Google Developers Students Club

Fr. Conceicao Rodrigues College Of Engineering

BIT N BUILD

around the world

FR.CRCE ROUND

Google Developers Students Club

Fr. Conceicao Rodrigues College Of Engineering

BIT N BUILD

WEB / APP

1) Ettarra Coffee House Supper Club Platform

Backstory:
Ettarra Coffee House, known for its eclectic ambiance, is launching exclusive supper club events across various themed rooms. However, managing these events and providing a seamless customer experience is challenging. A solution is required to streamline bookings, event management, and customer interactions for their supper clubs.
Problem Statement:
Develop a web platform that allows customers to discover, book, and attend themed supper club events at Ettarra Coffee House. The system must also assist administrators and location managers in event planning, booking management, and customer engagement.
Key Features:

- Multi-Level Role Management:
  - Different roles for Admins, Managers, and Patrons to handle event creation, booking management, and viewing analytics.
- Event and Inventory Management:
  - Create/manage events, promotional visuals, chef details, inventory control, booking limits, and pricing variations.
- Seat Booking & Visualization:
  - Customers can select seats through a real-time visual seat map similar to cinema bookings. Includes dynamic pricing and real-time availability updates.
- Queue & Event Management:
  - Manage bookings, inventory, and customer queues for popular events, preventing overbooking.
- QR Code Check-In:
  - QR code-based entry for easy check-ins.
- AI-Powered Recommendations:
  - Personalized event suggestions based on customer preferences.
- Feedback & Waiting List:
  - Post-event reviews and automatic waiting list notifications for fully booked events.
- Scalability:
  - Designed for high-traffic events with load balancing for seamless performance during peak demand.

2) GreenCart: Sustainable E-Commerce Platform

Backstory:
Consumers are increasingly conscious of the environmental impact of their purchases but often lack access to information about the sustainability of products. GreenCart aims to bridge this gap by offering eco-friendly products with transparent environmental data.
Problem Statement:
Develop a sustainable e-commerce platform where users can purchase eco-friendly products, view their carbon footprint, and choose green shipping options. The platform should offer transparency on the environmental impact of products, encouraging informed and responsible purchases.

- Expected Features:
- Sustainability Scoring System:
  - Rate products based on carbon footprint, packaging, and environmental impact.
- Carbon Footprint Calculator:
  - Calculate the environmental impact of each order, offering carbon offset options.
- Eco-Friendly Packaging Options:
  - Allow users to choose plastic-free or reusable packaging, with incentives for sustainable choices.
- Product Lifecycle Information:
  - Provide details on product sourcing, recycling options, and environmental impact during use.
- Community Engagement:
  - Forums, tips, and virtual events focused on sustainable living.
- Green Shipping:
  - Offer low-emission shipping alternatives and slower delivery options for reduced impact.

Participants can add features such as personalized sustainability reports, blockchain supply chain tracking, and eco-product comparison tools.

3) Virtual Wardrobe Management System: Your Personalized Digital Closet

Backstory:

With the growing number of online shopping platforms and increasing collections in personal wardrobes, many individuals struggle to manage their clothing efficiently. Choosing outfits, tracking items, and staying organized can become overwhelming. People need a solution that helps them digitize and manage their wardrobe, offering convenience in outfit planning, tracking, and style suggestions.

Problem Statement:

Develop a virtual wardrobe management system that allows users to digitally organize their clothing, create and plan outfits, and receive personalized style recommendations. The platform should help users visualize their wardrobe, track what they own, and optimize their fashion choices, promoting a more organized and sustainable approach to clothing management.

Expected Features:

- Digital Wardrobe:
  - Users can upload images of their clothes, shoes, and accessories to create a virtual closet. Items will be categorized by type, color, season, and other filters for easy organization.
- Outfit Planning:
  - A calendar feature that allows users to plan their outfits for the week, month, or upcoming events. Users can save favorite combinations and create different looks for various occasions.
- Personalized Style Suggestions:
  - AI-powered recommendations based on the user's existing wardrobe and preferences. The system suggests new outfits, combinations, and fashion tips to refresh and update the user's style.
- Inventory Management:
  - Track the wear frequency of each item, monitor when clothes are last worn, and keep track of wardrobe inventory to avoid clutter or buying unnecessary duplicates.

- Sustainable Fashion Insights:
  - Provide users with eco-friendly outfit suggestions and highlight sustainable fashion practices. Encourage the use of existing clothes, second-hand purchases, or upcycling to promote conscious fashion choices.
- Virtual Try-On:
  - AR-based visualization allowing users to virtually try on clothing from their wardrobe or newly purchased items, enabling better outfit decision-making.
- Virtual Outfit Sharing:
  - Enable users to share their virtual outfits on social media, receive feedback, and showcase their personal style to friends or a fashion community.
- Sustainable Shopping Recommendations:
  - Suggest eco-friendly or second-hand clothing options that complement the user's existing wardrobe.

Google Developers Students Club

Fr. Conceicao Rodrigues College Of Engineering

BIT N BUILD

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

1) Climate Change and Environmental Monitoring

Backstory:
Climate change is an urgent global crisis, with India being particularly vulnerable to extreme weather events like floods, cyclones, and heatwaves. The country's vast coastline, diverse ecosystems, and agricultural dependence make it prone to the devastating impacts of climate change. With more frequent floods and erratic monsoon patterns, millions of people are displaced, and ecosystems are at risk of destruction. Early warning systems and effective environmental monitoring are critical in mitigating damage.
Problem Statement & Expected Solution:
Participants are required to build an AI/ML-powered model capable of:

- Predictive Models:
  - Predicting climate patterns, extreme weather events (floods, droughts, heatwaves, etc.), and natural disasters based on historical data, satellite imagery, and real-time sensor data.
- Energy Grid Optimization:
  - Proposing optimizations for energy grids to reduce carbon emissions and enhance renewable energy usage.
- Environmental Monitoring:
  - Monitoring deforestation, ocean pollution, soil erosion, and biodiversity loss using AI models combined with satellite imagery and IoT data. The system should detect patterns of deforestation, pollution hotspots, and areas prone to species extinction.
- GIS Mapping & Alerts:
  - Integration of GIS mapping to visualize both current and predicted weather/climate data, along with a system to send alerts before potential disasters or extreme weather events occur (early warning system).

Additional Features (optional):

- Visualizing future environmental changes based on climate data predictions.
- Building an interface to display environmental reports and suggesting actionable solutions to local governments.
- Incorporation of mobile alerts or SMS services to provide real-time warnings to communities in remote areas.

2) AI-Powered Food Safety Detection

Backstory:
Food safety is a major concern in India, with many food products being adulterated or failing to meet safety standards. Consumers often lack visibility into the quality and safety of the ingredients in their food, leading to potential health risks. A solution is needed to help people make informed decisions about the food they consume.
Problem Statement:
Build an AI/ML-powered system that ensures food safety by analyzing the ingredients in food products. The system should include:

- Food Quality Detection:
  - Analyze food items to detect harmful chemicals, preservatives, or unsafe ingredients using AI models.
- Ingredient Analysis:
  - Provide an interface where consumers can input actual ingredients, allowing the system to check if they meet safety standards and assess health impacts based on consumption levels.
- Disease Prediction:
  - Identify potential health risks and diseases (e.g., diabetes, heart disease) that could arise from consuming unsafe food or ingredients in unhealthy amounts.
- OpenCV-based Interface:
  - Use OpenCV to scan or take pictures of food items or packaging, automatically identifying the food type and listing expected ingredients. Consumers can then input the actual ingredients, and the system will evaluate the safety of these ingredients, highlighting harmful substances and potential health risks.

Participants can add additional features such as blockchain for food traceability, a food safety rating system, or mobile app integration for a more comprehensive solution.

3) Human Resource Planning and Optimization for Restaurants

Backstory:

Efficient workforce management is a significant challenge for India's fast-paced restaurant industry, where shifts are long, and staff turnover is high. Restaurants often struggle to meet operational demands, manage peak hours, and comply with labor laws, especially around night shifts and female worker safety. The lack of proper scheduling systems can lead to burnout, inefficiencies, and legal complications.

Problem Statement & Expected Solution:

Participants are tasked with creating an AI-Powered Human Resource Planning and Optimization system for restaurants. This web-based tool should:

- Shift Scheduling Optimization:
  - Create staff schedules based on past sales, foot traffic, and operational data. The system should plan for 9-hour shifts with a 1-hour handover time.
- Legal & Safety Constraints:
  - Ensure compliance with labor laws, such as avoiding work shifts for any staff members between 1 AM and 5 AM, and ensuring that female employees don't work past 9 PM for safety reasons.
- Hiring Recommendations:
  - Provide recommendations for new hires or staff replacements based on workload predictions and staff availability.
- Super Admin Dashboard:
  - Allow Super Admin users to oversee multiple restaurants or businesses, manage schedules, and monitor operations at different locations.

Additional Features (optional):

- Predict future staffing needs based on event bookings, holidays, or special promotions.
- Incorporate employee satisfaction metrics or burnout prevention suggestions based on staff shift history.
- Mobile app integration to allow employees to swap shifts or receive real-time schedule notifications.
- A payroll integration system that calculates staff salaries based on shifts worked and overtime.

Google Developers Students Club

Fr. Conceicao Rodrigues College Of Engineering

BIT N BUILD

BLOCKCHAIN

1) Proof-of-Attendance NFT for Events

Backstory:

In traditional event management, tracking attendance is often prone to issues such as fraud, inefficiency, and lack of verifiable data. For large-scale events like concerts (e.g., Coldplay), managing attendance and providing a seamless attendee experience becomes even more challenging. There's a growing need for a secure, scalable system to authenticate and incentivize participation, while also handling large crowds efficiently.

Problem Statement:

Develop a scalable Proof-of-Attendance NFT (POAP) platform that issues verifiable digital tokens to event attendees, ensuring secure, tamper-proof attendance records. The platform should handle large-scale events, like concerts, by implementing queue management systems and providing a seamless experience for both organizers and attendees.

Expected Features:

- Digital Proof of Attendance (NFT):
  - Attendees receive unique NFTs as proof of participation, providing a digital record that's secure and verifiable.
- Immutable Records:
  - Use blockchain technology to ensure attendance data is tamper-proof and accessible for future reference.
- Scalability for Large Events:
  - The platform should be able to handle events with large attendee numbers (e.g., Coldplay concerts) and ensure smooth operations under heavy loads.
- Queue Management:
  - Implement a queue management system to handle large crowds, reducing wait times and ensuring efficient check-ins.
- Collectible Incentives:
  - Design NFTs to serve as collectible items, encouraging attendees to participate in future events.
- Enhanced Engagement:
  - Provide exclusive experiences or rewards for NFT holders, fostering stronger community engagement and loyalty.
  - This system will provide a seamless, secure, and efficient experience for large-scale event management while boosting attendee engagement and loyalty through blockchain-based rewards.

2) Decentralised Document Verification System

Backstory:
Verifying important documents like degrees, certificates, and transcripts can often take too long and cause delays, especially in hiring processes. Employers and institutions spend time contacting issuing bodies to confirm authenticity, leading to inefficiencies. Plus, there's always the risk of fraud with fake credentials. There's a need for a faster, more secure, and easier way to handle this process.
Problem Statement:
Create a blockchain-based system where individuals can upload their academic and other important credentials for safe and easy verification. This system should allow employers and educational institutions to quickly and securely check the authenticity of these documents without needing to reach out to the issuing body, while also preventing fraud.
Expected Features:

- Document Upload & Storage:
  - Individuals can upload diplomas, certificates, and other important documents to the blockchain, storing them securely and forever.
- Automated Verification:
  - Smart contracts will automate the document verification process, letting employers and educational institutions confirm authenticity quickly without contacting the original issuer.
- Identity Verification:
  - To ensure that only the rightful owner shares documents, the system will use government-issued digital IDs or biometric verification (like fingerprints or facial recognition).
- User Control:
  - Users will have full control over their documents, managing who can access and verify them. They can easily share credentials with employers or schools when needed.
- Security & Privacy:
  - Blockchain technology ensures privacy, data integrity, and protection against fraud, with no risk of tampering.
  - This decentralized document verification system will simplify the verification process, reduce delays, prevent fraud, and build trust among users, employers, and educational institutions.

3) Empowering Creativity: A Decentralized Social Media Revolution

Backstory:

On traditional social media platforms, content creators often feel undervalued, with their work being overshadowed by ads and an endless sea of memes and visual content. Many creators struggle to get recognition or compensation for their efforts, making it hard to stand out or make a living from their creativity. There's a clear need for a platform that values creators and gives them control over their work and earnings.

Problem Statement:

Develop a decentralized social media platform that allows users to earn directly from their creative contributions, including memes, images, and other visual content. The platform should use AI to help generate and enhance community-created content while also ensuring fair rewards for creators and safeguarding the originality of AI-generated works.

Expected Features:

- Creator Compensation:
  - Users will earn directly from their content contributions, without the interference of ads. The platform will equitably distribute rewards to ensure creators are fairly compensated for their work.
- Community Collaboration:
  - Users can collaborate to create memes, images, and other media. AI tools will assist with content creation, making it easy for everyone to participate and contribute to the community.
- NFT Minting & Ownership:
  - Content, including AI-generated creations, can be minted as NFTs, allowing users to own and monetize their work. This ensures that creators have full control over their content and earnings, even amid market fluctuations.
- Originality Validation:
  - A system will be put in place to verify the originality of AI-generated and user-submitted content, preventing plagiarism or abuse. This ensures that all creations are authentic and owned by their rightful creators.

- Fair Reward Distribution:
  - A transparent, decentralized reward system will distribute earnings fairly, based on the quality and impact of the content, fostering a positive, engaging environment.
  - This decentralized social media platform will empower creators to be in control of their work and earnings, creating an exciting space where creativity, collaboration, and fair compensation can thrive. It will offer a refreshing alternative to ad-driven, centralized platforms, ensuring that users are valued for their contributions in the digital age.

Google Developers Students Club
Fr. Conceicao Rodrigues College Of Engineering

All the best!!