Event Hackathon Problem Statements

(These are open-ended Problem Statements you can generate data according to your need)

Problem Statement 1: Event Recommendation and Personalization

Description:
This project aims to build an event recommendation system that tailors suggestions based on attendee preferences and past interactions. It involves data analysis, algorithm selection, and real-time customization. The goal is to enhance attendee satisfaction by providing personalized event recommendations and integrating real-time feedback for continuous improvement.

Phase 1: Understanding and Preparing the Data
Participants will start by delving into a provided dataset that includes details about events, attendee profiles, past attendance records, and interactions.

Tasks:

- Conducting exploratory data analysis (EDA) to grasp the characteristics of the event data and attendee preferences.
- Cleaning and prepping the data to address any missing values, duplicates, or inconsistencies.
- Extracting and engineering features to capture relevant aspects like attendee interests, event categories, and interaction patterns.

Phase 2: Crafting a Recommendation System
Participants will then work on constructing a recommendation system to deliver tailored event suggestions to attendees based on their preferences and past engagement.

Tasks:

- Selecting and training models to create recommendation algorithms, such as collaborative filtering, content-based filtering, or hybrid approaches.
- Incorporating various features like event popularity, relevance, and similarity to past attended events into the recommendation process.
- Assessing the recommendation system's performance using metrics like precision, recall, and mean average precision (MAP) on a validation dataset.

Phase 3: Real-time Customization and Feedback Integration
In the final phase, participants will concentrate on providing real-time event recommendations and personalization during event registration and browsing.

Tasks:

- Implementing real-time recommendation systems to suggest events based on attendee interactions and preferences.
- Integrating feedback mechanisms to gather and analyze attendee satisfaction and event ratings in real-time.
- Continuously refining and adapting the models based on ongoing attendee feedback and interaction data to enhance recommendation accuracy and relevance.

Problem Statement 2: Event Social Media Engagement Analysis

Description:
This project aims to analyze social media data related to past events to understand engagement and sentiment. Participants will collect, preprocess, and analyze data to extract insights and optimize marketing strategies for future events.

Phase 1: Data Collection and Preprocessing
Participants will collect social media data from platforms like Twitter, Facebook, and Instagram, and preprocess it to extract relevant information and create features.

Tasks:
- Data collection using APIs or web scraping techniques.
- Cleaning and preprocessing data to remove noise and handle missing values.
- Feature extraction to create engagement metrics and sentiment scores.

Phase 2: Social Media Analytics and Sentiment Analysis
Participants will analyze social media engagement and sentiment towards events using the collected data.

Tasks include:
- Conducting sentiment analysis to classify posts and comments into positive, negative, or neutral sentiments.
- Analyzing engagement metrics to identify popular topics and trends.
- Visualizing analytics results to communicate insights effectively.

Phase 3: Engagement Enhancement Strategies and Campaign Optimization

Participants will develop strategies to enhance social media engagement and optimize marketing campaigns for upcoming events.

Tasks include:

- Designing engagement enhancement strategies based on analytics insights.
- Implementing A/B tests to evaluate campaign effectiveness.
- Refining strategies and optimizing campaigns based on performance metrics to maximize event visibility and audience engagement.

Problem Statement 3: Event Attendance Forecasting

Description:

This project aims to develop predictive models to forecast event attendance based on historical data, event attributes, and external factors like weather and promotions. Participants will explore the dataset, clean and preprocess the data, and engineer relevant features. They will then develop attendance prediction models using regression or time series analysis techniques. Real-time attendance monitoring systems will be implemented during events, allowing for model adaptation and continuous improvement based on observed attendance data. The goal is to accurately forecast event turnout to better plan resources and optimize event management.

Phase 1: Data Exploration and Preparation

Participants will be provided with a dataset containing historical event attendance data, event attributes, weather information, and promotional activities.

Tasks include:

- Exploratory data analysis (EDA) to understand attendance patterns, seasonality, and factors influencing event turnout.
- Data cleaning and preprocessing to handle missing values, outliers, and inconsistencies.
- Feature engineering to create relevant features such as event type, date, time, location, weather conditions, and promotional efforts.

Phase 2: Attendance Prediction Model Development

Participants are tasked with developing predictive models to forecast event attendance for upcoming events based on historical data and event attributes.

Tasks include:

- Model selection and training to build attendance prediction models using regression, time series analysis, or machine learning algorithms.
- Incorporating features such as event type, date, time, weather forecast, promotional activities, and past attendance trends in the prediction process.
- Evaluation of prediction model performance using metrics like mean absolute error (MAE), root mean squared error (RMSE), and mean absolute percentage error (MAPE) on a validation dataset.

Phase 3: Real-time Attendance Monitoring and Adaptation

In the final Phase, participants will focus on real-time attendance monitoring during event execution and adaptation of prediction models based on observed attendance data.

Tasks include:

- Implementing real-time attendance monitoring systems to track attendee arrivals and check-ins using RFID, QR code scanning, or mobile apps.
- Updating prediction models based on real-time attendance data and adjusting forecasts for future events.
- Iterative model refinement and adaptation based on ongoing event feedback and attendance data to improve prediction accuracy and reliability.

Problem Statement 4: Sponsorship ROI Analysis

Description:
This project focuses on analyzing the return on investment (ROI) for event sponsors by developing models based on sponsorship data and performance metrics. Participants will explore the dataset, collect sponsorship data, and clean/preprocess the information. They will then develop sponsorship ROI models using regression or machine learning algorithms. Real-time ROI monitoring systems will be implemented during events to track sponsorship performance, allowing for adjustments to sponsorship strategies for future events. The goal is to maximize sponsor satisfaction and ROI by accurately quantifying the impact of sponsorships and optimizing sponsorship strategies.

Phase 1: Data Exploration and Sponsorship Data Collection

Participants will be provided with a dataset containing information about event sponsorships, including sponsor profiles, sponsorship packages, financial contributions, and marketing activities.

Tasks include:

- Exploratory data analysis (EDA) to understand sponsorship patterns, sponsor preferences, and factors influencing sponsorship decisions.
- Data collection from event organizers and sponsors to gather detailed information about sponsorship agreements, marketing materials, and campaign performance.
- Data cleaning and preprocessing to handle missing values, outliers, and inconsistencies.

Phase 2: Sponsorship ROI Modeling

Participants are tasked with developing models to quantify the return on investment (ROI) for event sponsors based on sponsorship data and performance metrics.

- **Tasks include:**
- Model selection and training to build sponsorship ROI models using regression, attribution modeling, or machine learning algorithms.
- Incorporating features such as sponsorship package type, sponsorship level, marketing activities, attendee engagement, and brand exposure in the ROI calculation process.
- Evaluation of ROI models using metrics like return on ad spend (ROAS), incremental sales lift, brand awareness metrics, and customer acquisition cost (CAC) on a validation dataset.

Phase 3: Real-time ROI Monitoring and Optimization

In the final Phase, participants will focus on real-time ROI monitoring during event execution and optimization of sponsorship strategies based on observed performance data.

Tasks include:

- Implementing real-time ROI monitoring systems to track sponsorship performance, brand exposure, and marketing effectiveness during events.
- Updating ROI models based on real-time performance data and adjusting sponsorship strategies for future events.
- Iterative refinement of sponsorship ROI models based on ongoing event feedback and performance data to maximize sponsor satisfaction and ROI.

Sponsorship should have

- Industry of the sponsor
- Company size of the sponsor
- What will be helpful for the sponsor.