CAPSTONE PROJECT
PROPOSAL

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Gaming Addiction and Mental Health

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1. Introduction

Globally, gaming has taken the lead in entertainment, but excessive use can have detrimental social and psychological effects. The World Health Organization now refers to gaming addiction as "Gaming Disorder" can lead to anxiety, depression, sleep disturbances, and social withdrawal. It is characterized by a loss of self-control, a preference for gaming over other hobbies, and persistence in the face of negative outcomes.

This project aims to analyze this phenomenon using data science methodologies to identify behavioral patterns and predict individuals at risk of gaming addiction.

2. Problem Statement

Even though gaming addiction is becoming a bigger problem, it's still difficult to identify those who are at risk. This project seeks to build a predictive model that can assess the risk of gaming addiction using behavioral, emotional, and lifestyle data.

3. Objectives

- To explore the relationship between gaming habits and mental health indicators.
- To identify behavioral patterns that may signal a risk of gaming addiction.
- To build a machine learning model to predict addiction risk.
- To visualize insights through interactive dashboards.

4. Methodology

- Data collection: To create a solid dataset, combine synthetic and real-world data.
- Preprocessing data: Handling missing values, normalizing features, and encoding categorical variables.
- Feature engineering: To extract behavioral indicators like social disengagement, stress levels, and sleep duration.
- Modeling: To categorize the likelihood of gaming addiction, train machine learning models (such as Logistic Regression, Random Forest, and XGBoost).
- Evaluation: To assess the performance of the model, use metrics such as accuracy, precision, recall, and FI-score.

5. Tools & Technologies

- Languages: Python
- Libraries: Pandas, NumPy, Scikit-learn, Matplotlib, Seaborn, XGBoost
- Datasets: Google Forms : primary datasets, Kaggle: Datasets (existing dataset which i will be merging with primary dataset accordingly)
- Database: SQLite or PostgreSQL
- Deployment: Streamlit cloud, Heroku, Github
- Jupyter Notebook / Google Collab

6. Project Timelines and Deliverables

- **May 7 2025 (Week 1–2): Literature Review and Data Collection**
  Study existing literature and collect datasets related to gaming and mental health. Design and distribute a Google Form for custom data collection.
- **May 21 2025 (Week 3-4): Data Preprocessing and EDA**
  Cleaned dataset (missing values handled, data formatted), Exploratory Data Analysis (EDA) report with graphs and insights, Create new engineering features: stress score, sleep hours, game frequency, etc. strategy document.
- **June 4 2025 (Week 5-6): Model Building and Evaluation**
  Trained machine learning models (e.g., Logistic Regression, XGBoost), Evaluation metrics (accuracy, precision, recall, F1-score), Confusion matrix and model comparison table.
- **June 18 2025 (Week 7-8): Deployment and Documentation**
  Final deployed application (Streamlit link, Heroku, Github)
  Final project report (PDF or DOCX)