

Project Initialization and Planning Phase

Date	20 June 2024
Team ID	739813
Project Title	Optimizing Sleep Efficiency: Harnessing Machine Learning For Enhances Restorative Rest
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 project "Optimizing Sleep Efficacy: Harnessing Machine Learning for Enhanced Restorative Rest" aims to leverage machine learning algorithms to improve the quality and efficiency of sleep for individuals. By analyzing various factors such as sleep patterns, environmental conditions, and lifestyle habits, the system will provide personalized recommendations and interventions to optimize sleep quality and duration. The goal is to enhance restorative rest, promote overall well-being, and mitigate sleep-related issues such as insomnia, sleep apnea and disrupted sleep cycles
Scope	The primary objective of this project is to enhance the quality and efficiency of sleep using machine learning techniques, providing personalized recommendations to improve restorative rest.
Problem Statement	
Description	Sleep is crucial for overall health and well-being, yet many individuals struggle to achieve consistent, restorative rest. This project aims to utilize machine learning to analyze sleep patterns, identify disruptions, and provide personalized recommendations to enhance sleep efficiency and quality. By integrating data from various sources and employing advanced analytics, the project seeks to empower users with actionable insights for better sleep.

Impact	<ul style="list-style-type: none"> ➤ Analyze sleep data to uncover patterns and correlations with daily habits and environmental factors. ➤ Develop predictive models that forecast sleep quality based on user behavior and external influences. ➤ Offer tailored advice to users to improve their sleep efficiency and achieve restorative rest.
Proposed Solution	
Approach	<ol style="list-style-type: none"> 1. Data Collection 2. Data Preprocessing 3. Model Development 4. Model Evaluation 5. Deployment
Key Features	<ol style="list-style-type: none"> 1. Comprehensive Data Collection 2. Advanced Data Analysis

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	2 x NVIDIA V100 GPUs
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	Sklearn Pandas Numpy Seaborn Matplotlib
Development Environment	IDE, version control	VSCode
Data		

Data	Source, size, format	Kaggle dataset, 451 records
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