

Brain Tumor Classification



Brooke Smyth

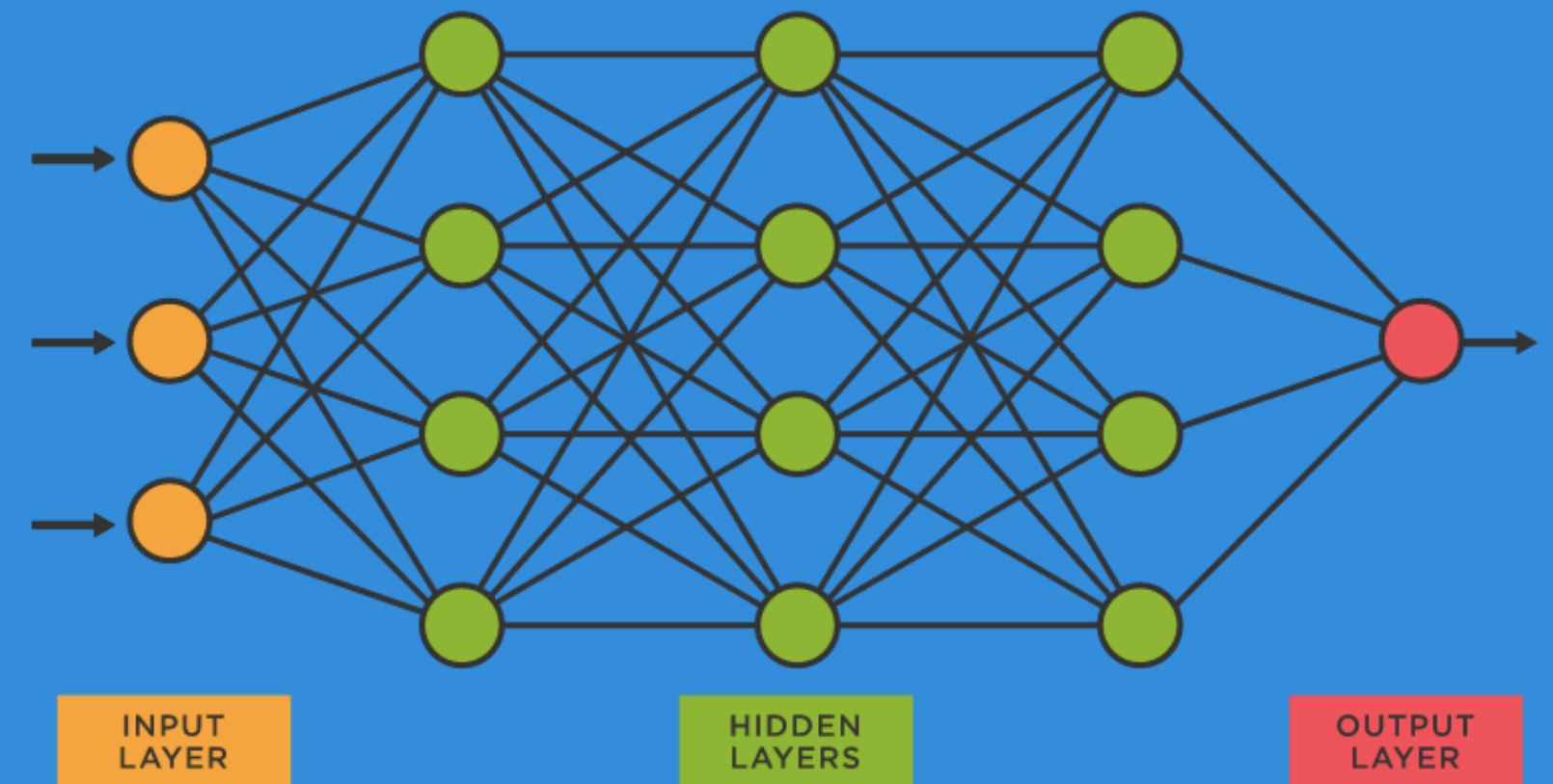
BACKGROUND

- Five-year survival rate any kind of Brain Tumor is 36%
- Both benign and malignant tumors put pressure on the brain



AI CAN HELP

- Machine learning models are better at detecting and diagnosing brain tumors than humans
- Can pick up on subtle patterns not visible to the human eye



BUSINESS PROBLEM

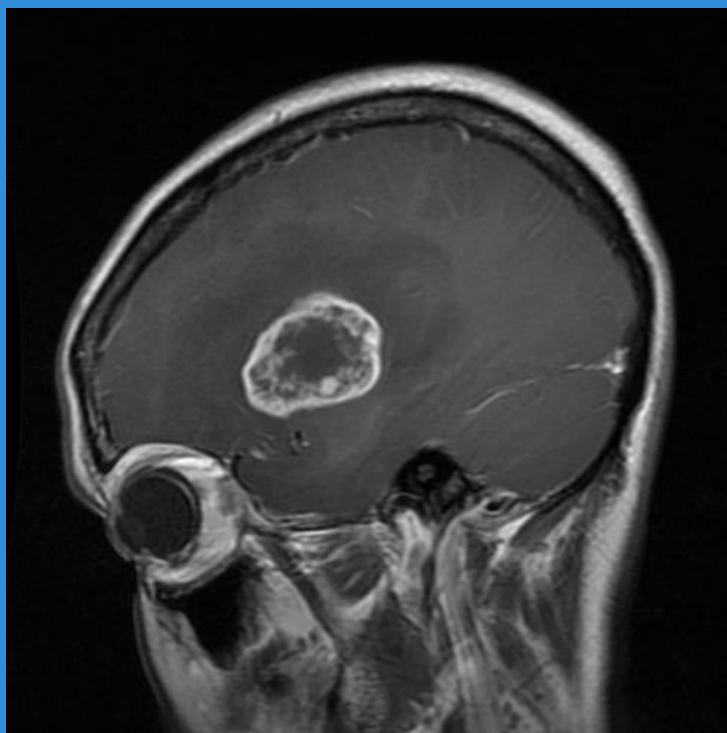
- Doctors without Borders is interested in developing AI tools which could detect and and classify Brain Tumors for use in developing nations



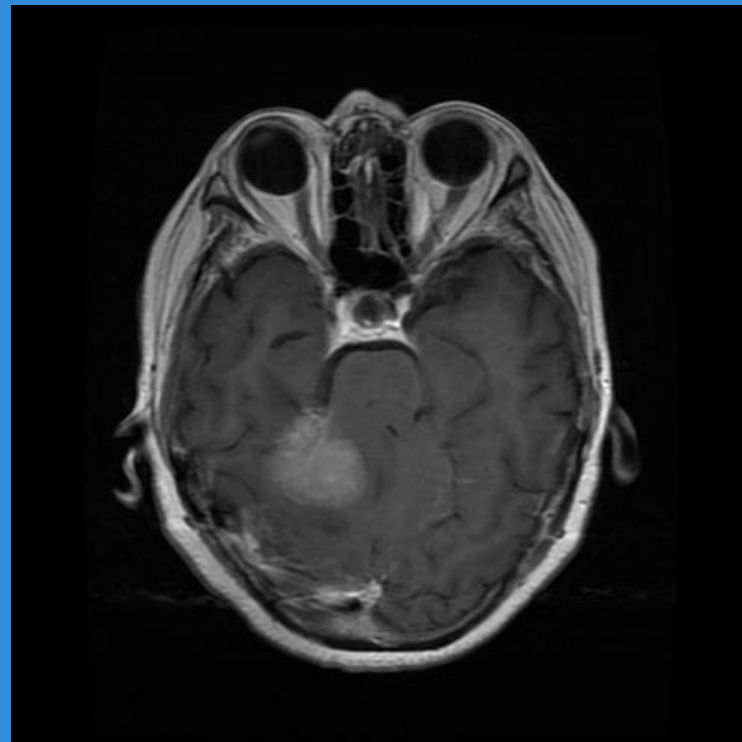
DOCTORS WITHOUT BORDERS

ABOUT THE DATA

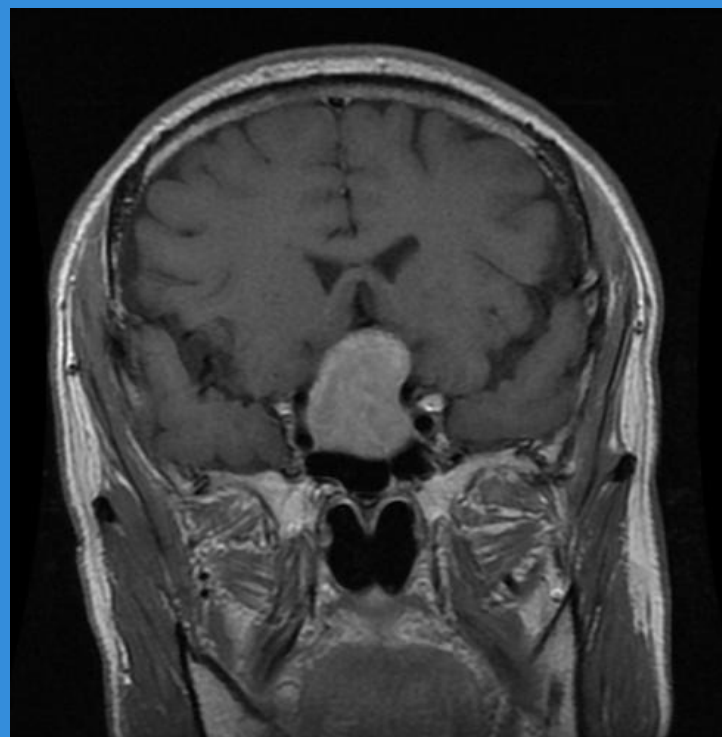
- Consists of brain MRIs which have one of three types of tumors, and normal scans
- The three different tumor types were put into one group



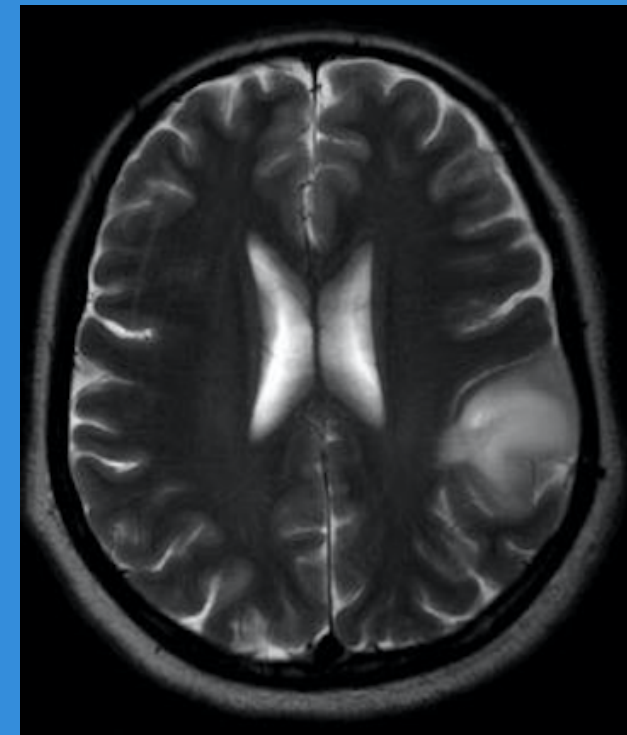
Glioma



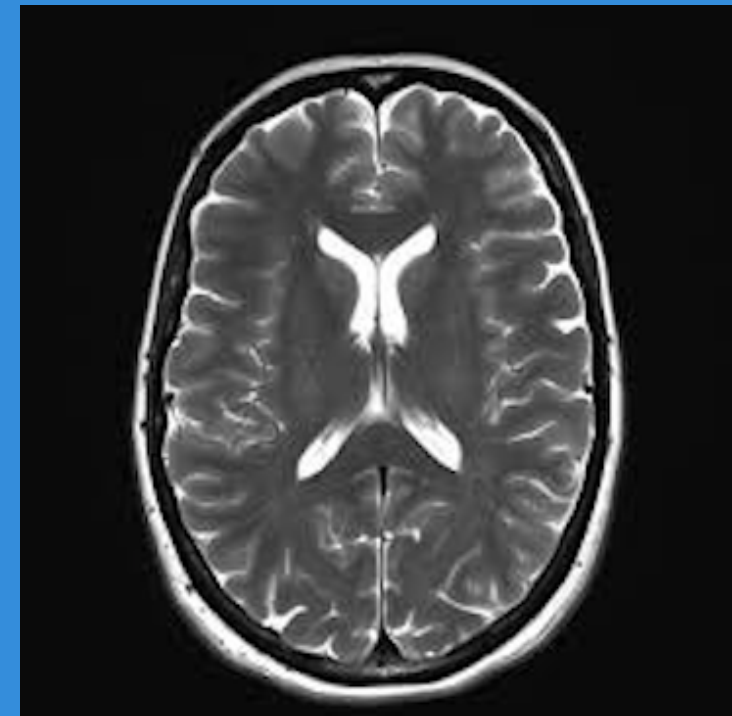
Meningioma



Pituitary



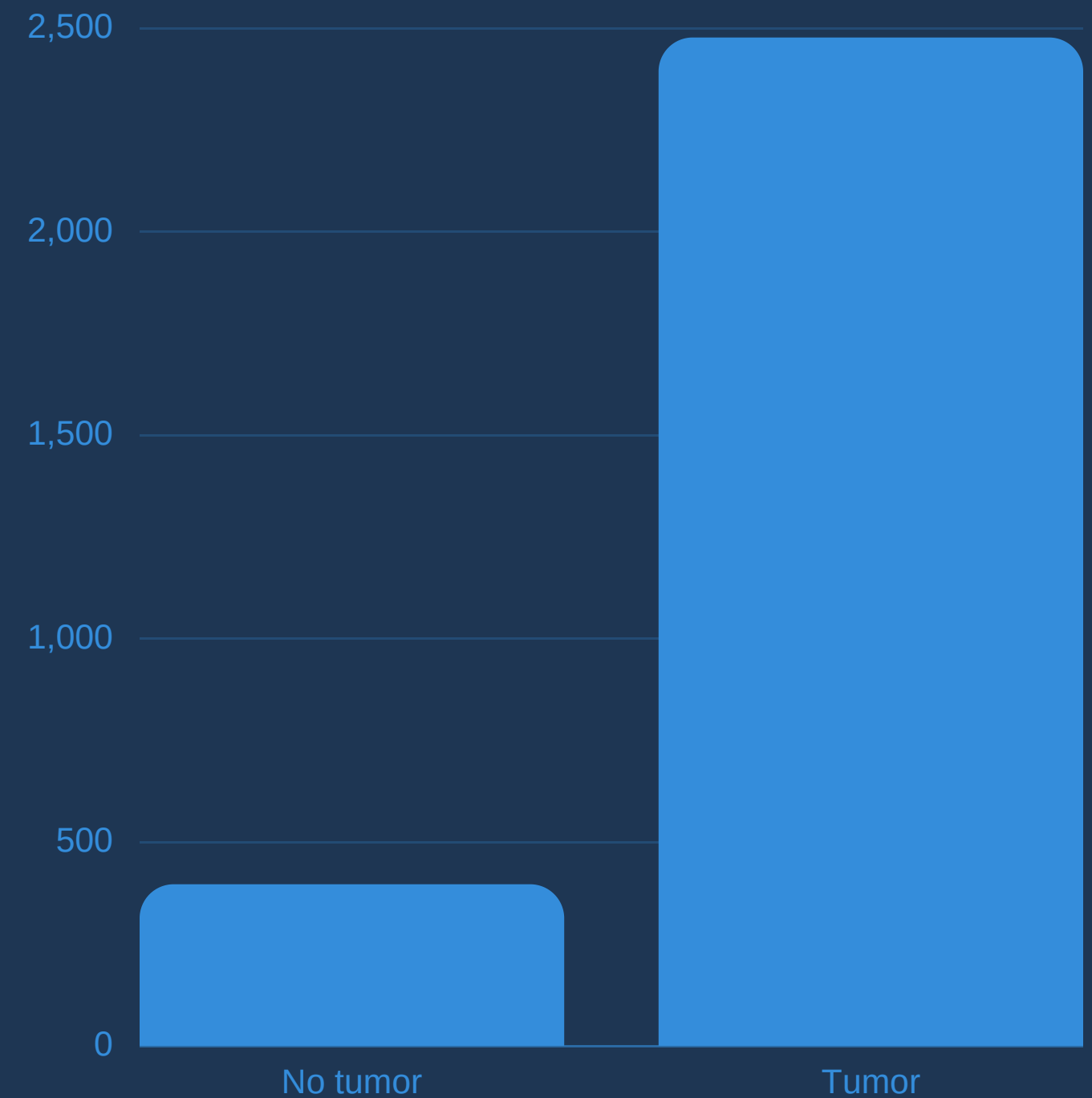
No Tumor



No Tumor

CLASS IMBALANCE

- In the training data, there were 2,475 MRI scans with tumors, and 395 normal scans
- In total there are 3264 images



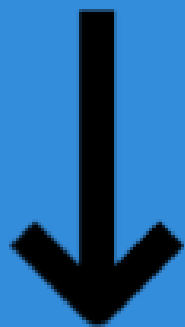
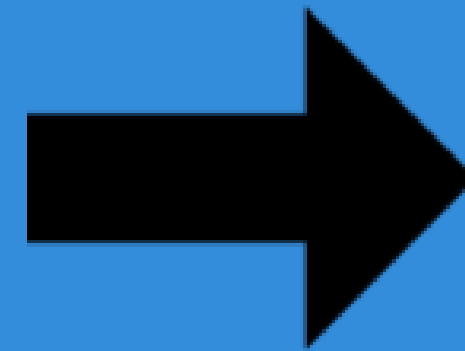
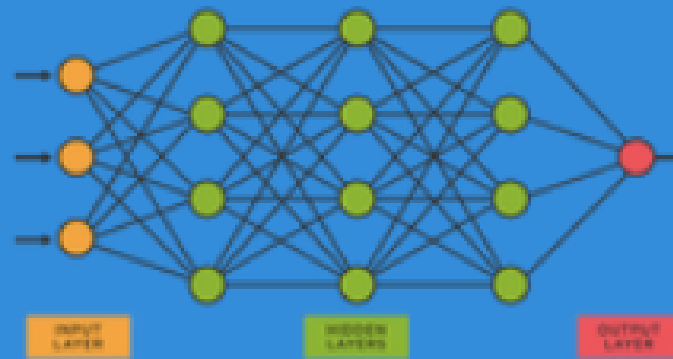
BEST MODEL

- Accuracy: 98%
- Error: 7%
- Recall: 99%

Predicted Label	Normal	Brain Tumor
	Normal	Brain Tumor
Normal	87%	1%
Brain Tumor	1%	99%
True Label		

RECOMMENDATIONS

Doctors without Borders should implement this model:



QUALITY CONTROL CHECK



NEXT STEPS

- Deploy this model
- Develop a Brain Tumor multiclass classification model



THANK YOU!

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