Project Initialization and Planning Phase

Date	6 July 2024
Team ID	xxxxxx
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	The primary objective of this project is to develop an efficient and accessible machine learning model for early detection of Autism Spectrum Disorder (ASD) using a dataset containing individual characteristics and behavioral features.
Scope	The project encompasses data collection, cleaning, feature engineering, model training, evaluation, and deployment. The project aims to create a web application to allow users to input new data and receive ASD detection results.
Problem Statement	
Description	Autism Spectrum Disorder (ASD) is a chronic condition that affects social interactions and behavior. Early diagnosis is crucial but often delayed due to lengthy and costly procedures. The project seeks to improve the early screening process for ASD using machine learning.
Impact	Solving this problem will enable earlier diagnosis of ASD, reduce healthcare costs, and provide timely support to individuals and families. An accessible and efficient screening method will help health professionals and inform individuals whether they should pursue a formal clinical diagnosis.

Proposed Solution	
Approach	The project will utilize a dataset of individual characteristics and behavioral features to train multiple classification models. The methodology includes data preprocessing, feature engineering, model training with various algorithms (Logistic Regression, SVM, Decision Tree, Random Forest, KNN), evaluation, and deployment using Flask
Key Features	• Multiple classification models to identify the best performing one • Detailed comparison of model accuracies • Web application for user interaction and ASD screening • Visualization of data insights and model performance

Resource Requirements

Resource Type	**Description**	**Specification/Allocation**
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	e.g., 2 x NVIDIA V100 GPUs
Memory	RAM specifications	e.g., 16 GB
Storage	Disk space for data, models, and logs	e.g., 1 TB SSD
Software		
Frameworks	Python frameworks	e.g., Flask
Libraries	Additional libraries	e.g., tensorflow , scikit-learn, pandas, seaborn, matplotlib
Development Environment	IDE, version control	e.g., Jupyter Notebook, Git
Data		
Data	Source, size, format	e.g., Kaggle dataset,704 samples , CSV format