SGD



Test Accuracy = 90%

Complex Neural Networks

02

Conv2D

Size of Filter = (3,3)

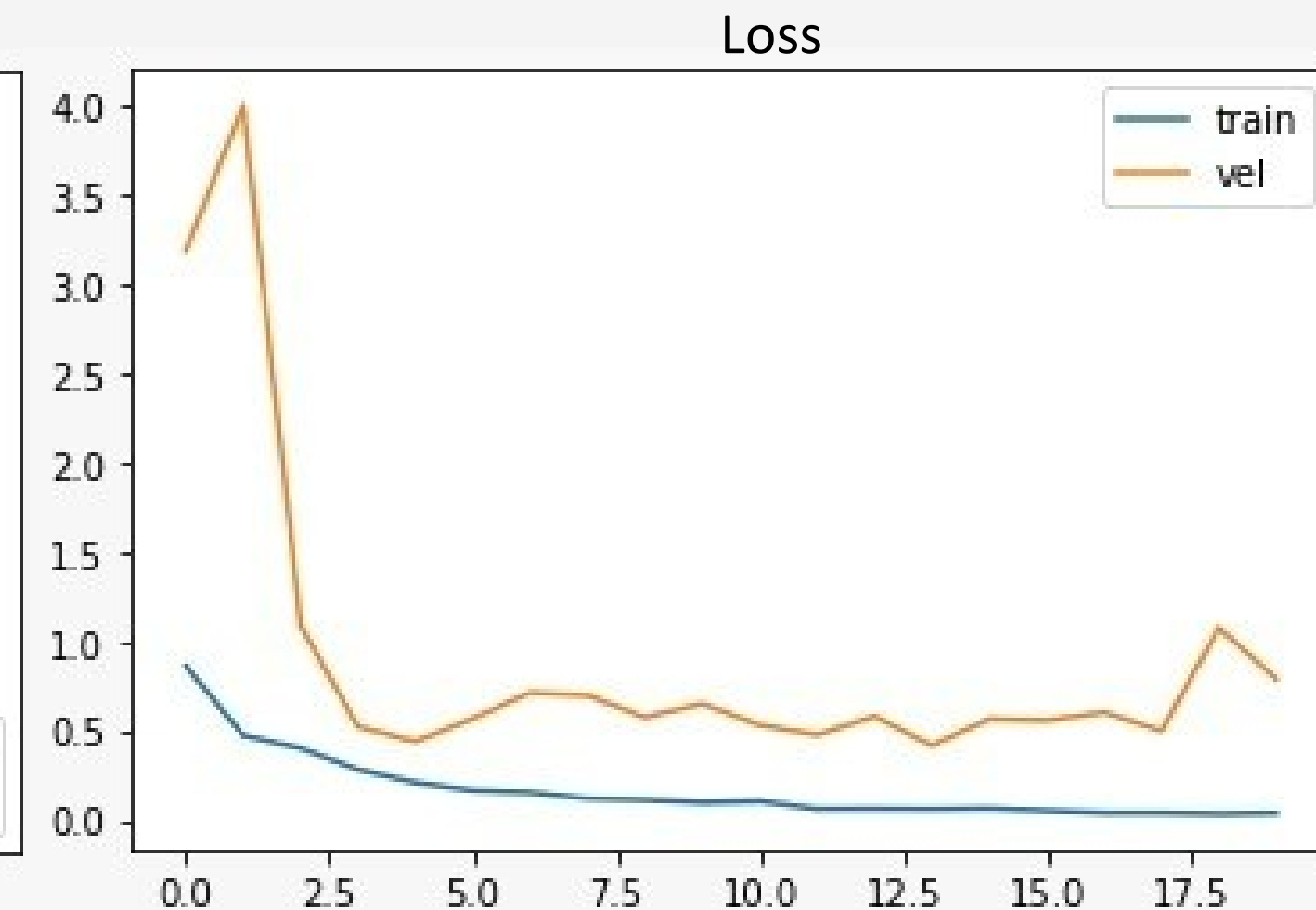
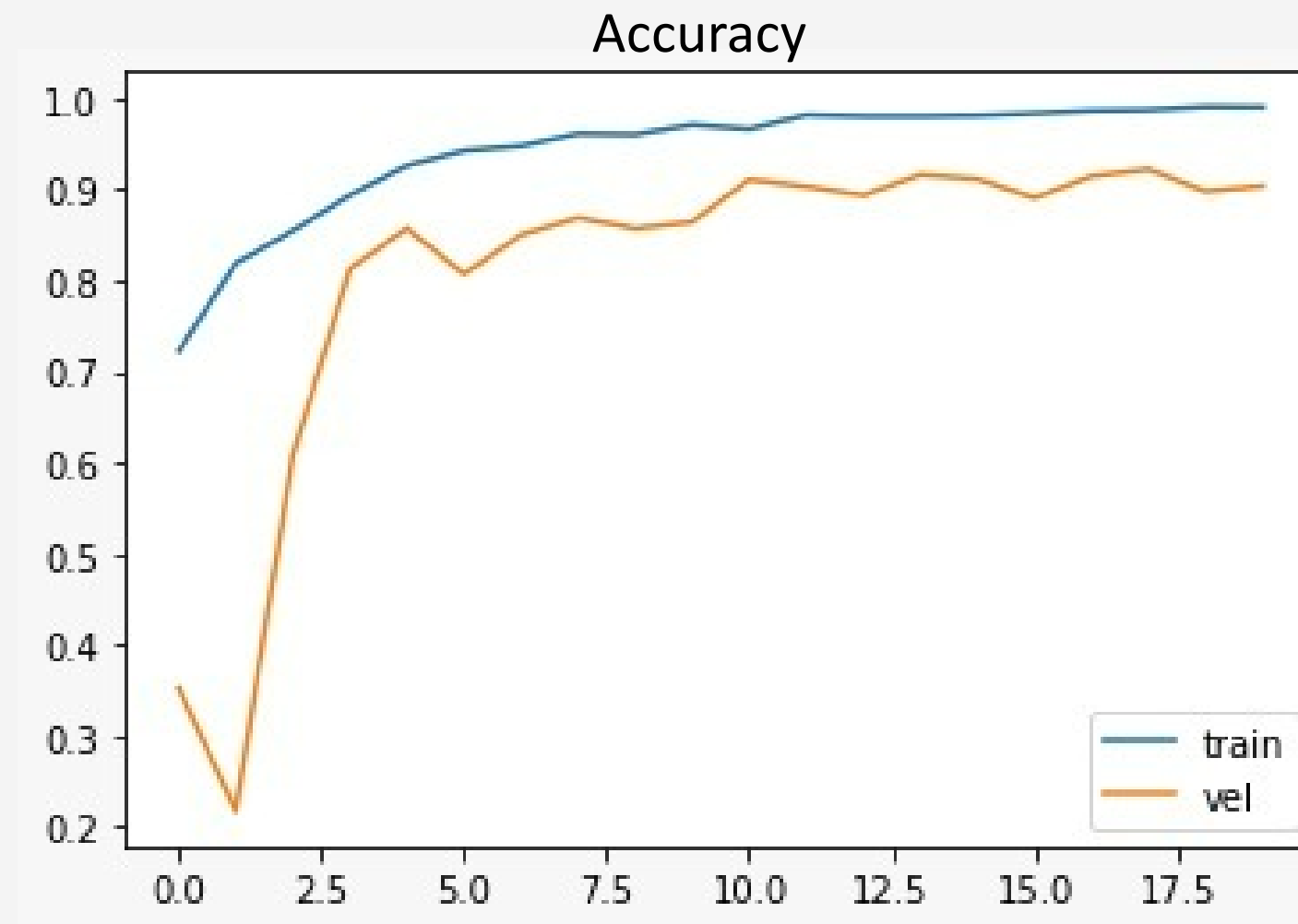
MaxPool2D = (2,2)

Dropout = 0.5

Dense = 64

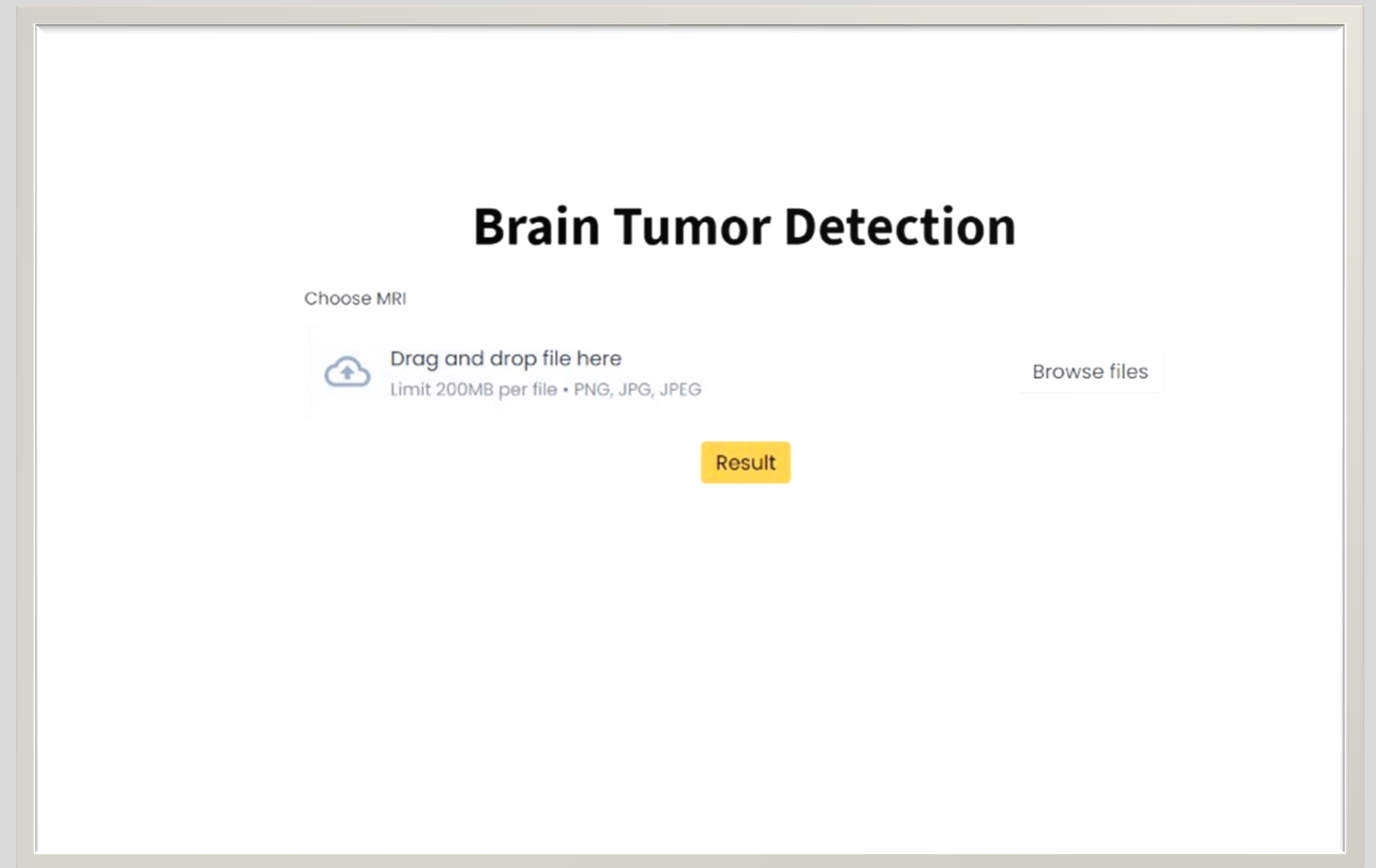
Activation = Soft-Max

Optimizer = Adam



Test Accuracy = 91%

Deployment



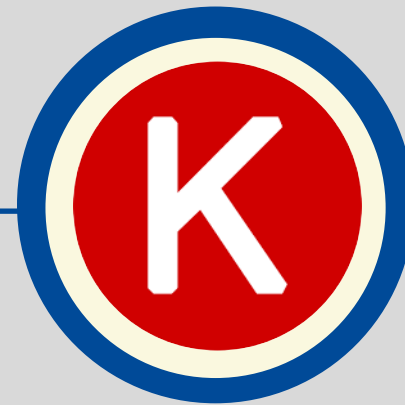
Tools



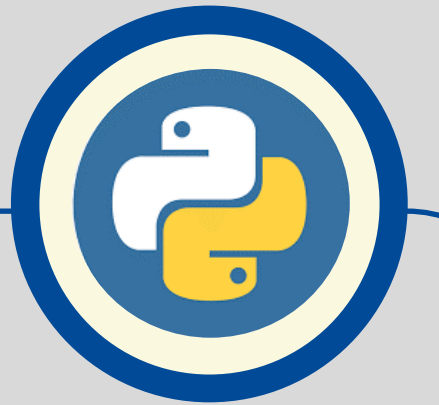
Tensorflow



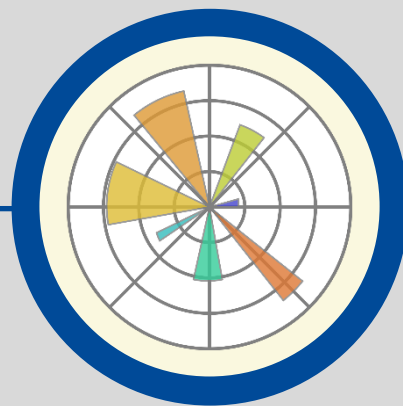
Google Colab



Keras



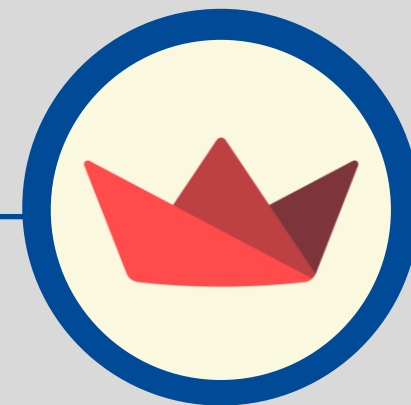
Python



Matplotlib



PyCharm



Streamlit

Conclusion

The importance of early diagnosis of brain tumor, as early diagnosis of brain tumor can contribute to ensuring immediate treatment that reduces the risks of death, and through artificial intelligence, we have contributed to building a model for diagnosing the brain tumor with high speed and accuracy.

Future Works:

Develop the model to include all types of radiation





From the left: Nouf, Dr. Ptrick, Abdulmajeed, Ahmad

Thank you Dr. Patrick!



أكاديمية سدايا
SDAIA Academy

Thank you!

Thank you too!

Any Questions?

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