FYP Proposal

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	2020)
Supervisor **Mr. Mohsin** **Raza Khan**	

Outline

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Group **Introduction**

Group Members

- **Abdul Basit**
- **Shah Muhammad Uzair**
- **Muzamil Hussain**

Supervisor: Mr. Mohsin Raza Khan

CO. Supervisor: Dr. Khurram Iqbal

- **Why we selected him as supervisor?**

We selected him as our supervisor because of his expertise in the field of deep learning model. His extensive knowledge and experience in this domain provide invaluable guidance for our project. Moreover, his background in developing web and application-based solutions aligns perfectly with the technical aspects of our project, ensuring we receive the best possible support and mentorship.

- **Relevant Expertise**

He has experience in similar domain and industry project which is related to our project.

- **Relevant Experience**

He has 8+ years of prolific experience in academia and IT industry.

Problem Statement

Detecting brain tumors early is tough, often leading to late diagnoses when

treatment is less effective. Annotating brain tumor images manually takes a lot of time, slowing down the development of accurate machine learning models. The differences in tumor size, location, and appearance make detection even harder. Current models struggle to work well with different datasets due to varying imaging methods and patient differences. There aren't enough high-quality, publicly available datasets to compare and improve algorithms. Better methods and more datasets are needed to improve patient outcomes and advance brain tumor detection.

Project **Objectives**

- **Create a Deep Learning Model**

Build a model to accurately detect and classify brain tumors from MRI scans.

- **Improve Diagnosis**

  Make the detection process more accurate to help doctors diagnose brain tumors better.

- **Build User-Friendly Web & App**

  Develop easy-to-use web and mobile application for accessing the detection system.

- **Test and Validate the Model**

Thoroughly test the model to ensure it works well with different images.

- **Protect Patient Data**

  Ensure that all patient information remains private and secure..

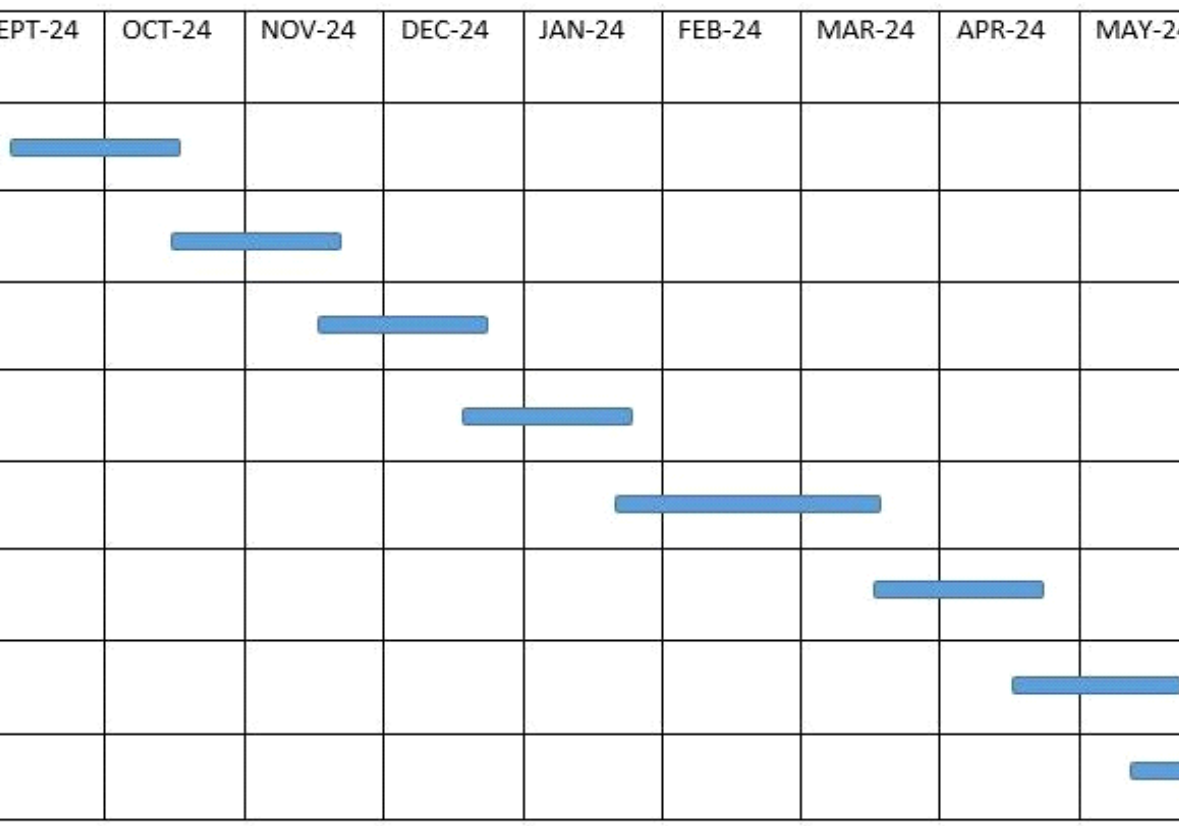
Project **Scope**

In this project, we will focus on creating a system using deep learning to find and classify brain tumors in MRI scans. Our goal is not to invent new MRI machines or change how they work. We assume we'll have enough different data to train and test our system, and we can use techniques to improve the data quality before feeding it into our model. Details like how machines talk to each other or exact machine specifications don't matter for this project. What's important is making sure our system can accurately and sensitively detect tumors. This will help doctors better diagnose and treat brain cancers.

Architecture Big

Picture

Process	SEPT-24	OCT-24	NOV-24	DEC-24	JAN-24	FEB-24	MAR-24	APR-24	MAY-2
Project Planning									
Project Analysis									
Front–end development									
Back–end development									
Data Base Design									
Project Implementation									
Final Revision									
Submission									



Project **Methodology**

Data Collection: Gather labeled brain MRI scans with tumor information.

Data Preprocessing: Adjust MRI scans for clarity and diversity.

Model Design: Develop a neural network to detect tumors using MRI images.

Transfer Learning: Use pre-existing models to improve efficiency.

Training and Testing: Train the model and validate its accuracy on different datasets.

Documentation: Record steps and results for transparency.

Why?

Efficiently develop a reliable system for brain tumor detection in MRI scans.

Project **Role** & **Responsibilities**

- RACI Chart

Project Deliverable Activity	Supervisor	Abdul Basit	Shah Muhammad Uzair	Muzamil Hussain
Project Planning	C, I	R	R	R
Project Analysis	C, I	A, I	R	R
Project Design	C, I	R	R	R
Project Implementation	C, I	A	A	R
Project Documentation	C, I	R, A	R, A	R, A
Finalize and Deployment	C, I	R, A	R, A	R, A

Project **Milestones**

- Information gathering
- Literature review
- Planning
- Annotation(Annotate the collected video conference data by labeling the emotions and sentiments expressed by participants)
- Algorithm selection
- Feature extraction (Extract relevant features from the video and audio data.)
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- Model building
- Model training (Train the sentiment analysis model using the annotated video conference dataset.)
- Real-time integration (Integrate the sentiment analysis model into the video conference software or platform.)
- Designing
- Testing
- Deployment
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- Maintenance

Project **Plan**

Project Initiation

- **Define Objectives and Scope:** Outline goals and scope of brain tumor detection and classification.
- L**iterature Review:** Review existing methods in brain tumor detection using deep learning.
- **Stakeholder Identification:** Engage with healthcare professionals and end-users for insights.

Data Collection and Preparation

- **Dataset Gathering:** Collect diverse, annotated brain MRI scans.
- **Data Preprocessing:** Normalize and augment data to improve quality.

Project **Plan**

Model Development

- **Architecture Design:** Design deep neural network architecture for tumor detection.
- **Implementation:** Code model using TensorFlow for scalability.

Model Training and Validation

- **Training Process:** Train model with dataset, optimize parameters.
- **Validation:** Validate model with separate dataset, address overfitting.

Testing and Evaluation

- **Testing:** Evaluate model on independent dataset.
- **Performance Metrics:** Measure accuracy, precision, recall, and F1 score.

Project Budgeting

Developers (Data Scientist/Deep Learning Engineer):

1 person @ 40,000 PKR/month x 3 months: 120,000 PKR

Hardware and Software:

GPU Server Rental:

8,000 PKR/month x 3 months: 24,000 PKR

Hard Drives:

4,000 PKR x 2: 8,000 PKR

Software Licenses and Tools:

Anaconda, Python 3.9.12, VS

Code, Jupyter Notebook,

PyCharm: Included in developer

costs

Project Budgeting

Internet and Electricity:

Internet:

1,000 PKR/month x 3 months: 3,000 PKR

Electricity:

1,000 PKR/month x 3 months: 3,000 PKR

Dataset Acquisition:

Purchase of diverse and annotated brain MRI scans: 5,000 PKR

Miscellaneous:

Contingency (10% of total): 9,000 PKR

Total Estimated Cost: 172,000 PKR

Project Tools

Software Requirements

- Anaconda

- Python 3.9.12
- Vs code
- Jupyter notebook
- pycharm

8- Project **Deliverables**

FYP-I Evaluation

FYP-II Evaluation

SRS Document

Budget Document WBS
Project Plan Design Mockup
Data Collection Interface Project Report - I Funding Proposal
Survey Paper (First Draft)

UI Design Proposed

System User Manual

Source Code CD Project

Report - II

Research Paper (First Draft)

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