**Project Initialization and Planning Phase**

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| 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.

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| **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**

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| **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 |