Project Sequence

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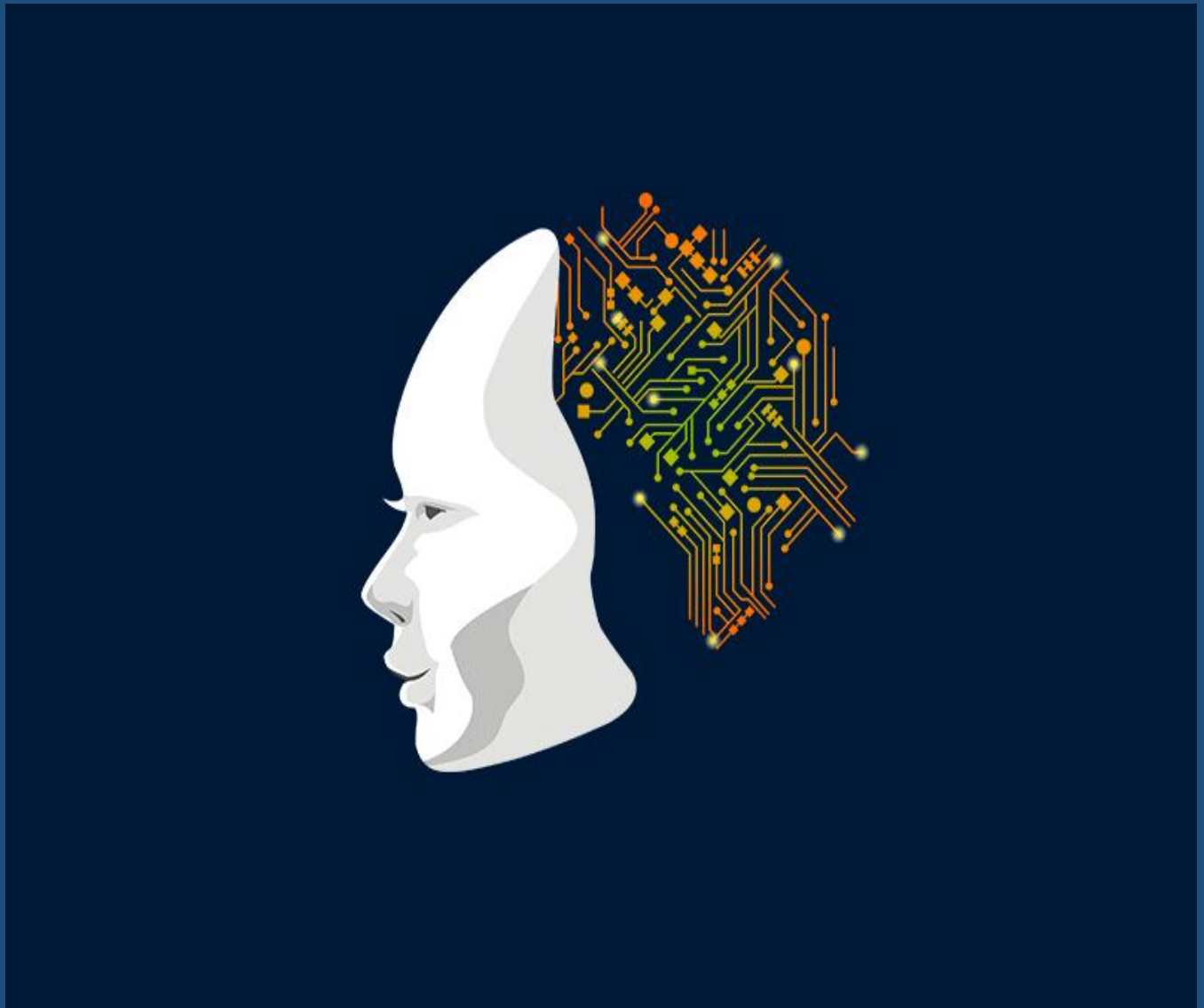


PROJECT TITLE :

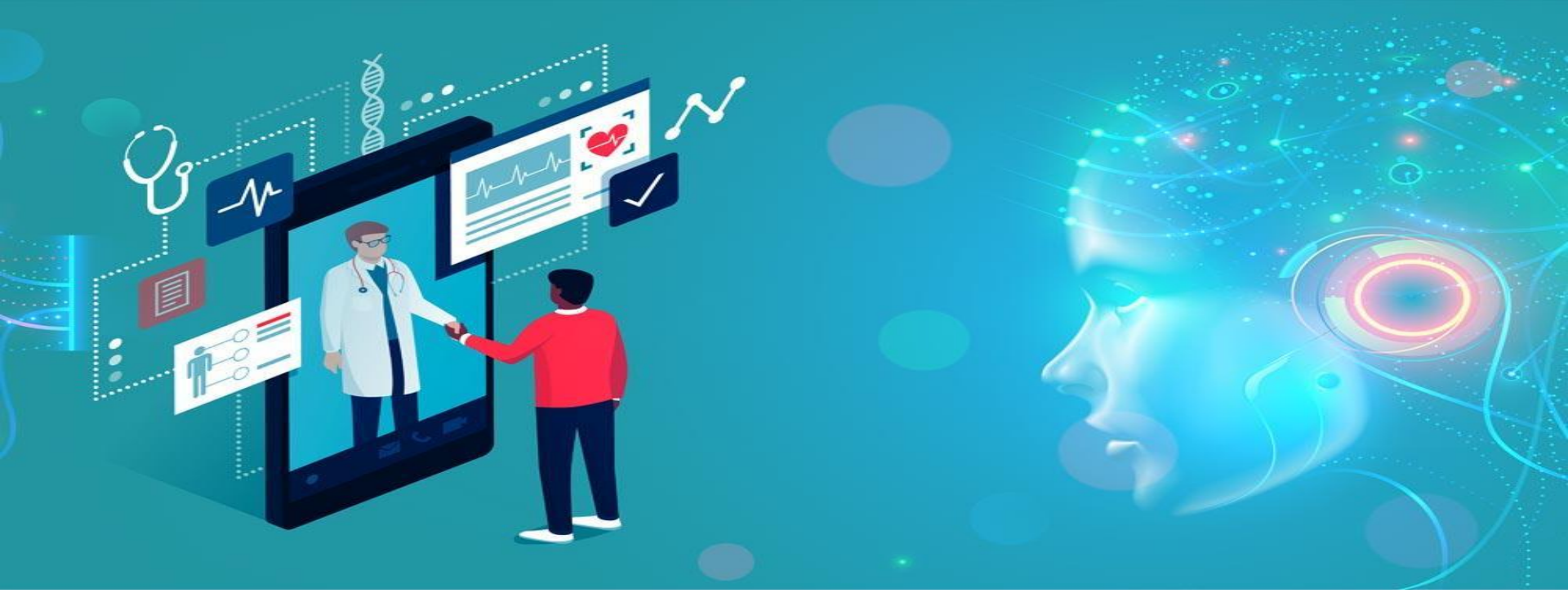
“BRAIN TUMOR DETECTION”

Abstract

--- For different age groups, almost 7 to 11 persons per 100,000 get brain tumor annually.

--- The manual diagnosis of the disease requires a radiologist to record a 3D image for initial insight.

--- Then, an expert doctor is engaged for image examination and treatment planning



Objective :

- Efficiency
- Less Time Consuming
- Accuracy

Motivation :

With early diagnosis, there will be lesser manipulation and surgical removal from the brain.

Early detection helps in saving lives and also helps in eliminating the chance of disabilities.

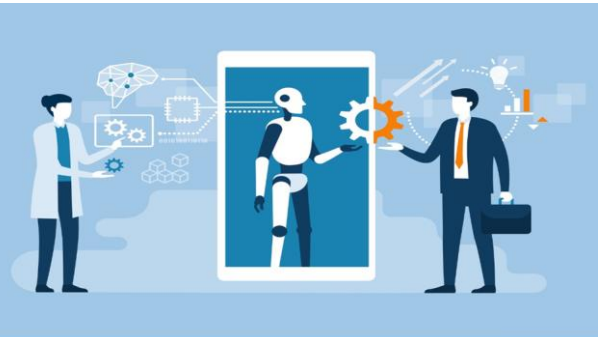
The computer-aided diagnosis (CAD) system performs better than other systems by achieving an accuracy around 98%.

Approach :

To provide an algorithm that guarantees the presence of a tumor by combining several procedures.

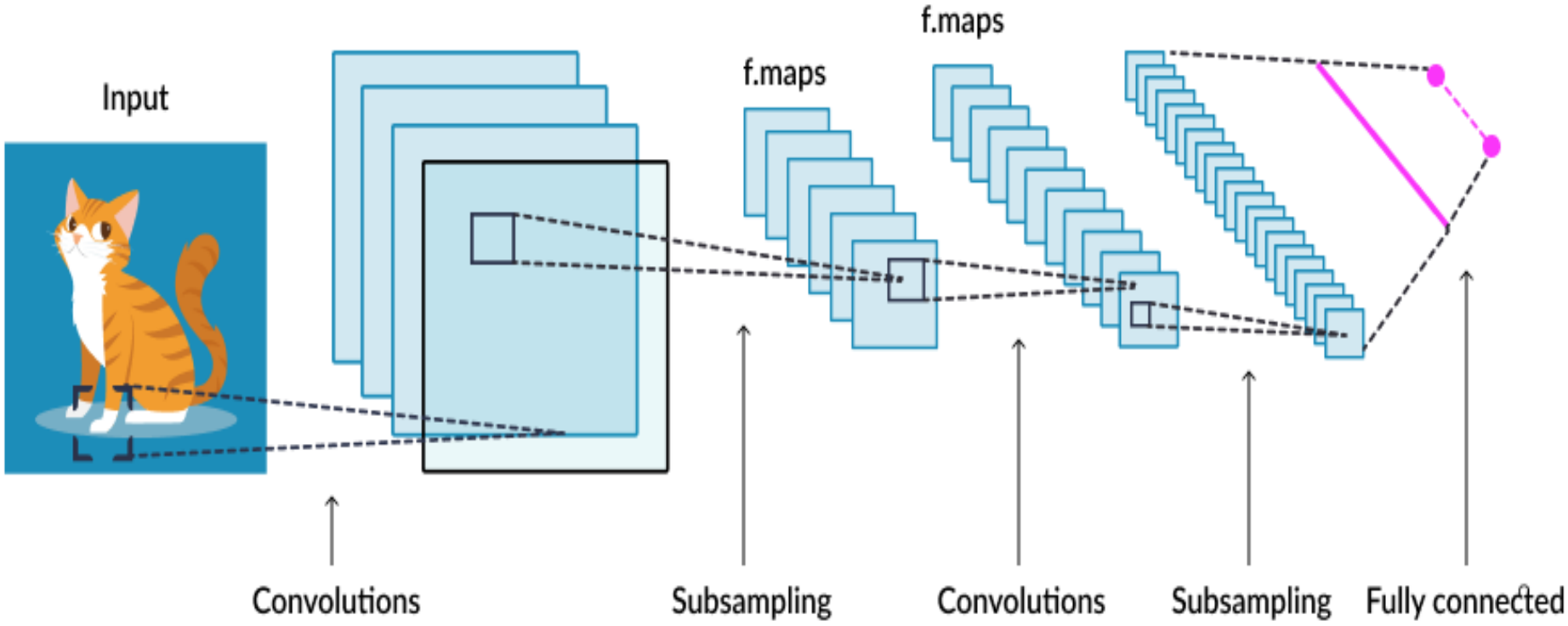
To provide a foolproof method of tumor detection in MR brain images.

The resultant image will be useful for various cases, which will provide a better base for the staff to decide the curing procedure.



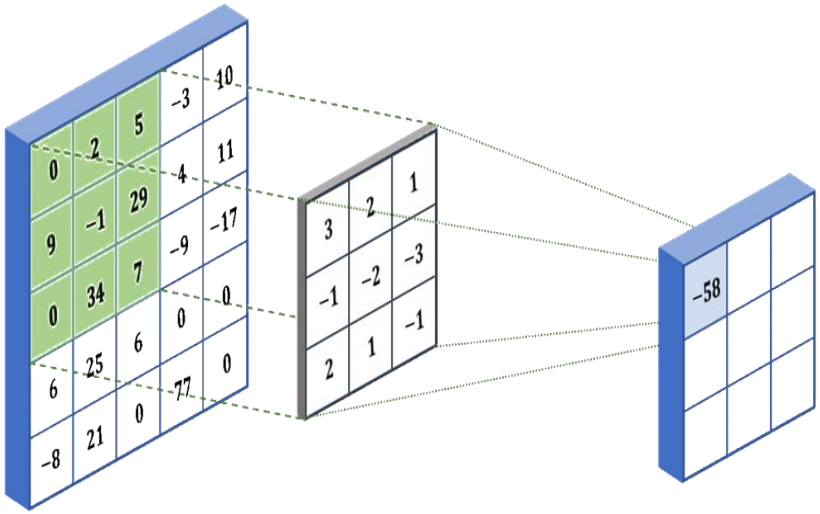
Methodology :

1) Collect the data
2) Create Train, Test and validation Folders
3) Build Model
4) Process the data
5) Train the model
6) Model Graphical Interpretation
7) Model Accuracy
8) Test the Model
9) Classification

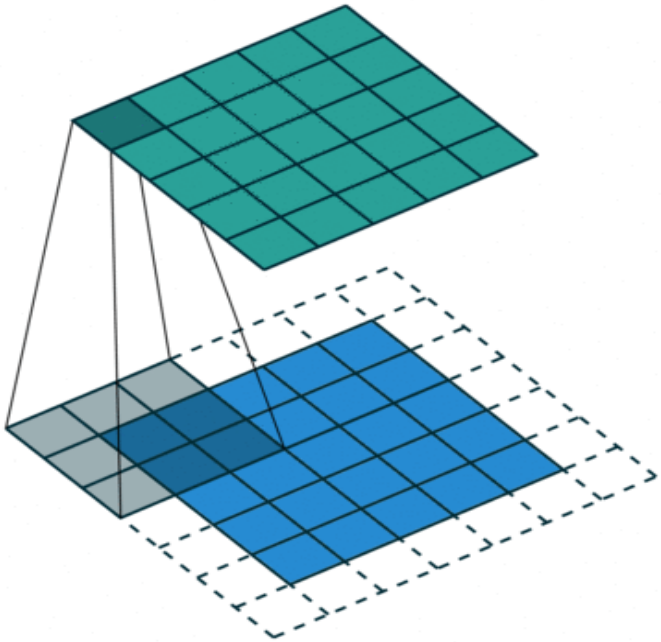


Convolutional Neural Network

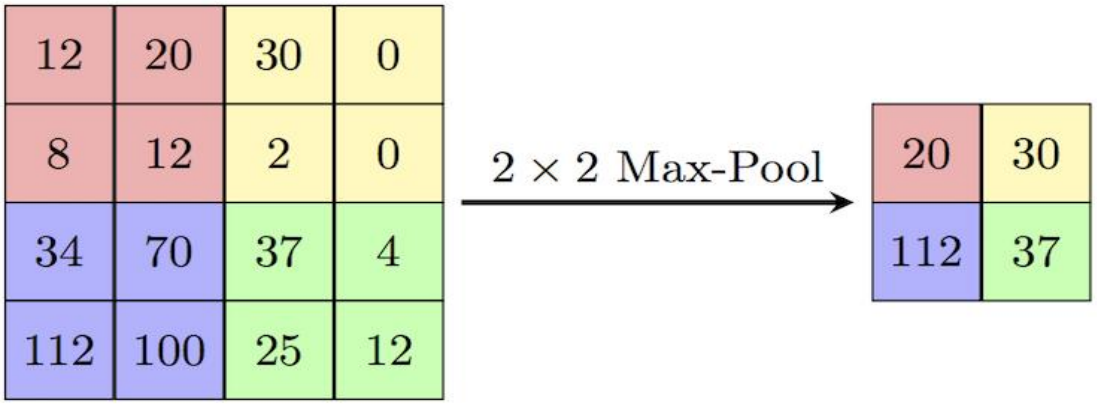
1. Convolution Filter



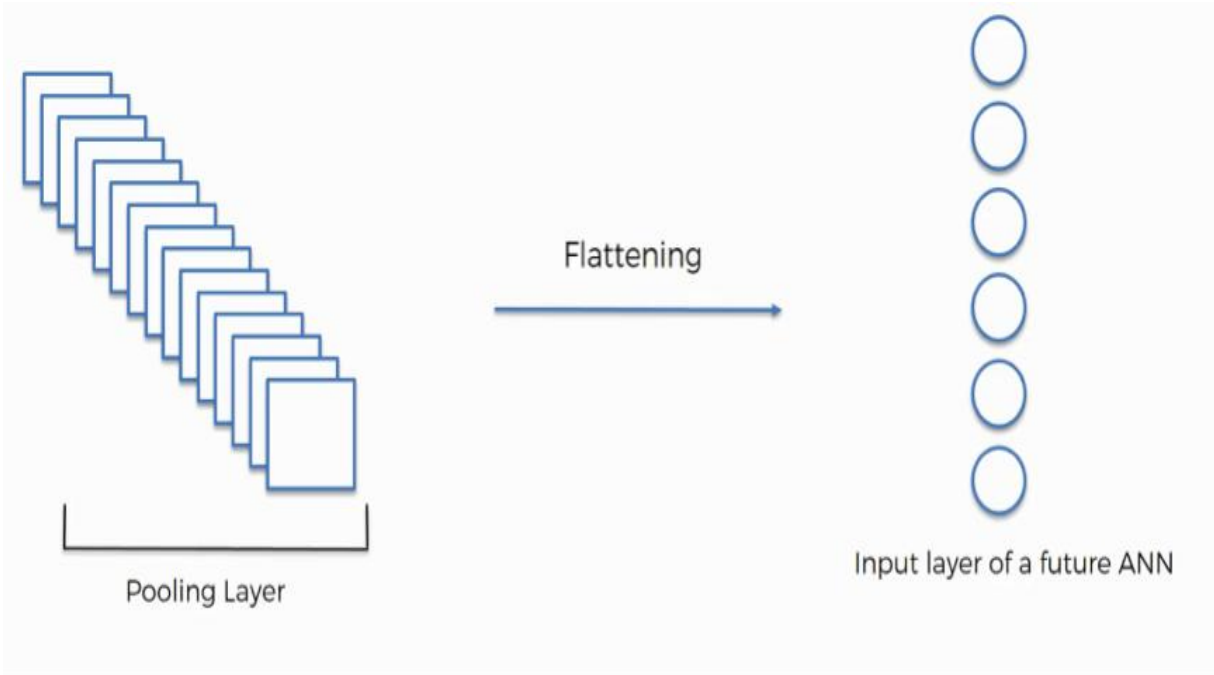
2. Padding

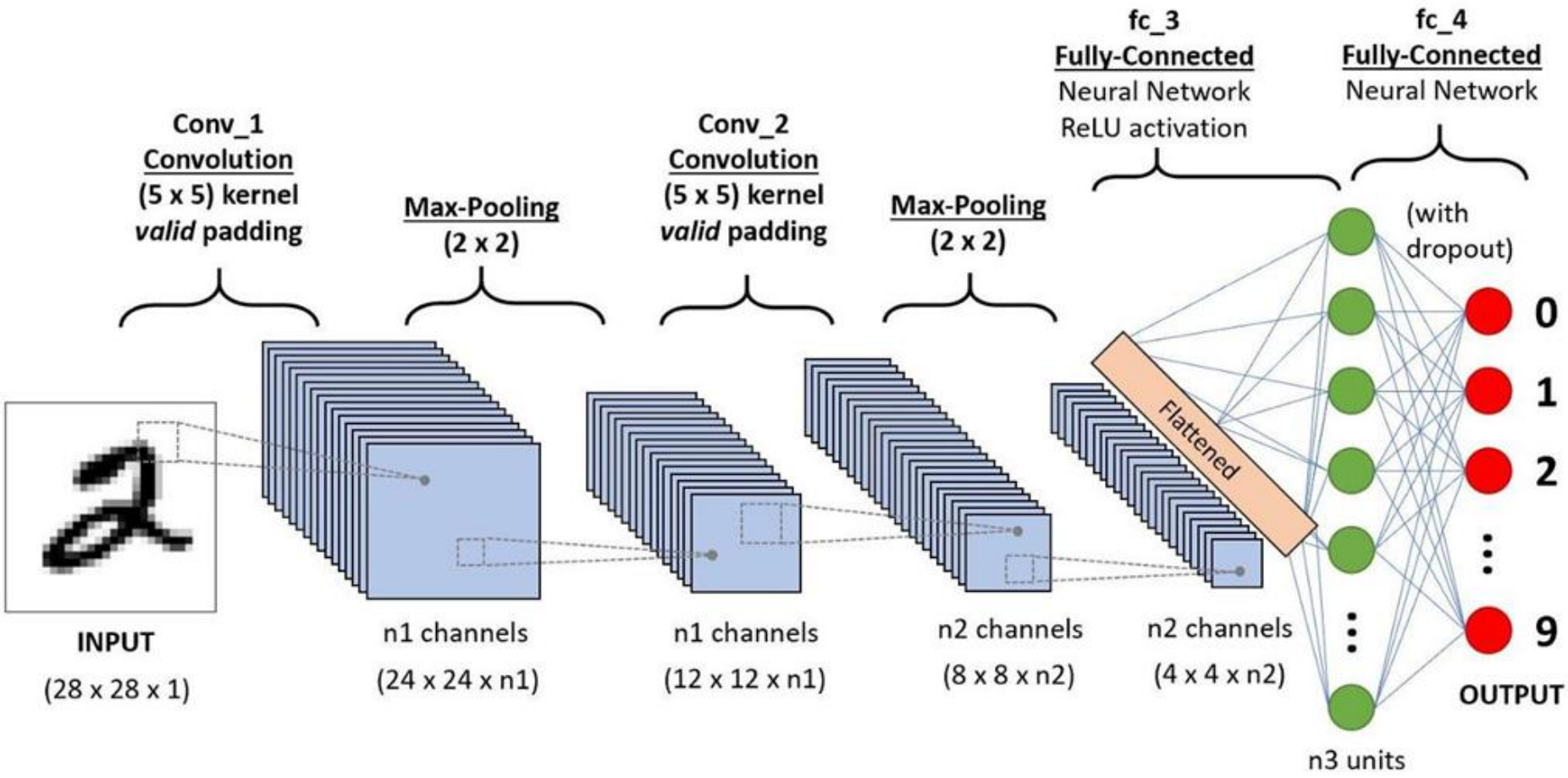


3. Pooling



4. Fully Connection





Convolutional Neural Network(CNN) Architecture

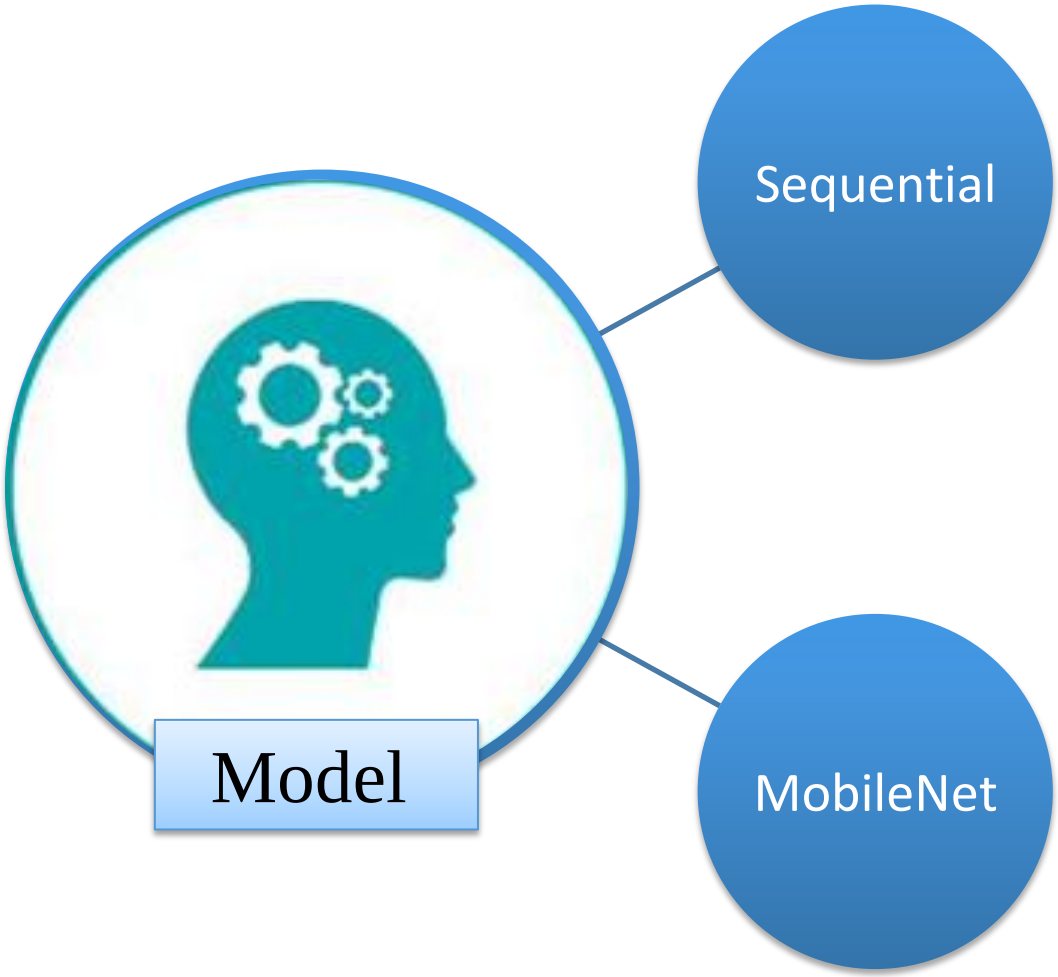
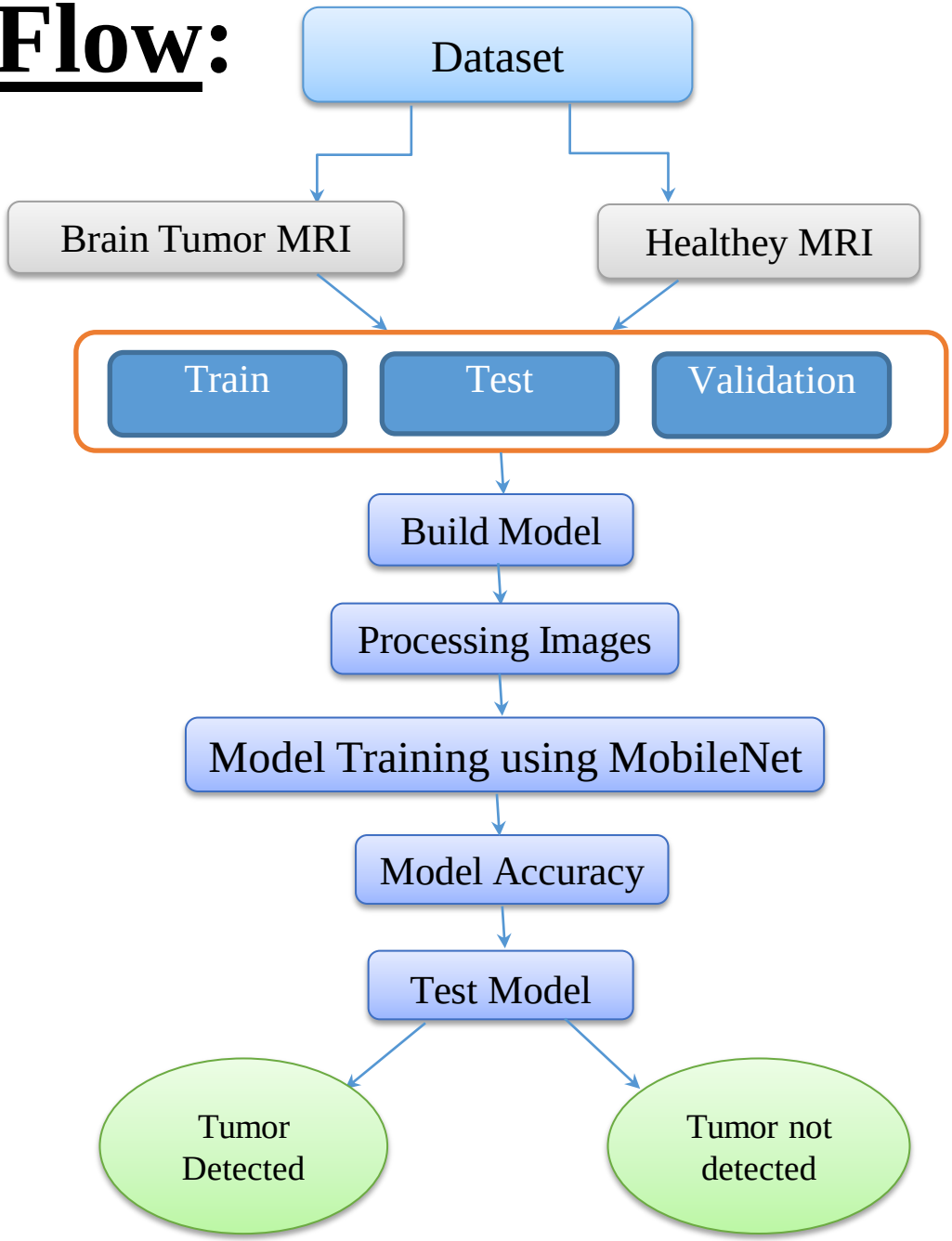


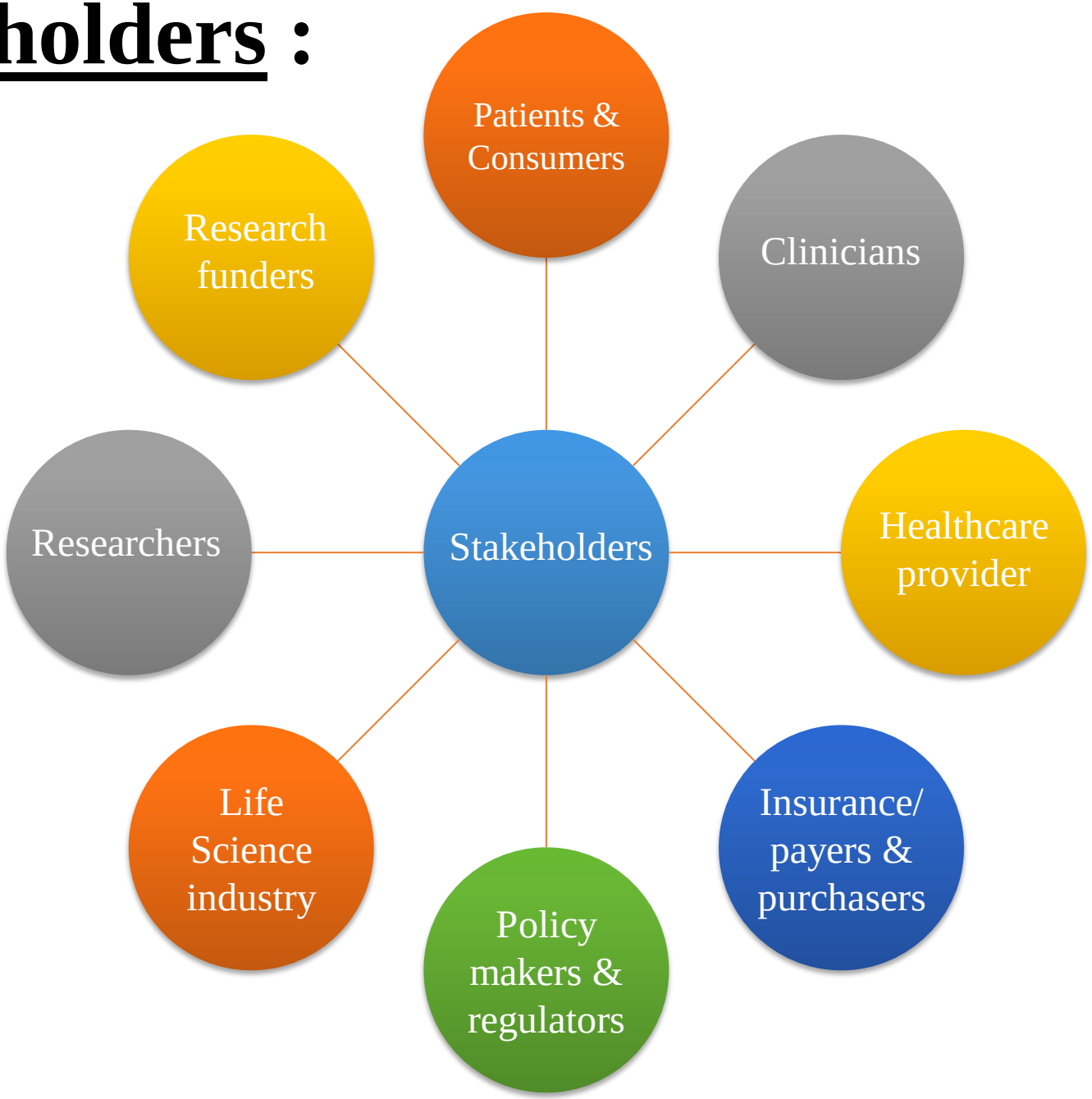
Table 1. MobileNet Body Architecture

Type / Stride	Filter Shape	Input Size
Conv / s2	3 × 3 × 3 × 32	224 × 224 × 3
Conv dw / s1	3 × 3 × 32 dw	112 × 112 × 32
Conv / s1	1 × 1 × 32 × 64	112 × 112 × 32
Conv dw / s2	3 × 3 × 64 dw	112 × 112 × 64
Conv / s1	1 × 1 × 64 × 128	56 × 56 × 64
Conv dw / s1	3 × 3 × 128 dw	56 × 56 × 128
Conv / s1	1 × 1 × 128 × 128	56 × 56 × 128
Conv dw / s2	3 × 3 × 128 dw	56 × 56 × 128
Conv / s1	1 × 1 × 128 × 256	28 × 28 × 128
Conv dw / s1	3 × 3 × 256 dw	28 × 28 × 256
Conv / s1	1 × 1 × 256 × 256	28 × 28 × 256
Conv dw / s2	3 × 3 × 256 dw	28 × 28 × 256
Conv / s1	1 × 1 × 256 × 512	14 × 14 × 256
5× Conv dw / s1	3 × 3 × 512 dw	14 × 14 × 512
5× Conv / s1	1 × 1 × 512 × 512	14 × 14 × 512
Conv dw / s2	3 × 3 × 512 dw	14 × 14 × 512
Conv / s1	1 × 1 × 512 × 1024	7 × 7 × 512
Conv dw / s2	3 × 3 × 1024 dw	7 × 7 × 1024
Conv / s1	1 × 1 × 1024 × 1024	7 × 7 × 1024
Avg Pool / s1	Pool 7 × 7	7 × 7 × 1024
FC / s1	1024 × 1000	1 × 1 × 1024
Softmax / s1	Classifier	1 × 1 × 1000

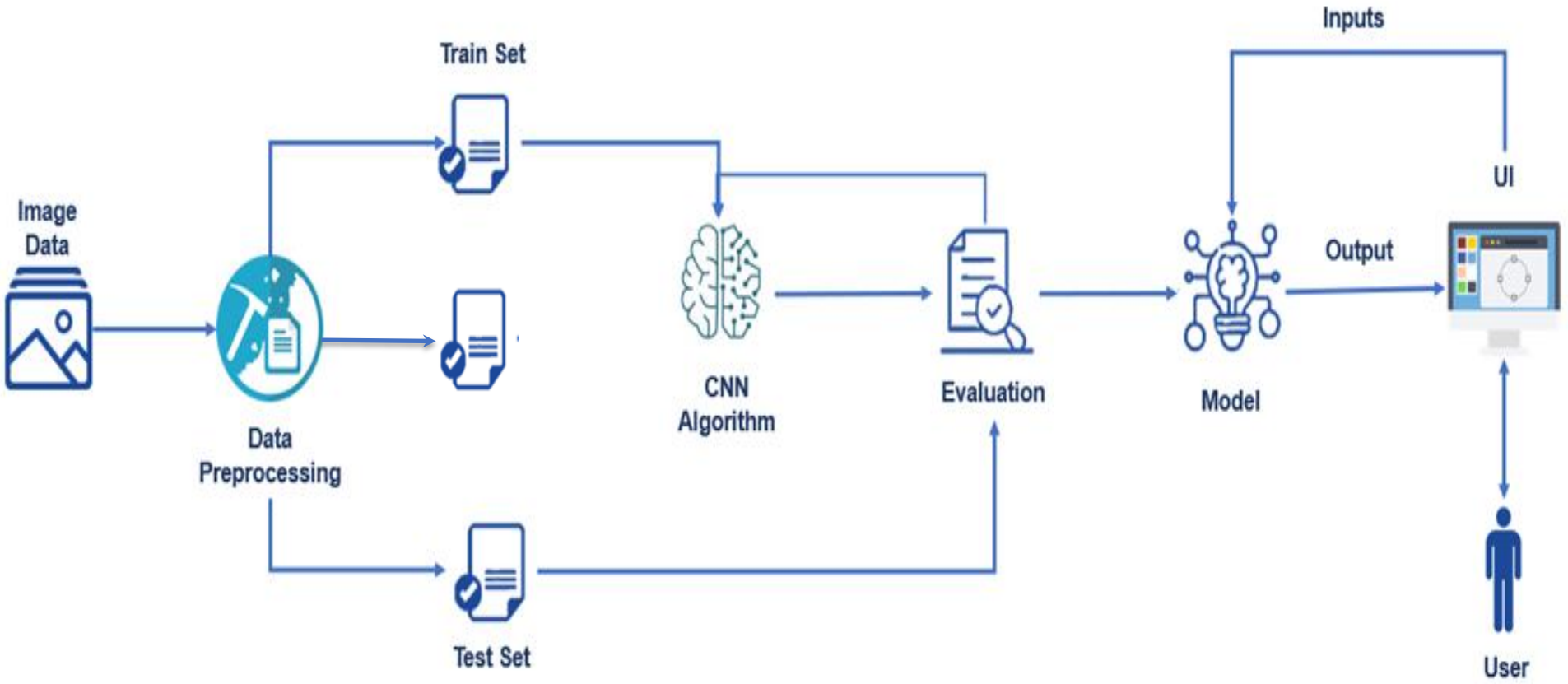
Project Flow:



Stakeholders :

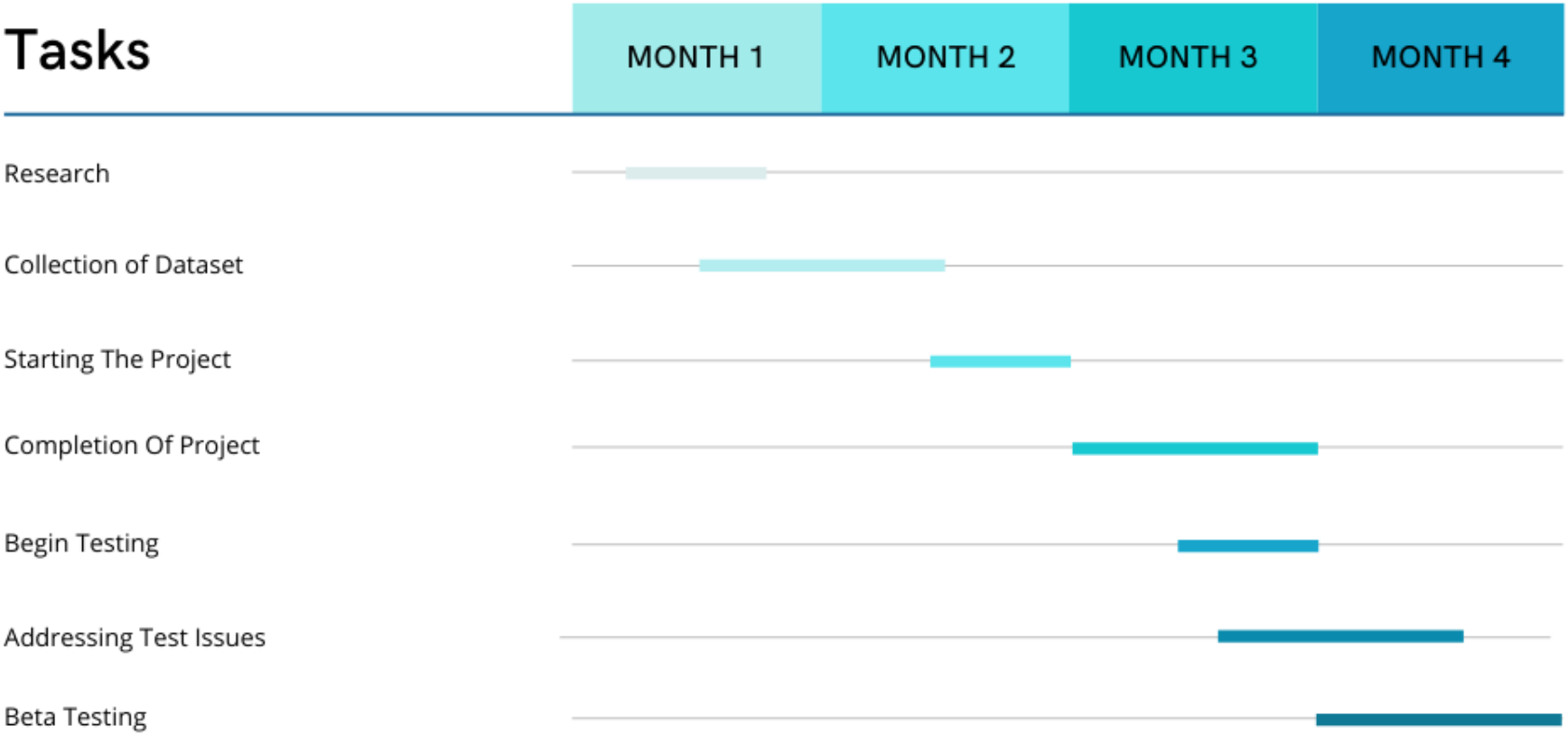


Activity List:



PROJECT STATUS

GANTT CHART



Technical Requirement :

Softwares :

Google Colaboratory

Keras

Sequencial

MobileNet

Hardware :

Processor: Intel core i5 or above

64 bit, quad core

2.5 GHz minimum per core

Ram: 4GB or more

Hard disk: 10 GB of

available space or more

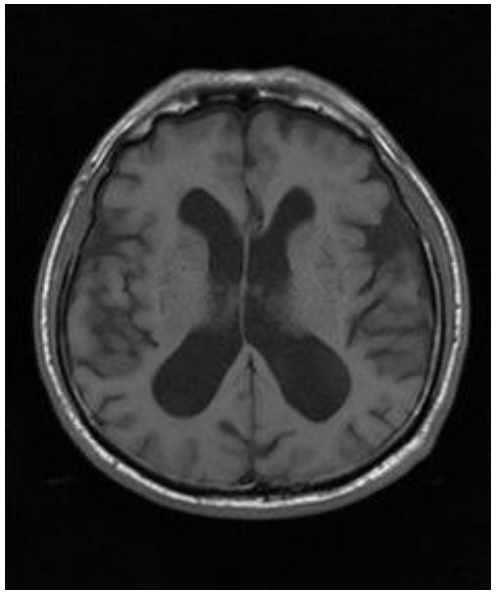
Operating system: Windows

Prototype :

Sample Inputs :

Predicted Output **:**

The MRI is having a Tumor



Predicted Output **:**

The MRI is not having a Tumor

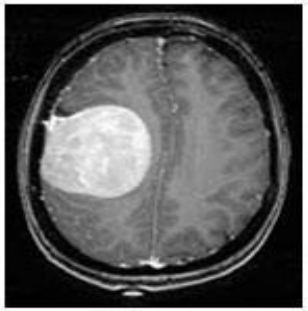
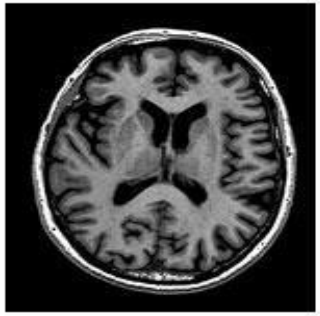
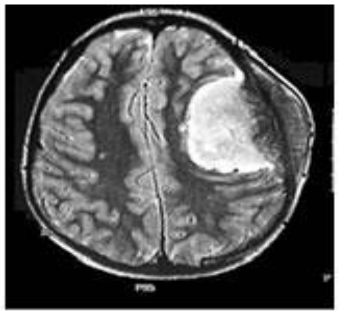
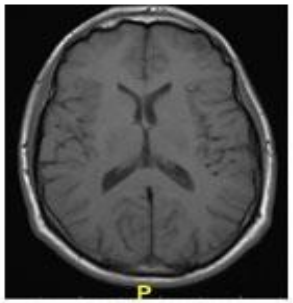
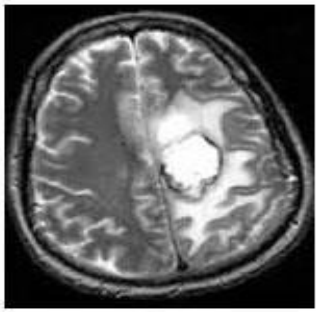
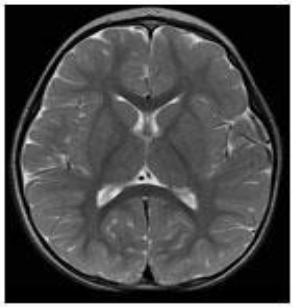
Brain Tumor Image	Brain Non Tumor Image
	
	
	

Figure : CNN based classified results


Thank
you!!!