Problem Statements for HackSpire 2025

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1.LearnFlow – AI-Powered Personalized Learning Companion

Problem Statement:
Every student has a unique learning style and pace.

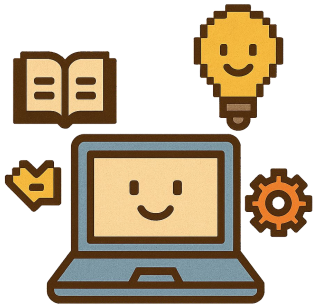
Traditional education offers foundational support but often lacks personalization.

There's a growing demand for adaptive, student-centered learning solutions.

Solution:

Develop an **AI-powered tool** to:

- Personalize learning experiences
- Improve learning efficiency
- Increase student engagement



AI-Based Features:

Simplified Explanation Generator:

- Allow students to paste or upload textbook or lecture content(i.e. youtube videos).
- Use NLP to simplify complex material and provide personalized explanations in student-friendly language.

Adaptive Learning Assistant:

- Use large language models (LLMs) to analyze student input and performance.
- Generate tailored learning paths, quizzes, and summaries based on progress and topic difficulty.
- Revisit concepts that students struggle with and recommend targeted practice.

Conversational Study Partner:

- Chatbot interface that can answer questions, explain concepts step-by-step, and act as a virtual study buddy.
- Support both text and (optional) voice-based interaction.

AI-Based Features:

Smart Quiz Builder:

- Automatically generate quizzes customized by topic, difficulty level, or learning goals.
- Include instant feedback with answer breakdowns and resource suggestions.

Personalized Progress Tracker:

- Visual dashboards to track performance, improvement areas, and completed topics.
- Monthly reports highlighting strengths, growth, and suggested next steps.

Gamified Learning Missions (Optional):

- Encourage engagement with streaks, badges, goals, and fun challenges powered by AI.
- Allow peer comparisons or collaboration for added motivation.

Bonus Challenges :

- Integrate voice-based learning assistance.
- Use ML to evolve and refine recommendations based on user feedback and long-term behavior.

2. MindMosaic – AI-Powered Mental Wellness Companion

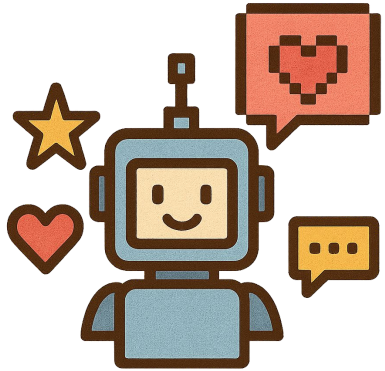
Problem Statement:

- Mental health is often overlooked in today’s fast-paced digital world.
- Many people lack access to timely and supportive mental health resources.

Solution:

Create a **mental wellness app** that:

- Uses AI to understand users' emotional states
- Provides real-time, personalized support
- Delivers uplifting and engaging experiences



What the App Should Do:

- Begin with a short **conversational check-in**, asking users mental health-related questions (e.g., "How have you been feeling lately?" or "What's your energy level today?").

- Use **Natural Language Processing (NLP)** and sentiment analysis to interpret responses and detect emotional states like happiness, stress, sadness, anxiety, or calmness.

- Dynamically ask **follow-up questions** based on user answers to get a more accurate emotional snapshot.

AI-Based Features:

- **Mood Classification.**
- **Personalized Recommendations:** Based on the detected mood, the app should suggest:
  - Music
  - Movies
  - Books
  - Nearby Destinations
  - Mindful Activities
- **Wellness Progress Tracker (Optional).**
- **Emergency Support Option (Optional).**
- **Bonus Challenges:**
  - Enable **voice interaction** or **chatbot-based mood detection**.
  - Use **machine learning** to personalize recommendations over time based on user feedback and mood history.
  - Create a **community-based feature**, where users can anonymously share tips or positive content with others nearby.

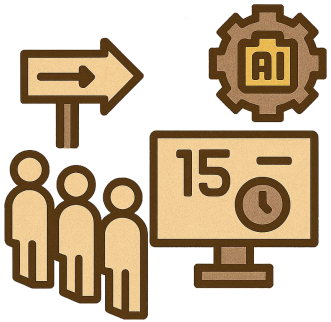
3. QueueWise Pro – Advanced AI-Powered Smart Queue Management

- Long queues at public service centers lead to frustration and lost productivity.
- Current systems often lack real-time adaptability and accurate wait-time predictions.

Solution:

Develop an **AI-powered queue management platform** that:

- Predicts wait times with high accuracy
- Adapts dynamically to real-time changes in queue behavior
- Offers personalized recommendations to users
- **The system should aim to:**
  - Improve visitor experience by reducing uncertainty and wait times.
  - Help facilities better manage resources and crowd flow.



Required Core Features & AI Usage:

- **Wait Time Prediction**
- **Time Slot Recommendation**
- **Anomaly Detection & Alerts**
- **Bonus Challenges :**
  - **Real-Time Adaptation:**
  - **User Personalization:**
  - **Crowd Simulation**
  - **Multi-Center Optimization:**

Deliverables:

- A web or mobile app with a user interface for checking wait times and booking slots.
- Backend logic showing AI/ML model usage.
- Documentation on how AI models were trained and evaluated

Thank you.

All The Best