Project Initialization and Planning Phase

Date	15 JULY 2024
Team ID	740075
Project Title	Detection Of Autistic Spectrum Disorder: Classification
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	1. Individuals with ASD: Children and adults with Autistic Spectrum Disorder. 2. Clinical features: Behavioral observations, medical history, and symptom profiles. 3. Neuroimaging data: MRI, fMRI, EEG, and other neuroimaging modalities to study brain structure and function. 4. Genetic data: Genetic mutations, variants, and expression profiles. 5. Behavioral data: Observations of social interactions, communication patterns, and repetitive behaviors.
Scope	1. Diagnosis: Accurate detection and classification of ASD. 2. Phenotyping: Characterization of ASD subtypes and severity levels. 3. Biomarker discovery: Identification of reliable biomarkers for ASD diagnosis and monitoring. 4. Personalized interventions: Development of tailored treatment plans based on individual characteristics. 5. Prognostic modeling: Prediction of treatment outcomes and long-term prognosis.
Problem Statement	
Description	- Accurate detection and classification of ASD using machine learning algorithms and neural networks. - Development of personalized diagnostic models incorporating clinical, behavioral, and neuroimaging features.

	- Identification of novel biomarkers and risk factors for ASD.
Impact	Improved diagnostic accuracy and earlier intervention for individuals with ASD. - Enhanced personalized treatment plans and better treatment outcomes. - Increased understanding of ASD's neural mechanisms and underlying causes.
Proposed Solution	
Approach	1. Machine Learning: Using algorithms to analyze behavioral, clinical, and neuroimaging data to detect patterns and predict diagnoses. 2. Deep Learning: Utilizing neural networks to learn complex representations of ASD features from large datasets. 3. Natural Language Processing: Analyzing speech and language patterns to identify potential indicators of ASD.
Key Features	Age,results,symtomps

Resource Requirements

Resource Type	**Description**	**Specification/Allocation**
Hardware Requirements:		
Computing Resources	CPU/GPU specifications, number of cores	T4 GPU
Memory	RAM specifications	16 GB
Storage	Disk space for data, models, and logs	512 SSD
Software Requirements:		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	Scikit-learn, pandas, NumPy, Seaborn, matplotlib
Development Environment	IDE, version control	Google colab, VS code

Data		
Data	Source, size, format	Kaggle, dataset, csv