DJCSI

CODESHASTRA 9.0

UNMASKING INNOVATION

PROBLEM STATEMENTS

Domain - Web/App

Problem Statement:
Developing an innovative solution to streamline the HR verification process for restaurants and cafes.

Description: Restaurants and cafes face a significant challenge in verifying their employees' credentials post-employment, leading to potential security and financial risks. This is due to a lack of a common portal for all verifications and a shortage of resources, including time and money, to deploy the same.

To address this issue, we need an innovative solution that leverages technology and creative thinking. The solution should aim to streamline the HR verification process for restaurants and cafes by developing a portal/app/website that allows the restaurant owner/HR to upload facial images of the employee along with their Aadhaar and PAN Card to run a verification of the same.

The proposed solution should have the following features:
1. The owner app should take employee pictures, Aadhar cards, and PAN cards and enrol them into the database after verifications. Additional details about the employee's years of experience, expertise, etc., can be added to the DB as per the team's imagination.
2. The solution should have a report section where the owner can flag the employee with red, orange, and yellow flags. This will be mapped to the person in the database.

3. The solution should have a recommended section where the owner can give a thumbs up/green flag. This will be mapped to the person in the database.

4. The solution should use basic image processing to verify that the photo belongs to the same person from the Aadhar card/PAN card. You can either use services like AuthBridge or create your own eKYC to verify the authenticity of the PAN and Aadhar card

5. The solution should use image processing to map if the person being enrolled has any past flags in the central database created from points 2/3. It should also use the same database information for getting the person's past work experience using open-end questions as per the coder's imagination.

Bonus:

- The solution could add push notifications for extremely important messages that need to be given to all owners.

The goal of this hackathon challenge is to develop a solution that is user-friendly, secure, and cost-effective, helping restaurants and cafes to streamline their HR verification process and reduce the associated risks.

Domain - Blockchain

Problem Statement:
Develop a Blockchain-based Loyalty and Wallet program to increase repeat user purchases for a cafe or restaurant.

Description:
A stand-alone coffee shop based out of Juhu has a large number of their audience between the age bracket of 15-35 (Refer to the brand deck for details of audience and design elements, brank deck: **Link**) and wants to do 2 key things, increase revenue through repeat purchases and reduce costs through better planning of resources and managing production requirements internally.

Features:

- Blockchain-based Loyalty and Wallet program (NFT incorporation if possible) to increase repeat user purchases
- Dashboard to upload new loyalty incentives and schemes, also to provide exclusive access to events by the coffee shop after the user has spent "x" amount in a particular time period (a week, a month or a quarter)
- Create a user leaderboard based on beverage/category and try to gamify the coffee ordering process (menu provided in the brand deck)
- Add push notifications for extremely important messages that need to be given to all users

Bonus:

- Recommendation system for users basis a series of questions
- Basic image recognition of the product and scanning to open up image with the product details (can be built such that the owners of the app can add more products)
- Based on orders through the application/upload of a CSV (will provide the template) file build a self-learning model to predict the forecast of the sale factoring in seasonality such as days of the week (weekday vs weekends, public holidays (positively impacts sale), month (usually lower sales observed during exams and peak monsoon period) and long weekend (negative impact since people tend to move away from town hence results in lower sale)
- Gamify/add an AR filter in the app upon confirmation of order.

Domain - Cloud

Problem Statement:
Develop a cloud-based parental control solution to monitor and manage children's online activity.

Description:
With the increase in internet usage among children, parents are increasingly concerned about their safety in the digital world. The parental control solution aims to provide a comprehensive and effective tool for parents to manage their children's online activity and ensure their safety.

The solution will allow parents to customize their rules and set different levels of access and control for each child based on their age and maturity. It will offer features such as website blocking, time management, content filtering, and activity monitoring. This means that parents will be able to block certain websites or apps, set time limits for screen time, filter inappropriate content, and receive real-time alerts and notifications about their children's online activity.

Features:
- Website/App blocking: Allow parents to block certain websites/apps deemed inappropriate or potentially harmful to children.
- Time management: Set time limits for children's screen time, customized for different days of the week and times of the day.

- **Content filtering:** Filter content parents don't want children to access, such as adult content, violent content, or hate speech.
- **Activity monitoring:** Provide real-time alerts and notifications about children's online activity, including visited websites, apps used, and time spent online.
- **Customizable rules:** Set specific rules for each child, such as limiting access to certain websites/apps, setting time limits for screen time, and monitoring online activity.
- **Security features:** Enable real-time notification to parents and PIN protection to prevent children from uninstalling or turning off the monitoring application.
- **Scalability and reliability:** Ensure that the solution is scalable and reliable, with reliability/availability in mind during design.

Overall, the cloud-based parental control solution should provide a comprehensive and effective tool for parents to manage their children's online activity and ensure their safety in the digital world.

Domain - AI/ML

Problem Statement:
Develop a system that allows homeowners to visualize how their homes would look with new decor.

Description:
The initial task on homeowners' lists when renovating or redecorating their homes is to paint the walls. This simple project provides an easy way to give a room a fresh look and can even set the tone for the entire house. However, choosing the right paint colour can be overwhelming due to the endless options available, and a poor decision can be costly.

To alleviate this problem, come up with a robust system that enables homeowners to visualize how their homes would appear with a new coat of paint. This system should be intelligent enough to ignore the complex objects within the house and accurately paint only the necessary wall sections, while still maintaining a realistic representation of the image.

Features:
- Upload images of rooms that may or may not contain walls.
- Ability to select different wall sections to be painted with colors chosen by the user.

Bonus Features:

- Virtual reality integration for a more immersive experience.
- Integration with popular paint brands to provide accurate color matching and suggestions.
- Option to save multiple designs and compare them side by side.

Sample images: **Link**

Domain - Open Innovation

Problem Statement and Description:
The cyber security company needs to develop a comprehensive threat intelligence solution that can detect and analyze potential security threats from various sources, including networks, systems, and applications. The company needs to develop a solution that can scrape data from various applications and websites, including shopping sites, betting sites, gaming platforms, dating applications, chatting platforms, etc. The solution should analyze the scraped data to identify whether a particular mobile number or email address is registered with any of the company's websites/apps. The solution should also present the scraped data in an organized tabular form without notifying the user. This analysis will help the company to identify the malicious activity of a user across various platforms, it would also help them identify the online behaviour of the subject matter, which would work as a catalyst in increasing the scope of the investigation.

Features:
- The prompt and efficient execution of these requests must be within seconds, even when several requests are being processed simultaneously.
- Output data should be presented in a simple and easily understandable visual format, such as a basic table. The emphasis should be on creating a user-friendly presentation that is accessible to knowledgeable audience members.
- Extracting the highest number of attributes from various platforms

Here is the **Link** for further description.

PROBLEM STATEMENT

<u>Domain - Web/App</u>

Problem Statement:
Many students face challenges when it comes to managing their finances effectively. To address this issue, there is a need to develop a mobile app that can provide innovative solutions to help students better manage their finances.

Description:
The mobile app should be designed to offer a seamless user experience on mobile devices and should address common student finance issues such as budgeting, tracking expenses, and managing student loans. Additionally, the app should be easy to use and understand, with a user-friendly interface that appeals to the target audience. Optional features may include AI and machine learning algorithms that provide personalized financial guidance to users, as well as social networking features that enable students to connect and share advice with their peers.

Features:
- **Mobile-first design:** The app should be optimized for mobile devices and offer a seamless user experience.
- **Budgeting tools:** The app should provide users with the ability to set and track their budget goals, and offer suggestions for areas where they can save money.
- **Expense tracking:** The app should allow users to easily track their expenses and monitor their spending habits.
- **Student loan management:** The app should offer tools to help users manage their student loans, such as tracking repayment progress and offering advice on repayment strategies.

- **User-friendly interface:** The app should be easy to navigate and use, with a clean and simple interface that appeals to the target audience.

Bonus Features:

- **Personalized financial guidance:** The app can leverage AI and machine learning algorithms to provide personalized financial guidance to users.
- **Social networking features:** The app can incorporate social networking features that allow students to connect and share financial advice with their peers.