WEB DEVELOPMENT

PROBLEM STATEMENTS

Problem Statement ID 2.1.1

Developing a social media platform for aspiring entrepreneurs and startups presents an
exciting opportunity to foster innovation and collaboration within the entrepreneurial community. Here's a breakdown of the features you can include in this platform.

Key features

a. User Registration & Profiles:
- Users can register accounts and create detailed profiles.
- Profiles include past experience, skills, and interests.
- Customizable with photos, bios, and links.
- Users can upload ideas and blogs.

b. Startup Profiles:
- Dedicated profiles for startups to showcase ventures.
- Includes descriptions, mission statements, and offerings.
- Sections for team members, investors, and partners.
- Upload multimedia content like pitch decks.

c. Mentorship Programs:
- Facilitates connections between mentors and founders.
- Searchable based on expertise and availability.
- Messaging for scheduling meetings and sharing resources.

d. Follow Functionality:
- Enable entrepreneurs to follow startup and user profiles.
- Community engagement and networking opportunities.
- Facilitate connections and knowledge-sharing within the entrepreneurial
  community.

NOTE : Judging will be based on the uniqueness of your solution.

Problem Statement ID 2.1.2

BeatMarket is an online marketplace designed for beat producers to showcase and sell their music productions, while providing artists with a diverse selection of high-quality beats for their projects. The platform serves as a centralized hub where producers can promote their work, interact with customers, and monetize their creations, while artists can discover, purchase, and license beats for their songs, albums, or projects.

Key features

Producer Profiles:

- Detailed Portfolios: Showcase work with samples, bios, and social inks.
- Featured Highlights: Spotlight top tracks to attract buyers' attention.

Beat Listings:

- Categorized Beats: Organize by genre, mood, and style for easy
- browsing.
- Flexible Pricing: Set prices based on value and exclusivity.

Feedback System:

- Transparent Ratings: Buyers rate and review, enhancing trust.
- Visible Accountability: Ensure transparency with visible feedback.

Messaging Tools:

- Direct Communication: Enable easy collaboration and negotiation.
- File Sharing: Exchange files and project details seamlessly.

NOTE : Judging will be based on the uniqueness of your solution.

Problem Statement ID 2.1.3

In today's digital age, there is a growing need for a comprehensive auction platform that enables organizers to host real-time bidding events while providing users with a seamless and immersive bidding experience. Traditional auction methods often lack efficiency and accessibility, leading to missed opportunities and limited participation. Therefore, there is a demand for a dynamic and user-friendly auction platform that facilitates interactive bidding sessions, enhances transparency, and maximizes engagement for both organizers and participants.

Key Features to Include:

a)Real-Time Bidding Experience:

- Enable users to bid in real time during auction events, ensuring instant updates on bid status and prices.
- Implement a responsive and intuitive interface that supports smooth bidding interactions across various devices and platforms.

b)Organizer Tools and Controls:

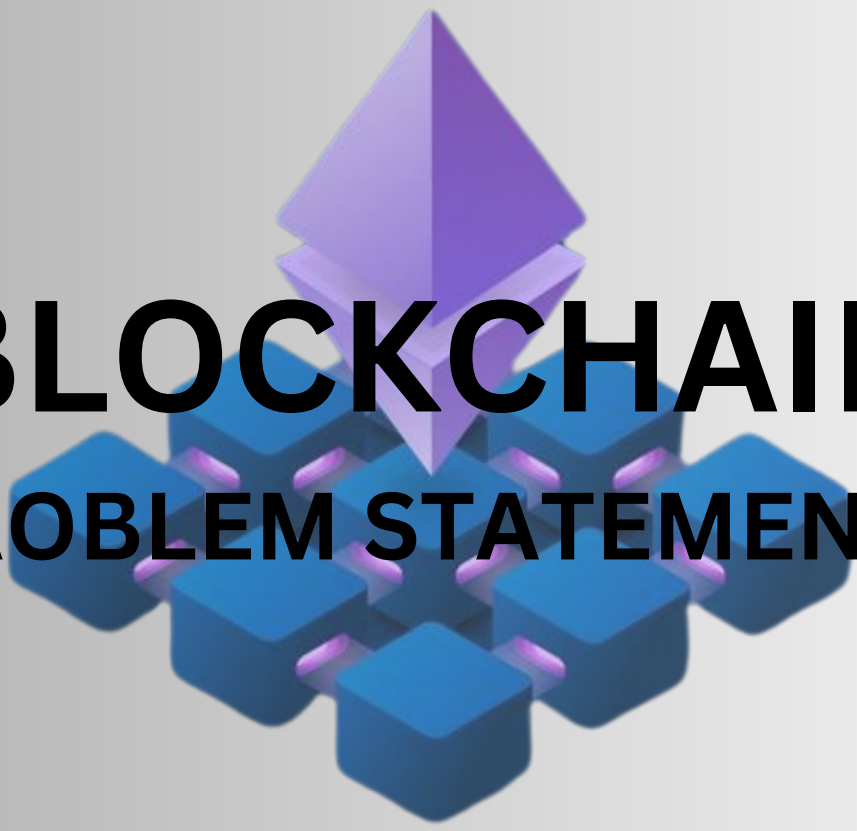
- Provide organizers with robust tools to create, manage, and customize auction events according to their specific requirements.
- Include features for setting auction rules, defining bid increments, and monitoring bidding activity in real time.

c)Comprehensive Auction Listings:

- Offer a diverse range of auction listings across different categories such as art, collectibles, real estate, and more.
- Allow organizers to showcase detailed item descriptions, images, and starting bid prices to attract potential bidders.

d)Bidder Verification and Authentication:

- Implement robust authentication mechanisms to verify the identity of bidders and ensure a trustworthy bidding environment.



BLOCKCHAIN

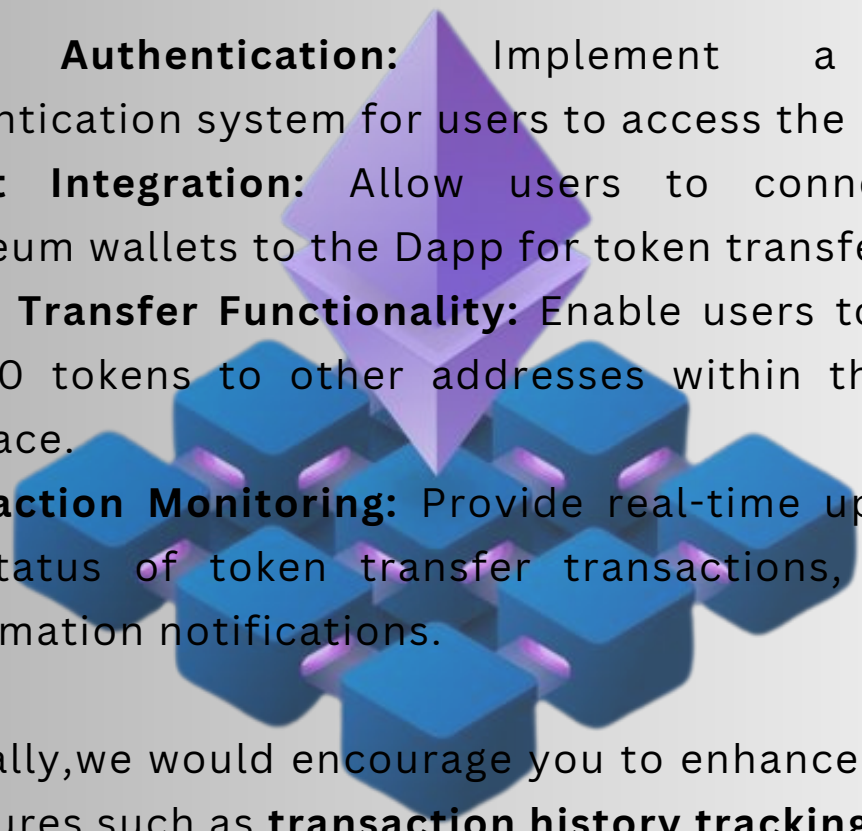
PROBLEM STATEMENTS

Problem Statement ID 2.2.1

ERC-20 Transfer Dapp

Hey Crypto Craftsmen, we want you to **build a decentralized application** that allows for the seamless transfer of **ERC-20 tokens** on the Ethereum blockchain.

The **DAPP** should include the following **features**:



1. **User Authentication:** Implement a secure authentication system for users to access the Dapp.
2. **Wallet Integration:** Allow users to connect their Ethereum wallets to the Dapp for token transfers.
3. **Token Transfer Functionality:** Enable users to transfer ERC-20 tokens to other addresses within the Dapp's interface.
4. **Transaction Monitoring:** Provide real-time updates on the status of token transfer transactions, including confirmation notifications.

Additionally,we would encourage you to enhance the Dapp with features such as **transaction history tracking.**

NOTE : Judging will be based on the uniqueness of your solution.

Problem Statement ID 2.2.2

Certificate Verifier Dapp

Hey Crypto Craftsmen, we want you to **develop a decentralized certificate verification system** using blockchain technology, with a **focus on enhancing the integrity and security of verifying educational or professional certificates.**

Key Features:

1. **Decentralized Certificate Storage:** Participants are required to design a system that securely stores certificate data on a blockchain, ensuring that certificates cannot be falsified or tampered with.
2. **Verification Process:** Create a mechanism for verifying the authenticity of certificates, enabling organizations and individuals to validate the legitimacy of educational or professional qualifications.
3. **User-Friendly Interface:** Develop a user-friendly interface for both certificate issuers and verifiers, allowing for seamless interaction with the blockchain-based verification system.
4. **Transparency and Auditability:** Utilize the transparency and immutability of blockchain to enable transparent and auditable certificate verification, enhancing trust in the verification process.

We encourage you to innovate in features such as certificate revocation, metadata management, and interoperability with existing certificate verification standards that would drive the development of a robust and widely adoptable blockchain-based certificate verification system.

NOTE : Judging will be based on the uniqueness of your solution.

Problem Statement ID 2.2.3

Crypto Exchange Dapp

Hey Crypto Craftsmen, we want you to design and implement a **decentralized cryptocurrency exchange platform** using blockchain technology, with a focus on **enhancing security, usability, and efficiency.**

Key Features:

1. **Token Listings:** Develop a mechanism for listing various tokens on the exchange to facilitate trading pairs and liquidity.
2. **Wallet Integration:** Allow users to securely connect their cryptocurrency wallets to the DApp for deposit, withdrawal, and trading.
3. **Security Measures**: Incorporate robust security measures, such as multi-factor authentication, to ensure the safety of user funds and transactions.
4. **User Interface:** Create an intuitive and responsive user interface for an exceptional user experience while trading cryptocurrencies.
5. **Liquidity Provision:** Provide methods for liquidity provision.

We encourage you to innovate features such as automated market making, decentralized governance, and token staking mechanisms that would drive the development of a sophisticated and user-centric decentralized cryptocurrency exchange DApp.

NOTE : Judging will be based on the uniqueness of your solution.

AI / ML
PROBLEM STATEMENTS

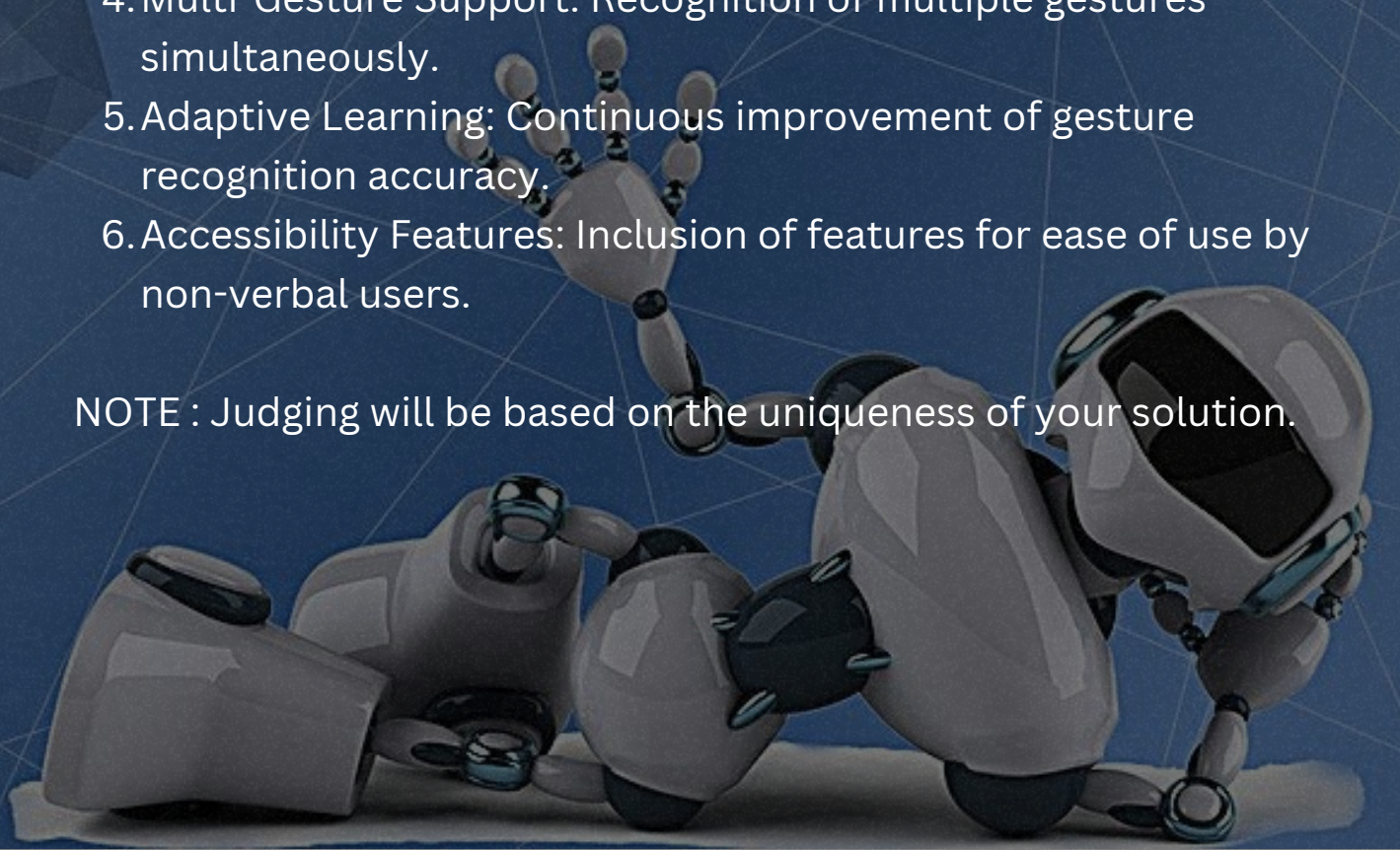
Problem Statement ID 2.3.1
Problem Statement: Real-Time Gesture-to-Text Translation Platform

Description:
Develop a machine learning-based platform that enables individuals to make live hand gestures during a stream, with the platform translating these gestures into text in real-time. The goal of this platform is to facilitate seamless communication for non-verbal individuals, ensuring they can convey messages effectively and participate in conversations, meetings, or presentations.

Key Features:

1. Gesture Recognition: AI-powered recognition of hand gestures in real-time video streams.
2. Text Translation: Instant conversion of recognized gestures into readable text.
3. Custom Gesture Vocabulary: Personalized gesture sets for specific words or phrases.
4. Multi-Gesture Support: Recognition of multiple gestures simultaneously.
5. Adaptive Learning: Continuous improvement of gesture recognition accuracy.
6. Accessibility Features: Inclusion of features for ease of use by non-verbal users.

NOTE : Judging will be based on the uniqueness of your solution.



Problem Statement ID 2.3.2

Problem Statement: AI-Driven Personalized Education Platform

Description:
In education, there's a persistent challenge in providing personalized and adaptive learning experiences, where traditional methods struggle to meet diverse student needs and learning styles. An innovative machine learning and AI solution is needed to effectively analyze student performance, tailor educational content, and provide personalized feedback, enhancing the overall learning experience.

Key Features:

- Personalized Learning Paths:Tailor learning paths based on student preferences and performance.
- Adaptive Assessments:Customize assessments to match student abilities.
- Intelligent Tutoring Systems:Provide real-time assistance and feedback using AI.
- Emotion Recognition:Identify and support students in emotional distress.
- Predictive Analytics for Dropout Prevention:Identify at-risk students and intervene early.
- Collaborative Learning Platforms:Facilitate group work and peer interaction.
- Speech and Language Processing:Analyze language skills and comprehension.
- Gamification for Engagement:Increase motivation through gamified learning.
- Skill and Career Pathway Recommendations:Recommend personalized career paths and skill development.
- Continuous Learning Analytics:Collect and analyze student data for ongoing improvements.

NOTE : Judging will be based on the uniqueness of your solution.

Problem Statement ID 2.3.3

Problem Statement: AI-Driven Talent Matching System

Description:
In the talent acquisition landscape, companies face hurdles in the recruitment process, resulting in mismatches between candidate skills and job requirements. The challenge is to develop an AI-driven Talent Matching System that analyzes job descriptions and candidate profiles intricately. This system should utilize natural language processing (NLP) for language understanding, conduct behavioral analysis for candidate traits, and employ predictive modeling for long-term compatibility assessment. It aims to prioritize both technical and soft skills, personality traits, and cultural fit for accurate matching.

Key Features:

- Nuanced Job-Candidate Analysis:Utilize NLP to comprehend nuances in job descriptions and candidate profiles, ensuring precise matching.
- Behavioral Analysis for Candidate Traits:Conduct behavioral analysis to understand candidate traits beyond technical skills, enhancing matching accuracy.
- Predictive Modeling for Long-Term Compatibility:Employ predictive modeling to assess long-term compatibility between candidates and job roles, reducing turnover.
- Comprehensive Matching Algorithm:Develop a comprehensive algorithm considering technical skills, soft skills, personality traits, and cultural fit for accurate matching.
- Efficiency Enhancement in Hiring Process:Revolutionize the hiring process by enhancing precision, reducing time-to-hire, and ensuring harmonious alignment between candidates and job roles.

NOTE : Judging will be based on the uniqueness of your solution.

APP DEVELOPMENT

PROBLEM STATEMENTS

Problem Statement ID 2.4.1

Humanitarian Crisis Relief Platform

Description:
Welcome, participants, to the challenge of developing a mobile application that addresses the critical need for humanitarian crisis relief and support. In this increasingly interconnected world, it is imperative to have accessible platforms that not only raise awareness about ongoing crises but also facilitate secure and transparent donations to support relief efforts. Your task is to create a comprehensive mobile application that serves as a beacon of hope during times of distress.

Key functionalities:

- Real-time Crisis Information: Integrate official data for accurate updates on crises.
- Donation Management: Enable secure donation processing with transparent tracking.
- Transparency and Accountability: Provide detailed reports on donation usage for accountability.
- Awareness Campaigns: Educate users about crises and encourage action through engaging content.
- User Authentication and Security: Implement robust security measures to protect user data and transactions.

NOTE : Judging will be based on the uniqueness of your solution.

Problem Statement ID 2.4.2

Online OPD Appointment & Hospital Information System

Description:
Develop a comprehensive mobile application for booking online appointments for outpatient consultations at hospitals. The app should integrate seamlessly with existing Integrated Hospital Management Systems and provide users with access to a wide range of features and functionalities.

Key functionalities:

- Online Appointment Booking: Allow users to schedule appointments with healthcare providers conveniently through the app, selecting preferred dates, times, and specialties.
- Hospital Information Integration: Integrate with hospital databases to provide users with detailed information about hospitals, including contact details, specialties, facilities, and reviews.
- Geolocation Services: Utilize geolocation technology to identify nearby hospitals based on the user's current location, making it easier for users to find healthcare facilities in their vicinity.
- Appointment Reminders: Send reminders about upcoming appointments to reduce no-shows.
- Online Doctor Consultation: Engage in virtual consultations with healthcare providers.
- Emergency Assistance: Quickly access emergency services and first aid information.

NOTE : Judging will be based on the uniqueness of your solution.

Problem Statement ID 2.4.3

Electric Vehicle Charging Network Navigator

Description:
As the adoption of electric vehicles (EVs) continues to rise, there's a growing demand for convenient access to electric vehicle charging stations (EVSE). The challenge is to develop a mobile application that empowers EV owners to effortlessly locate nearby EVSEs, while also offering innovative features to optimize the EV charging experience.

Key Features:

- Geolocation Services: Locate nearby charging stations using GPS technology.
- Search and Filters: Customize searches based on charging speed, availability, pricing, and compatibility.
- Real-Time Availability: Get live updates on charging station availability and wait times.
- Route Planning: Plan routes with charging stops for long-distance travel.
- Charging Station Details: Access information like address, hours, charger types, rates, and nearby amenities.
- User Reviews and Ratings: Read reviews to make informed decisions.
- Reservation and Booking: Reserve charging slots in advance.
- Payment Integration: Pay for charging sessions securely within the app.
- Environmental Impact Tracking: Track the eco-benefits of EV use and renewable energy charging.

NOTE : Judging will be based on the uniqueness of your solution.

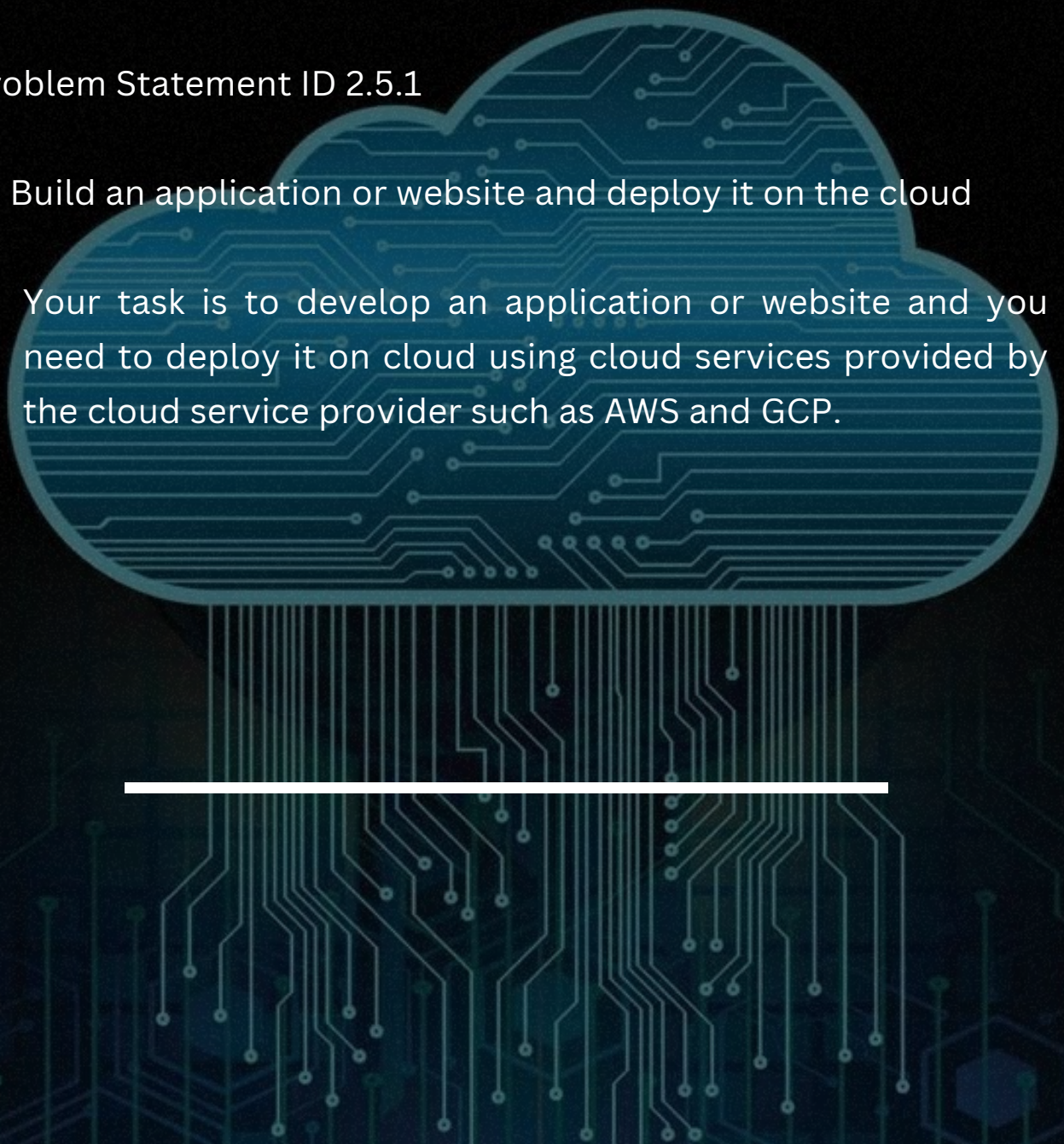
CLOUD TECH

PROBLEM STATEMENTS

Problem Statement ID 2.5.1

1 . Build an application or website and deploy it on the cloud

- Your task is to develop an application or website and you need to deploy it on cloud using cloud services provided by the cloud service provider such as AWS and GCP.



Problem Statement ID 2.5.2

2. Build an application for attendance management system and store the data in the cloud storage using cloud services.

- Your task is to implement an attendance management system and use cloud storage service to store the data on the cloud.

DEVOPS

PROBLEM STATEMENTS

Problem Statement ID 2.6.1

Problem Statement:
In today's digital landscape, the integration of real-time communication features with robust backend infrastructure is crucial. DevOps practices streamline development, deployment, and operations, necessitating innovative solutions.

Participants are invited to a DevOps hackathon to create an application integrating front-end live video streaming or video calling with a backend orchestrated using DevOps principles. The challenge includes employing CI/CD pipelines, GitHub Actions, Jenkins, Docker, and Kubernetes while ensuring scalability, fault tolerance, and security.

Key Criteria:

- Integration of front-end real-time communication.
- Robust backend infrastructure utilizing DevOps principles.
- Proficiency in CI/CD pipelines and DevOps tools.
- Scalability, fault tolerance, and security considerations.
- Automated testing and deployment automation.
- Overall innovation and usability.
- In the second round, solutions should be compatible with ArgoCD, Flux, and AWS, showcasing adaptability and versatility in DevOps practices.

NOTE : Judging will be based on the uniqueness of your solution.