

HEALTHCARE AI

DIAGNOSIS



PROGNOSIS



TREATMENT





HEALTHCARE AI MEDICAL DIAGNOSIS OF BRAIN TUMORS

Deep Learning
Image Segmentation Project



**BRAIN TUMOR SEGMENTATION PLAYS AN
IMPORTANT ROLE IN MEDICAL IMAGE
PROCESSING.**

**DIAGNOSIS OF BRAIN TUMORS BY
EXPERTS USUALLY USE A MANUAL
SEGMENTATION THAT IS DIFFICULT AND
TIME CONSUMING.**

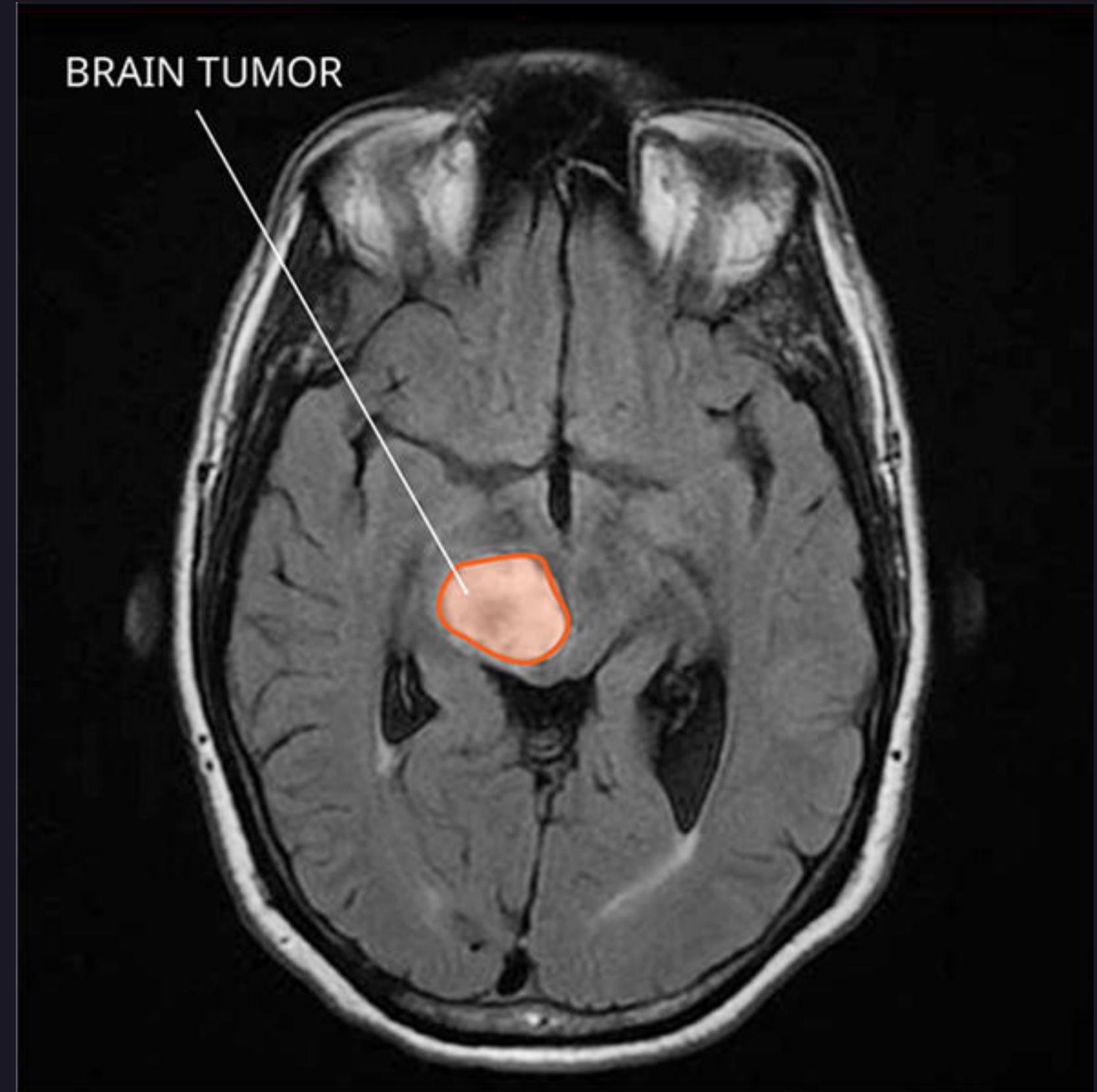
BRAIN TUMORS



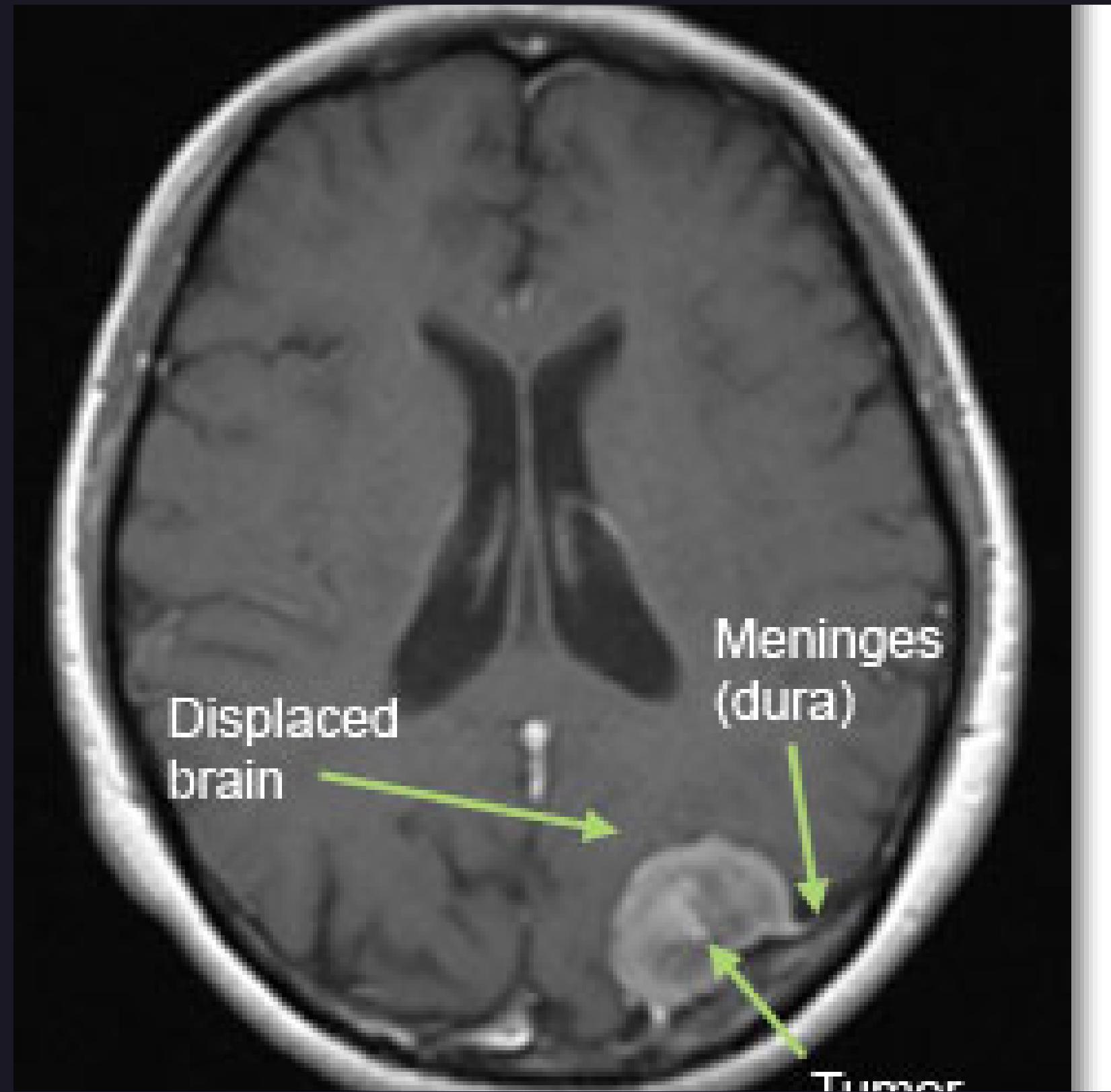
There are around
30 types of Brain Tumors
In this project we examine examples of
Glioma
Meningioma
Pituitary Tumor

GLIOMA

Glioma is a type of tumor that occurs in the **brain and spinal cord**. Gliomas begin in the gluey supportive cells (glial cells) that surround nerve cells and help them function.



MENINGIOMA



PITUITARY TUMOR

Pituitary tumors are abnormal growths that develop in your **pituitary gland**. Some pituitary tumors result in too many of the hormones that regulate important functions of your body.



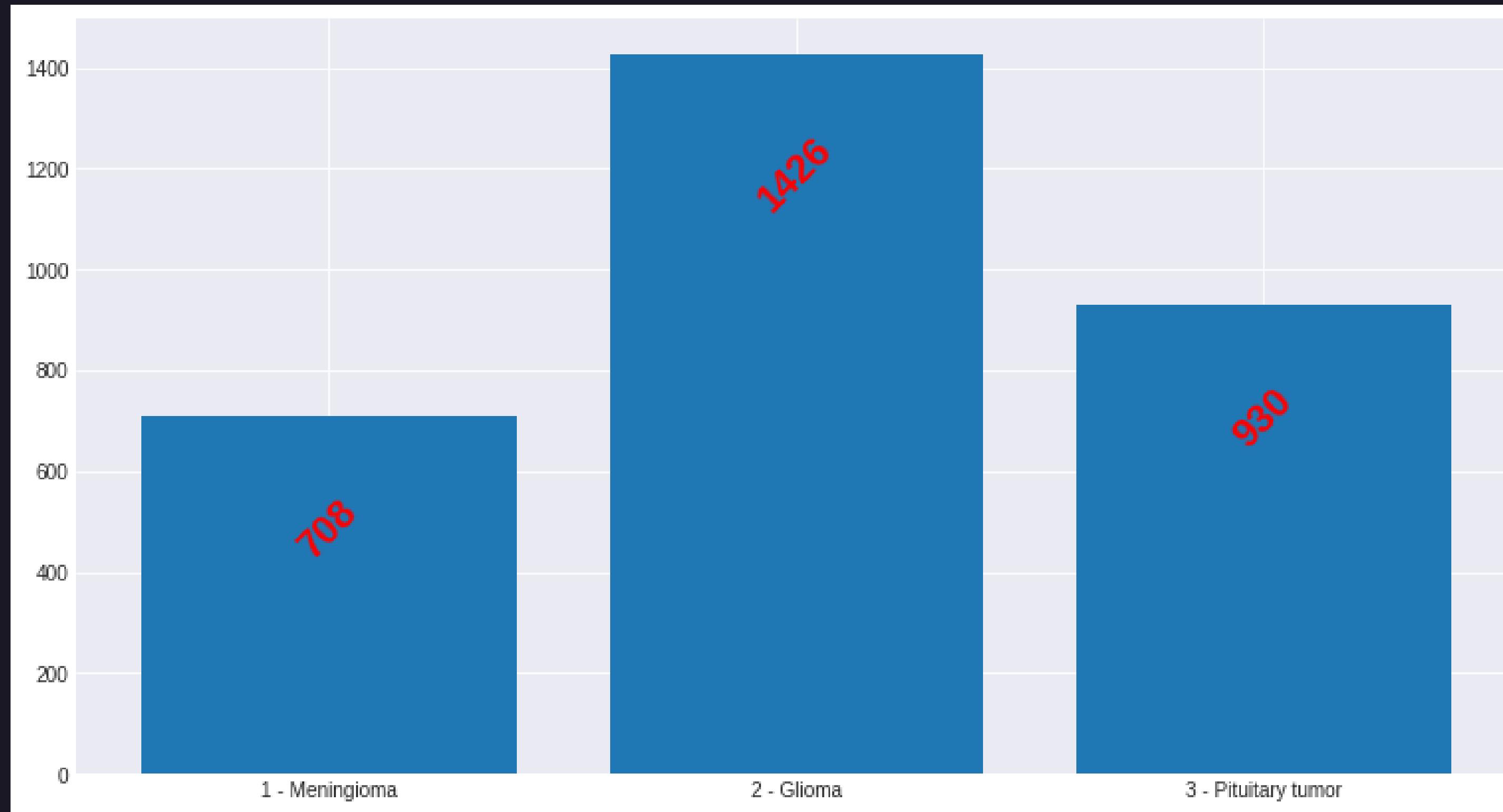
ABOUT THE DATASET

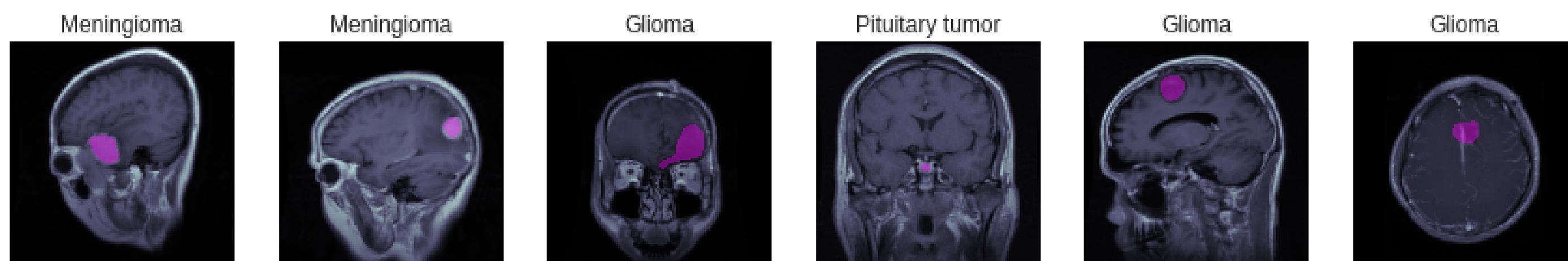
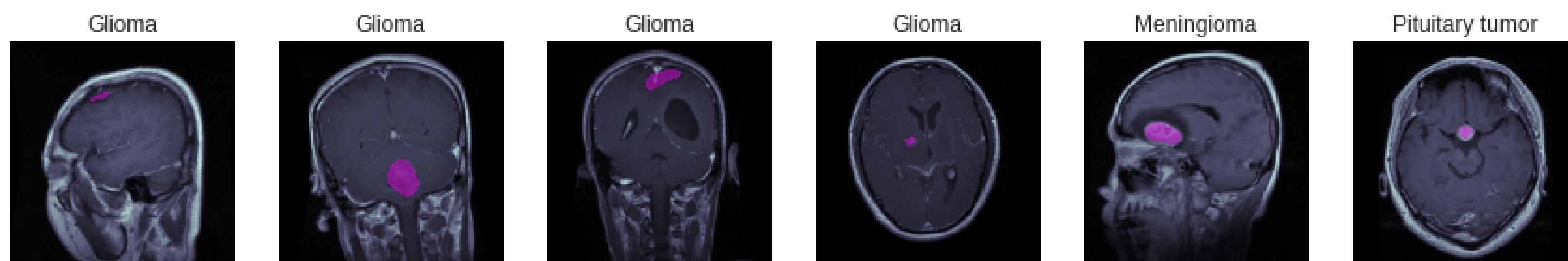
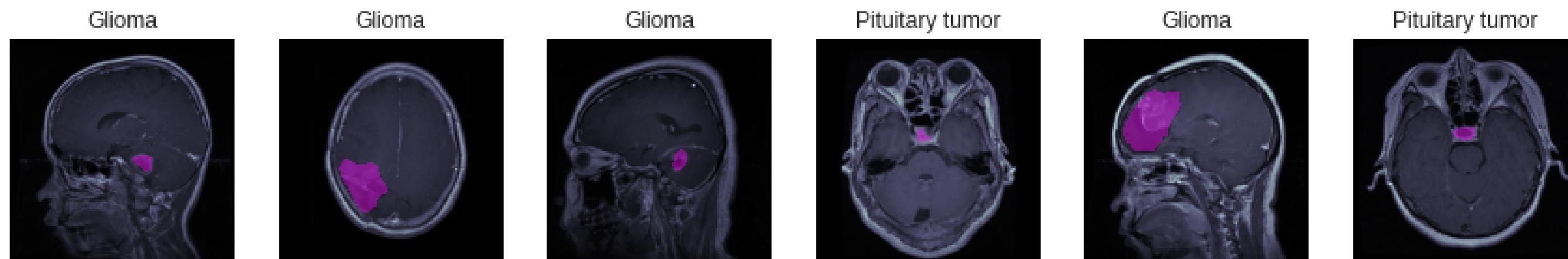
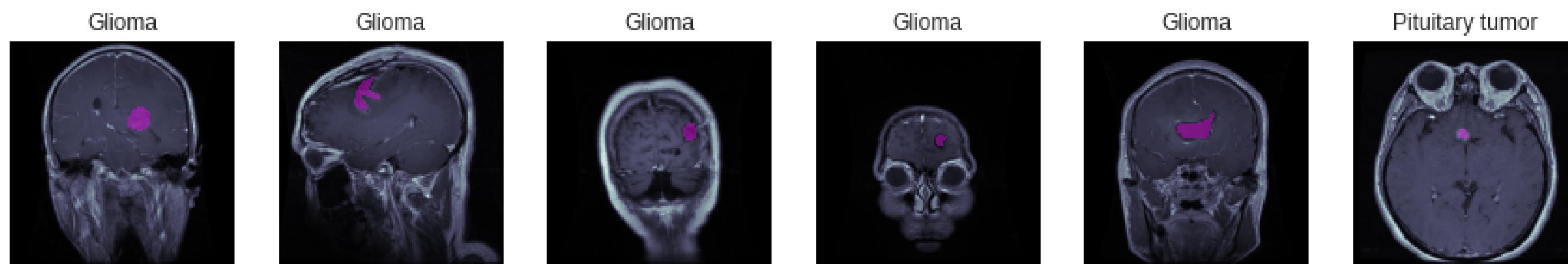


Figshare Brain Tumor Dataset:

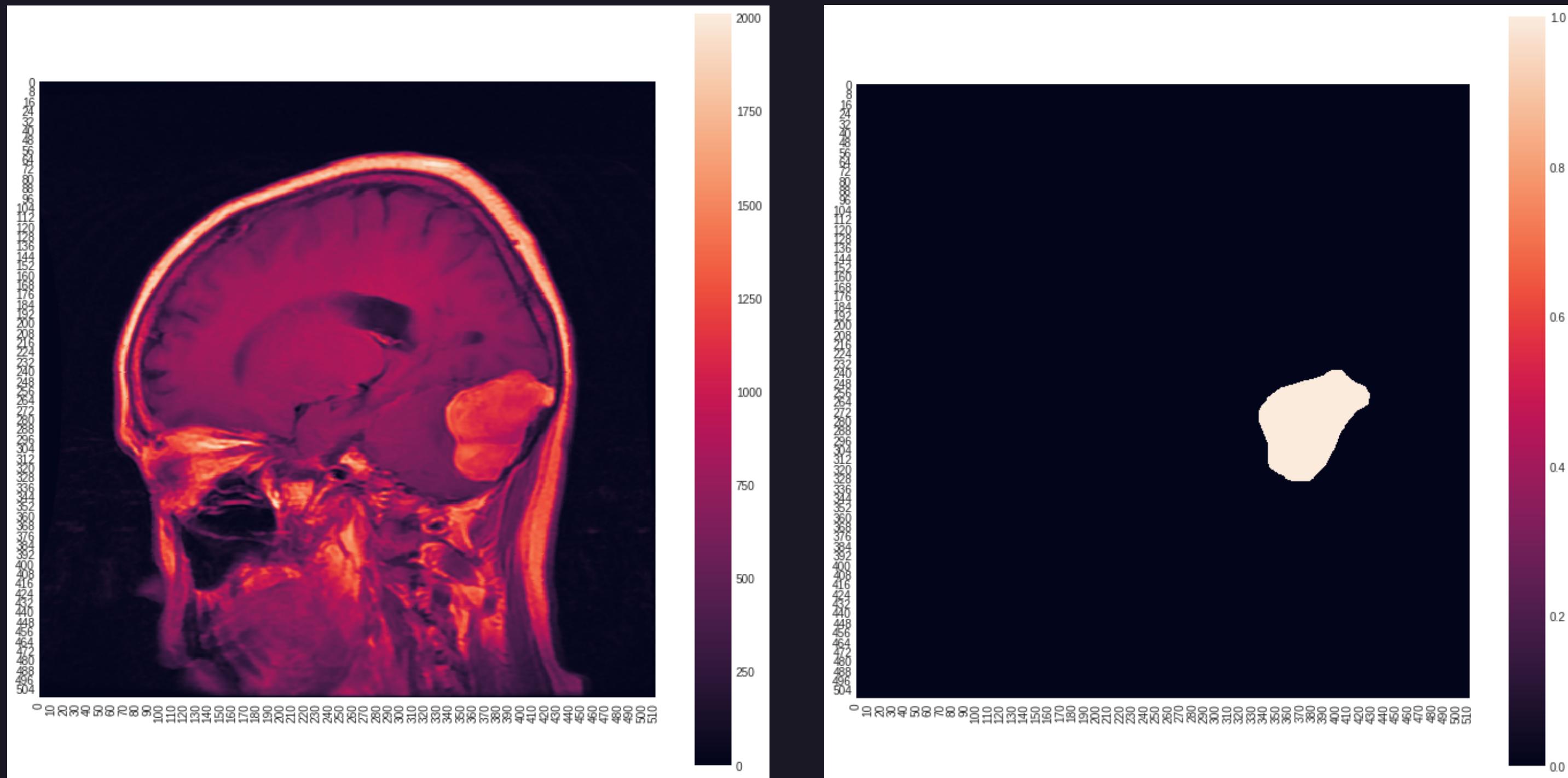
3064 Brain MRI images from 233 patients who have one of the three types of brain tumors.

CLASS DISTRIBUTION OF THE DATASET

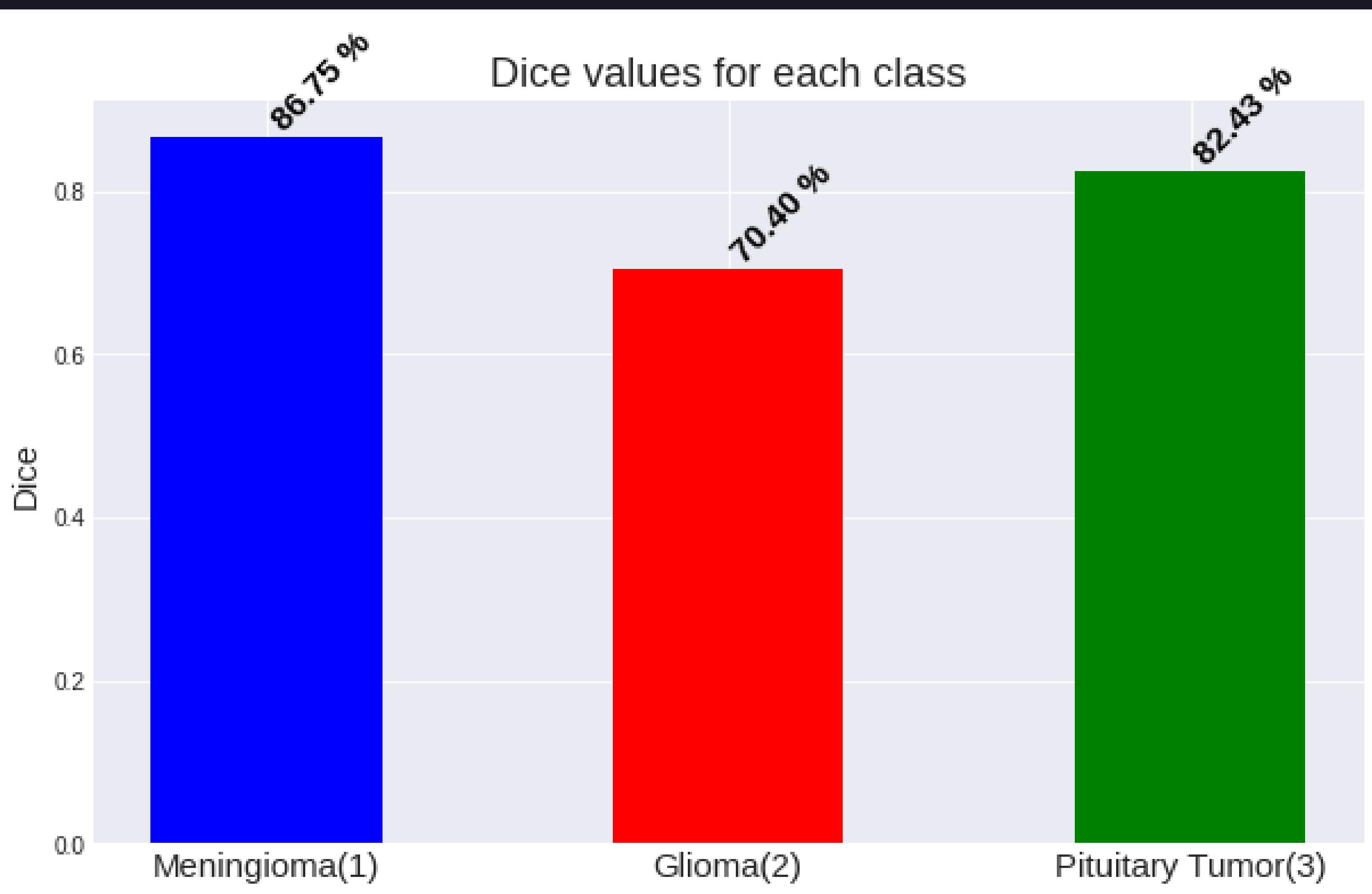


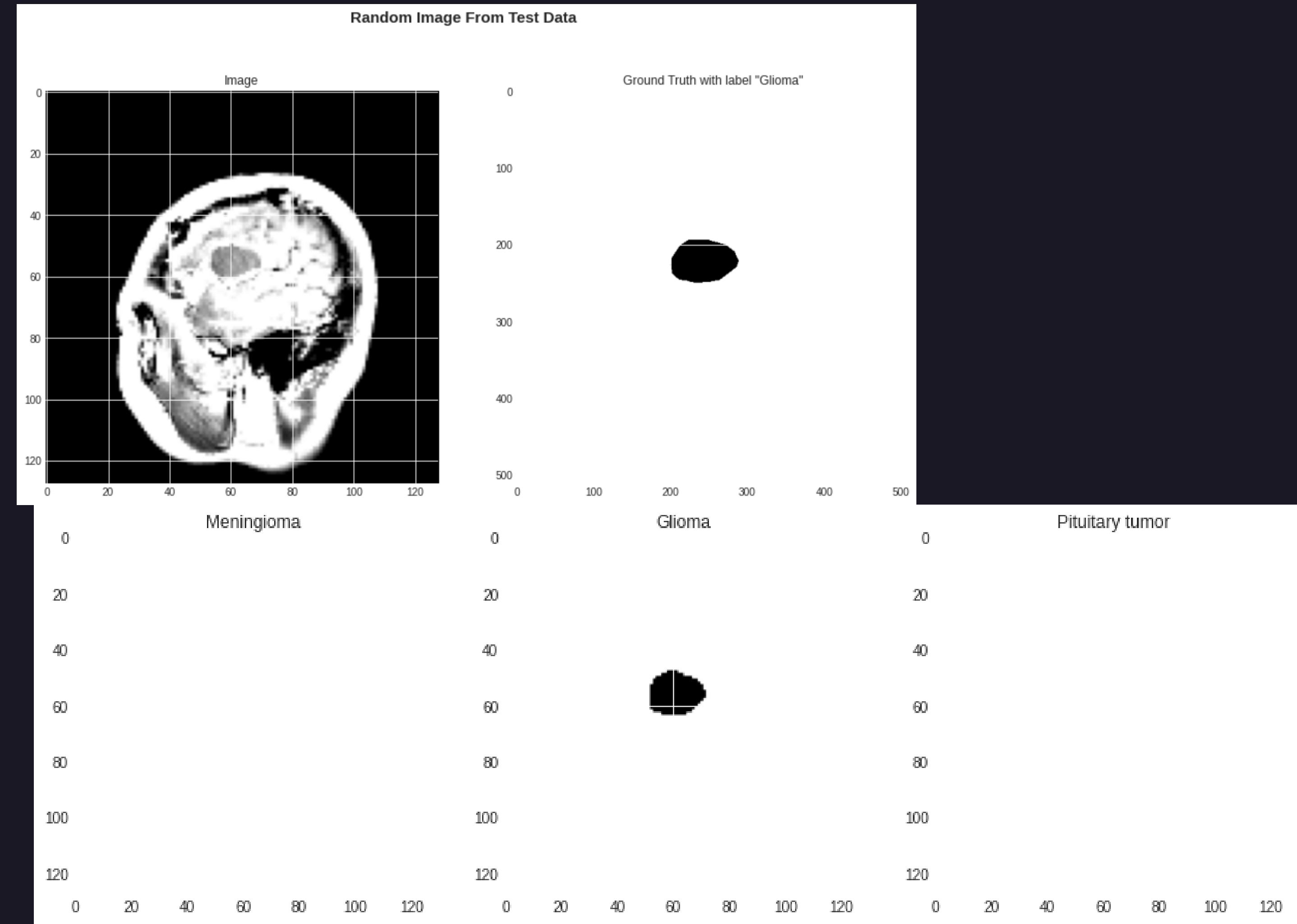


WHAT IS SEGMENTATION?

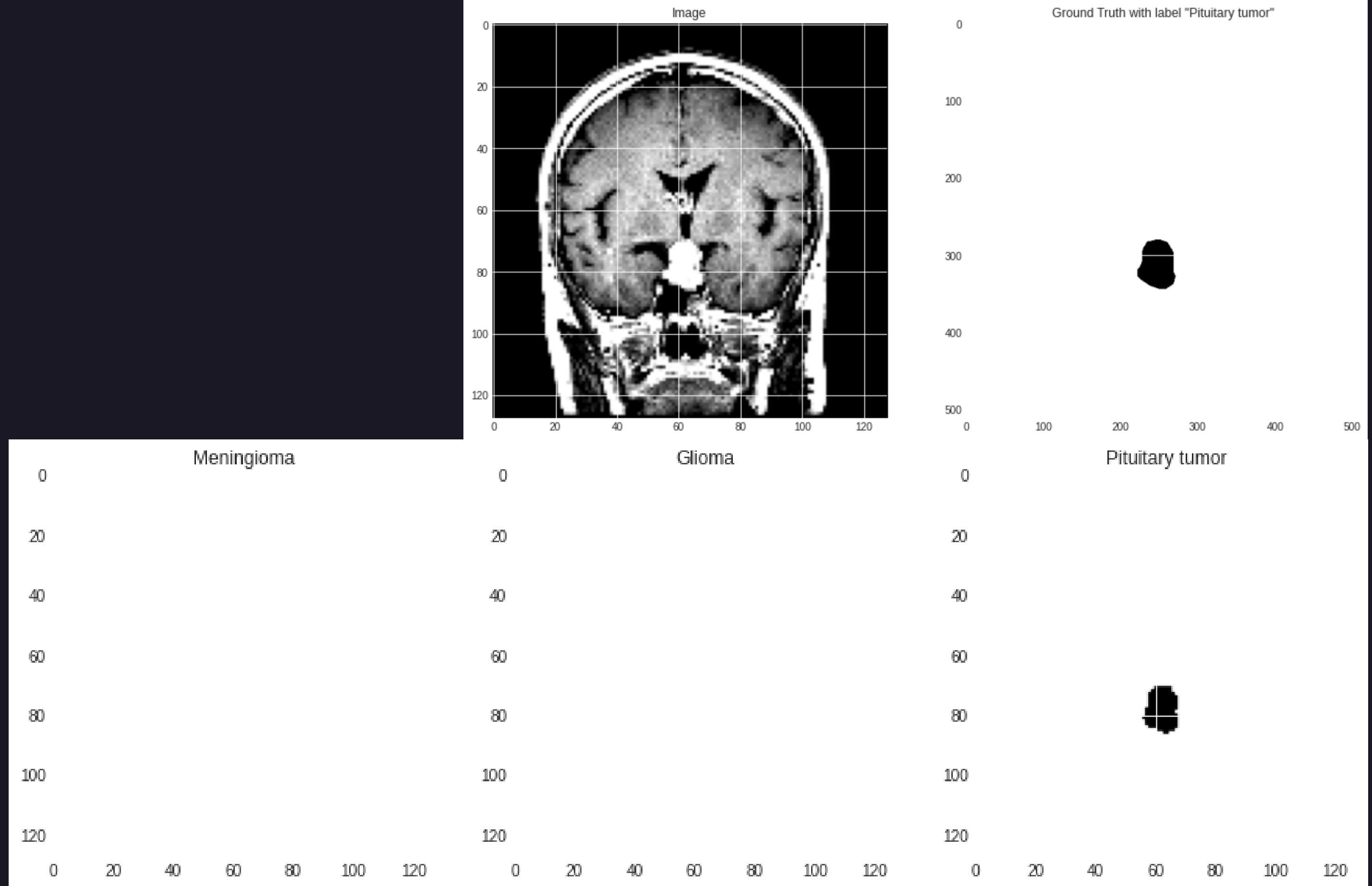


Dice values for each class

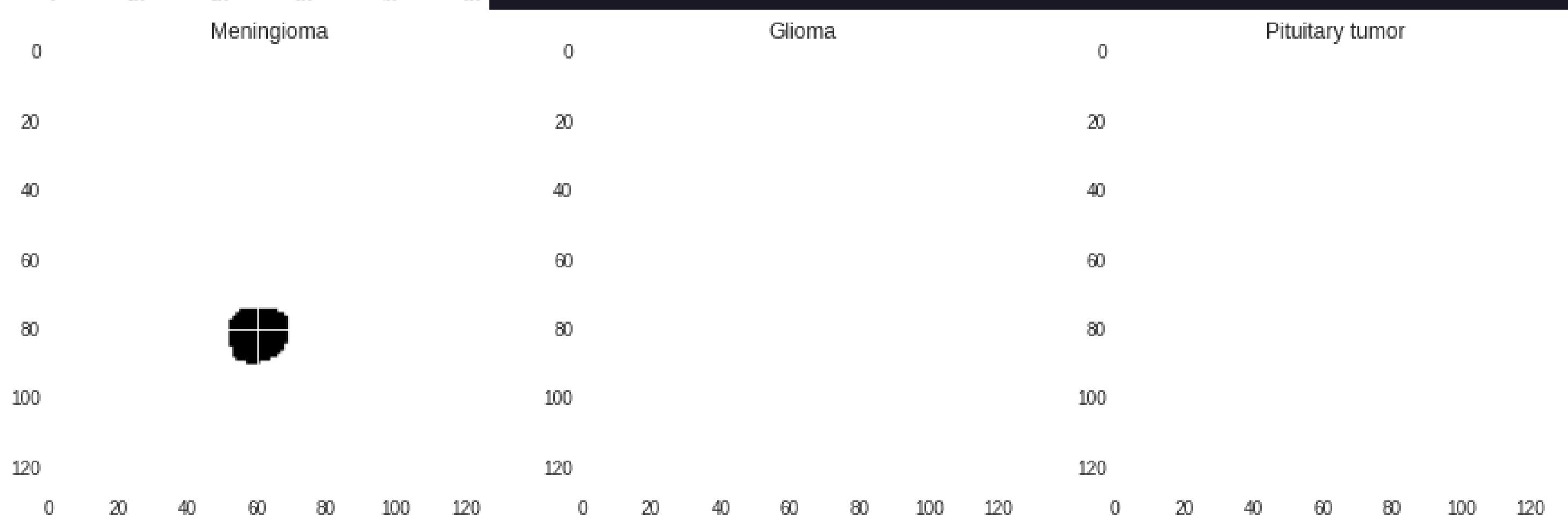
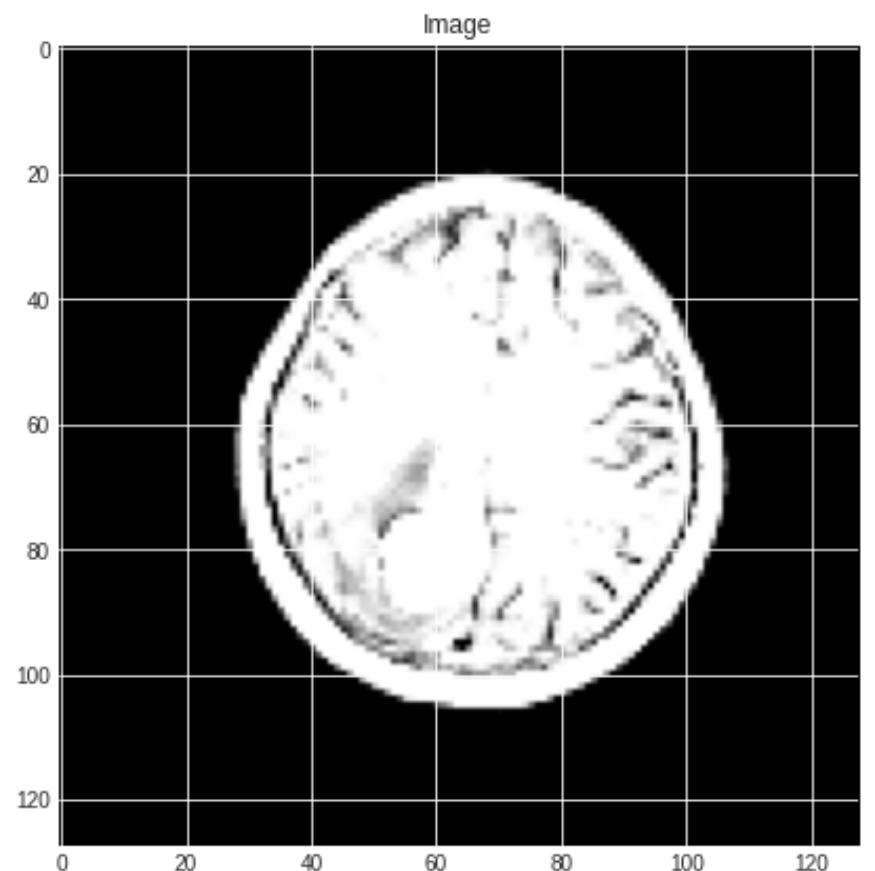




Random Image From Test Data

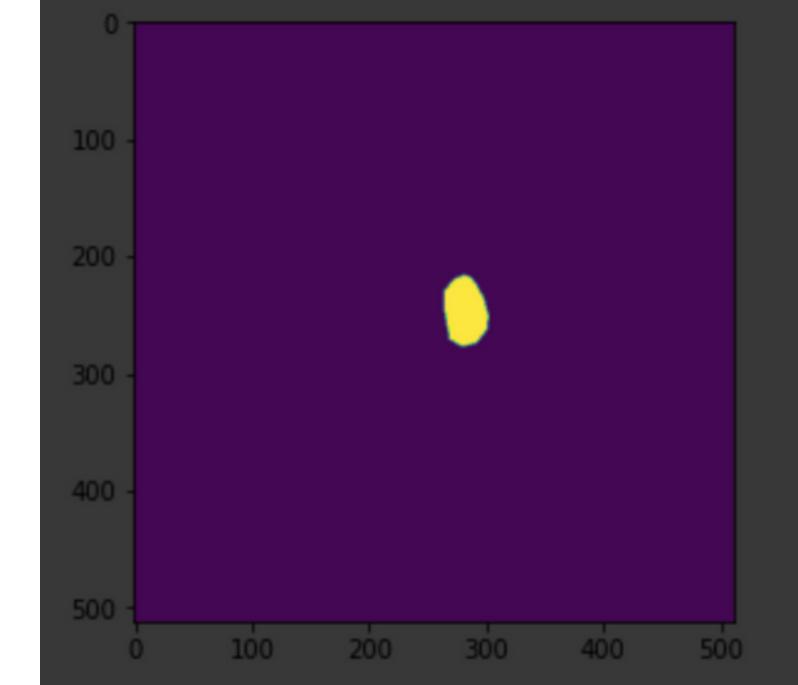
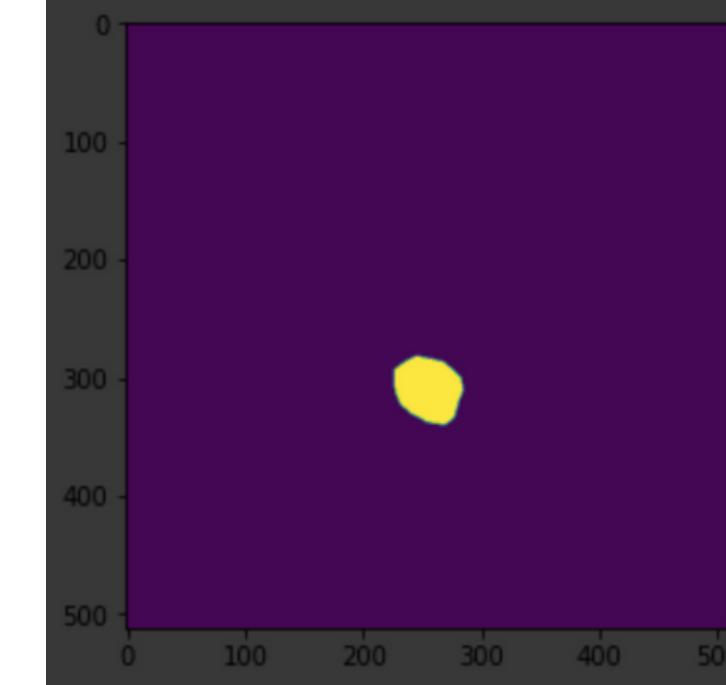
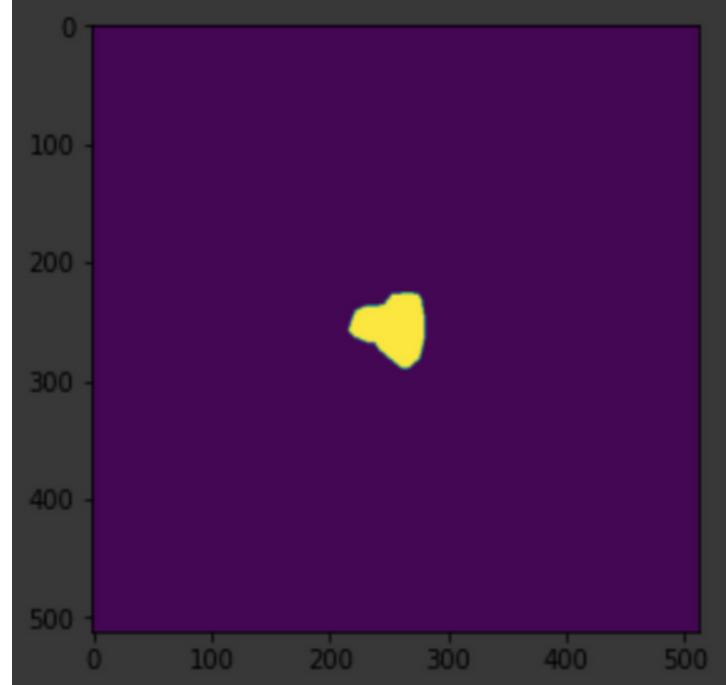
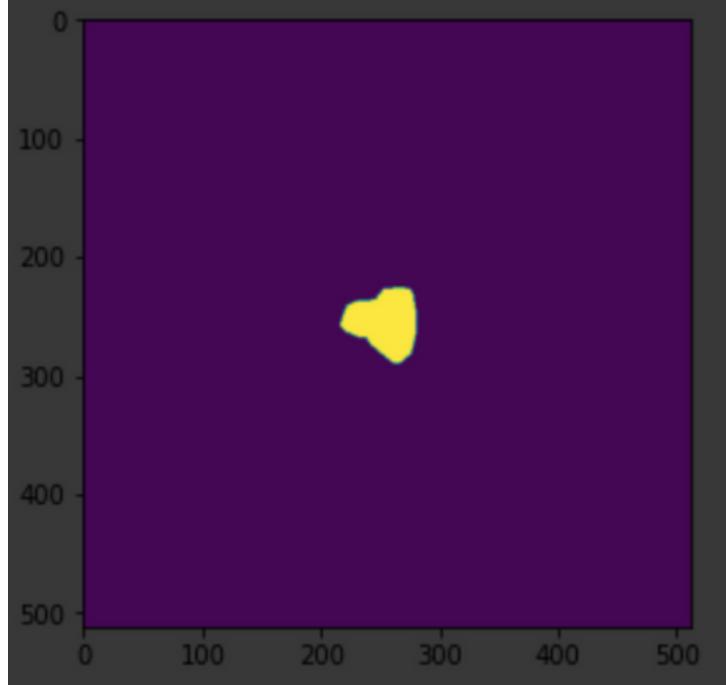
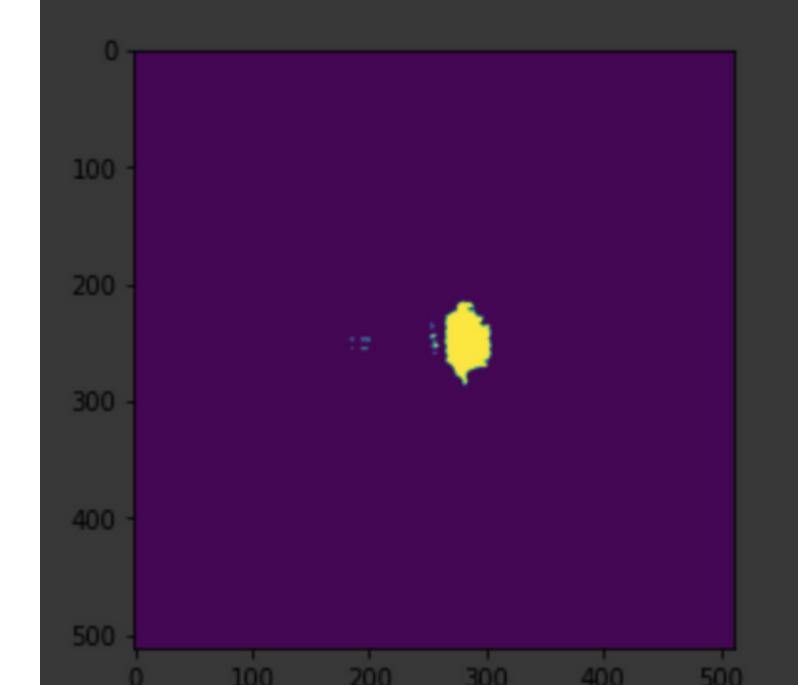
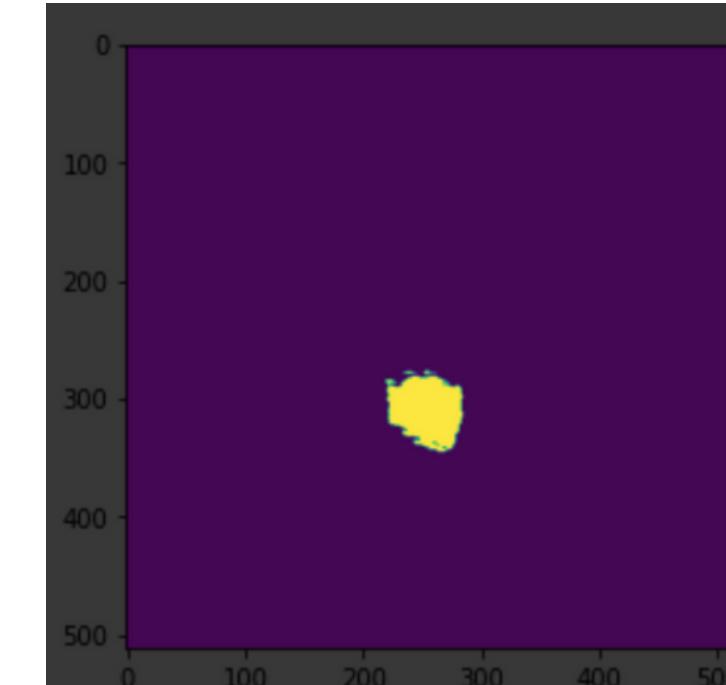
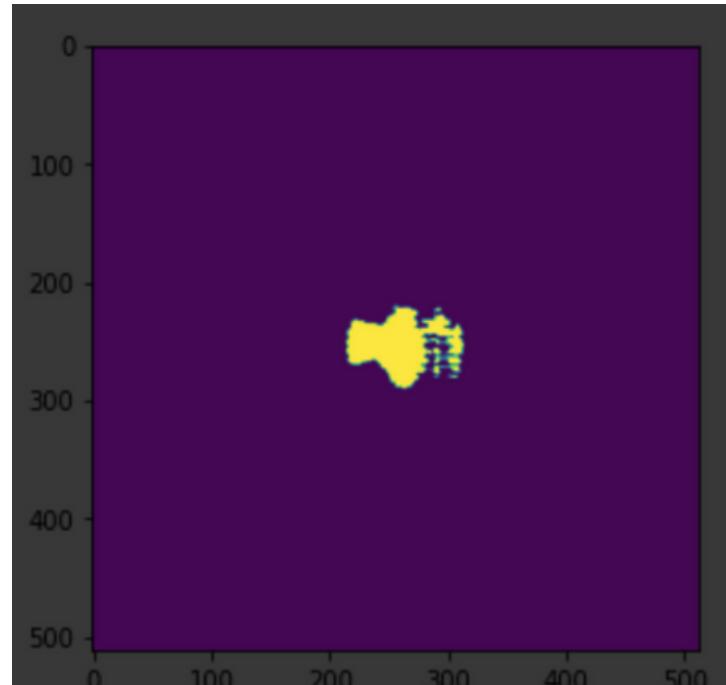
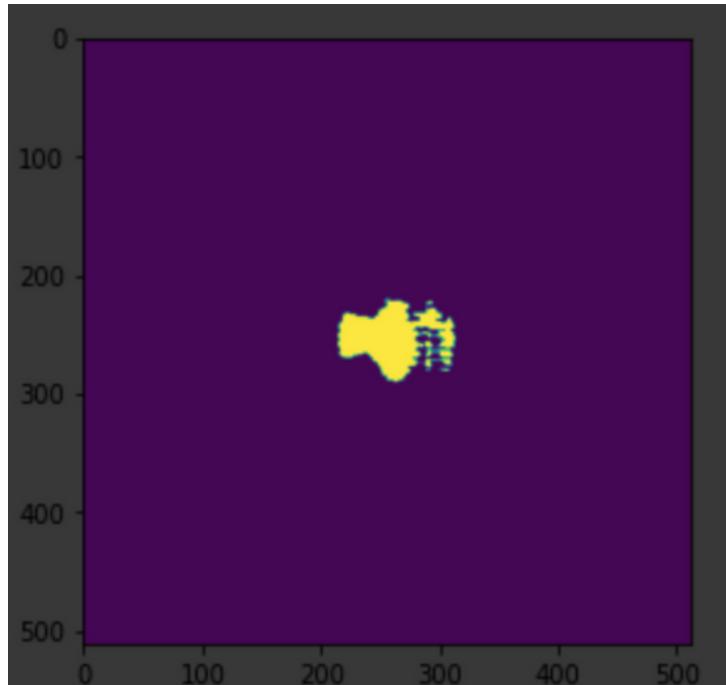


Random Image From Test Data



Models Genesis

TRANSFER LEARNING USING A SPECIAL MODEL TRAINED IN HEALTH DATA



Recommendation

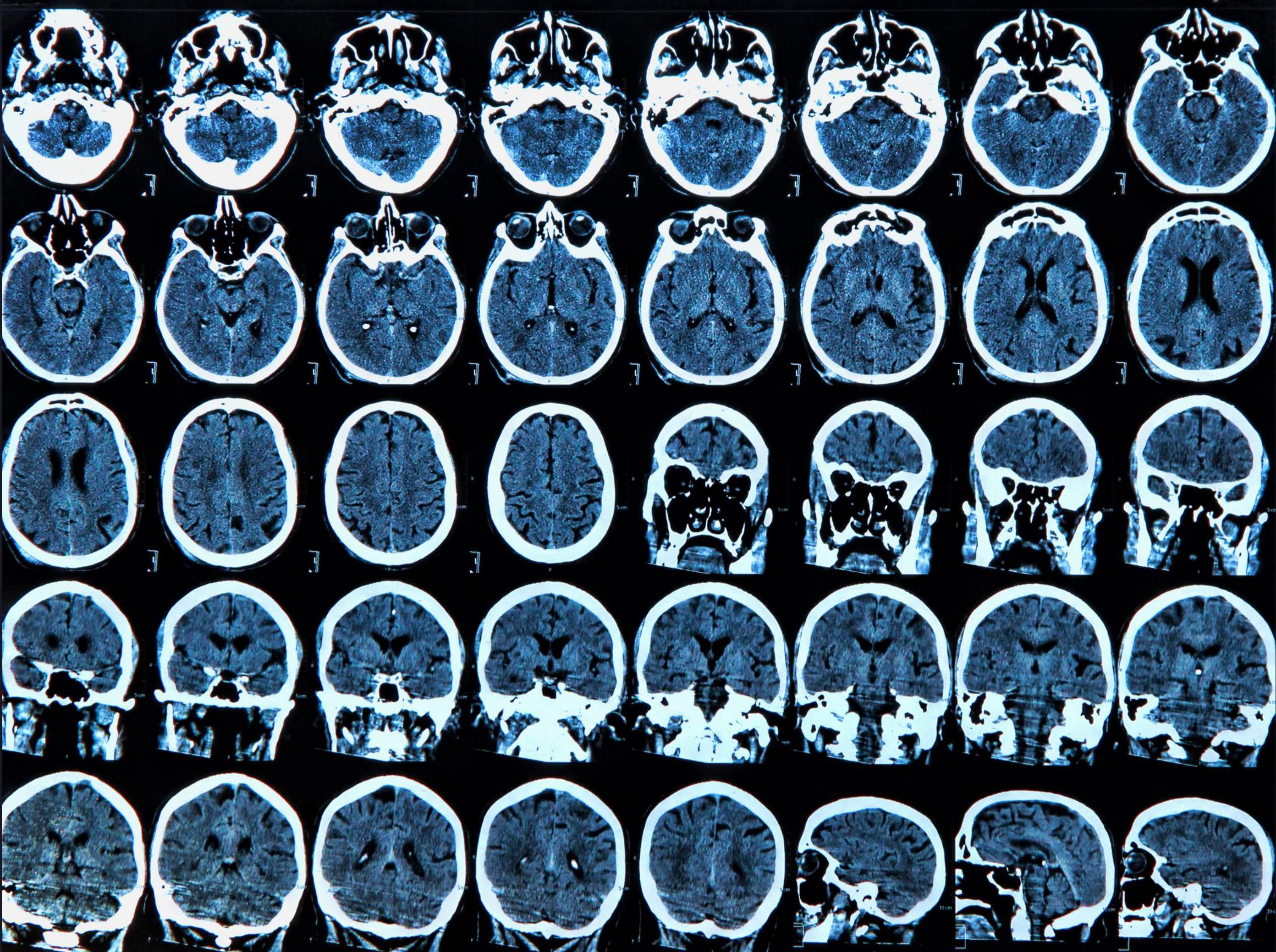
**USE BRAIN MRI IMAGE SEGMENTATION
MODEL FOR EARLY DETECTION OF
BRAIN TUMORS.**



Recommendation

AUTOMATE THE MASKING PROCESS TO
SAVE TIME FOR HEALTH CARE WORKERS.





Recommendation

**USE THIS METHOD THROUGH INTERNET
TO SAVE LIVES OF BRAIN TUMOR
PATIENTS IN UNDERDEVELOPED
COUNTRIES**



FUTURE WORK



```
import segmentation_models_pytorch as smp
```

Q

&

A

THANK YOU FOR YOUR SUPPORT!



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[View CV](#)



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Deep learning engineer, AI 4 healthcare specialized, Health Informatics, Mentor, AI 4 medicine at deeplearning.ai, Hands on Executive data science



Ahmed H. Shahin

University College London | UCL · Department of Computer Science
UCL 1.08 · Master of Science

Thank You





APPENDIX

The word "APPENDIX" is spelled out in a row of seven light-colored wooden blocks. Each block contains a large, bold, black capital letter. The letters are arranged sequentially: A, P, P, E, N, D, I, X. The "I" block is tilted diagonally upwards and to the right, while all other blocks are standing vertically. The background is a plain, light blue surface.

