The Problem Statement for TechXcelerate 2024 Iit Hyderabad

Generative AI

1) Automated Code Generation for Software Development

Problem Statement:

Develop a generative AI tool that can take user requirements and generate functional code across multiple programming languages. The AI should optimize the code for efficiency and adherence to best practices, saving developers time during the development process.

Key Challenges:

- Understanding natural language inputs for requirements.
- Generating efficient and optimized code in languages like Python, Java, etc.
- Ensuring the generated code is scalable, maintainable, and error-free.

2) **Generative AI for Designing Marketing Campaigns**

Problem Statement:

Build a generative AI platform that helps marketing teams design ad campaigns by generating creative content, including slogans, advertisements, and visual materials based on specific goals, target audiences, and brand guidelines.

Key Challenges:

- Generating creative, engaging copy and visuals for marketing campaigns.
- Understanding brand tone, style, and target audience.
- Ensuring generated content meets industry standards and trends.

3) **Generative AI for Virtual Interior Design**

Problem Statement:

Develop a generative AI application that creates personalized virtual interior designs for homes or offices. The AI should generate designs based on room dimensions, user preferences, and available furniture catalogs, providing users with a visual representation of their space.

Key Challenges:

- Designing interiors based on user preferences, space constraints, and themes.
- Incorporating real-world furniture and decor items into the design.
- Creating accurate 3D visualizations of generated spaces

HealthCare Segment :

1) AI-Powered Preventive Healthcare System

Problem Statement:

Create an AI-powered solution that proactively identifies individuals at risk of developing chronic diseases such as diabetes, heart disease, or obesity. The system should provide personalized recommendations for preventive care based on genetic, lifestyle, and medical data.

Key Challenges:

- Collecting and analyzing diverse data sources for accurate risk assessment.
- Ensuring the system provides actionable and personalized preventive care recommendations.
- Maintaining user engagement and adherence to preventive measures**.**

2) **5. Predictive Analytics for Hospital Resource Management**

Problem Statement:

Design an AI-based predictive analytics tool that helps hospitals manage resources like beds, staff, and equipment more efficiently. By analyzing patient inflow, historical data, and seasonal trends, the tool should predict future resource demands and suggest optimal allocation.

Key Challenges:

- Integrating and analyzing large volumes of hospital data.
- Developing algorithms for predicting resource needs with high accuracy.
- Implementing a user-friendly dashboard for hospital administrators.

3) AI for Medical Supply Chain Optimization

Problem Statement:

Build an AI solution that optimizes the healthcare supply chain by predicting demand for medications, equipment, and supplies. The tool should ensure that hospitals and clinics are well-stocked with essential items, reducing shortages and wastage.

Key Challenges:

- Analyzing historical supply and demand data.
- Developing models that can predict future demand based on current conditions (e.g., disease outbreaks).
- Optimizing the distribution process to reduce costs and delays.

4) Generative AI for Medical Documentation Automation

Problem Statement:

Develop a generative AI tool that automates the creation of medical documentation, including patient notes, discharge summaries, and prescriptions. The system should allow healthcare providers to spend more time with patients and less time on administrative tasks.

Key Challenges:

- Ensuring the generated documentation is accurate, complete, and compliant with medical standards.
- Integrating with electronic health record (EHR) systems.
- Addressing security and privacy concerns with patient data.

Web Based Problem Statement

1) Event Management and Ticketing System

Problem Statement:

Create a web application that allows users to organize, promote, and sell tickets for events such as conferences, concerts, or workshops. The platform should include features for managing event schedules, handling ticket sales, and providing real-time updates to attendees.

Key Challenges:

- Designing a seamless interface for event creation, ticketing, and user registration.
- Integrating secure payment systems and tracking ticket sales.
- Allowing event organizers to communicate with attendees before and during the event.

2) **Sustainable Lifestyle Tracker**

Problem Statement:

Develop a web application that helps users track and reduce their carbon footprint by offering personalized recommendations for adopting sustainable practices (e.g., energy use, transportation, food choices). The platform should also allow users to set goals and track their progress.

Key Challenges:

- Building an algorithm that provides accurate, personalized sustainability tips.

- Creating a visually appealing dashboard for tracking goals and progress.
- Encouraging user engagement through challenges, rewards, or social features.

3) Real-Time Collaboration Platform for Designers

Problem Statement:

Create a web-based collaboration tool specifically for design teams, allowing them to work together on projects in real-time. The platform should include features for sharing design files, version control, and real-time feedback from team members.

Key Challenges:

- Enabling real-time collaboration and seamless file sharing.
- Implementing version control for design assets.
- Providing tools for feedback and communication within the platform.

Mobile Application Based Problem Statement

1) Augmented Reality (AR) Shopping Assistant

Problem Statement:

Design a mobile app that uses augmented reality (AR) to help users visualize products such as furniture, home decor, or clothing before

purchasing. The app should enable users to see how products will look in their own environments through their phone cameras.

Key Challenges:

- Implementing AR technology to provide accurate product visualizations.
- Ensuring the app supports various products from different retailers.
- Providing seamless integration with e-commerce platforms for easy purchases.

2) Local Community Engagement App

Problem Statement:

Design a mobile app that connects users to their local communities, allowing them to discover events, volunteer opportunities, and local businesses. The app should foster community engagement and encourage users to support local initiatives.

Key Challenges:

- Developing a real-time event discovery system tailored to users' locations.
- Implementing social features for users to share events or opportunities with friends.
- Creating a scalable app that supports various community sizes and types.

3) Volunteer and Social Impact App

Problem Statement:

Create a mobile application that allows users to find and participate in volunteer opportunities and social impact projects in their local area. The app should allow users to track their contributions and connect with like-minded individuals.

Key Challenges:

- Building a matching algorithm to connect users with relevant volunteer opportunities.
- Creating a user-friendly interface for tracking and sharing volunteer experiences.
- Ensuring the app promotes trust and safety among users and organizations.

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