**Fatemi’s Idea:**

Food Waste Reduction:   
   
 The Food Waste Reduction project was to create an AI-driven solution to minimize food waste in restaurants and grocery stores. Analyzing historical sales data, expiration dates, and customer purchasing behaviors, the restaurant can optimize inventory management, reduce overstocking, and implement dynamic pricing strategies to minimize food waste while maximizing profitability.   
   
 The target variable for this project is the amount of food waste, which is a continuous variable.

The main challenge of this project is to get accurate data to predict and maintain safety and privacy while handling customer data.

**Tirth Patel’s Idea:**

1. **Natural disaster prediction and response:**

Intended to use data analysis to predict and cope with natural disasters like wildfires or floods, thus helping to save lives and reduce damage. Through analyzing historical trends and environmental indicators, we try to predetermine the areas and times that disasters are likely to occur, as this allows for the implementation of preventive measures. This approach could comprise of early warning systems, evacuation strategies and resource allocation tactics to minimize the risk. In the end we hope to use the data-driven insights to strengthen disaster preparedness and response programs and to protect the communities and the infrastructure.

**Challenges faced:**

1. **Data Availability:** Placing the right data about previous disasters and environmental factors may take long. The data at times might be old, erroneous or with right details which makes it hard to come up with an appropriate solution for the forthcoming disaster.
2. **Making Accurate Predictions:** Informing models to forecast a disaster is hard, because the weather and other factors might change. Doing it right is certainly not easy and we need to be equipped with the right tools and techniques to help us achieve the desired accuracy.
3. **Working Together:** To predict and respond to disasters, we need to cooperate with people from various specialties such as meteorology, geography, and emergencies management. However, uniting the community to impart knowledge is quite a daunting task during anguishing periods.

**2. Predictive Maintenance for Industrial Equipment:**

In this project we were going to analyze the Principle of Predictive Maintenance for Industrial Equipment, with the goal of averting breakdowns and making efficiency better. This is about leveraging data analytics to forecast when machinery is likely to go down, in order to ensure regular maintenance is conducted to avoid machine downtime. While the specific target variable varies across industries, the goal remains the same: which aim at optimizing up-times and reducing down-times. Issues refer to locating appropriate data or identifying the necessary indicators of equipment health which can be different in different sectors. At the end, the goal is to realize efficiency and operational savings via strategic application of predictive maintenance techniques.

**Comfort’s Idea:**

**Building a Book Recommendation System**

In this project we will work on a personalized book recommendation system to enhance user engagement and satisfaction. The project will entail gathering book data from various sources and cleaning it for analysis. Then extract relevant features like genre, author, and summary sentiment. Collect user data to personalize recommendation. Deploy the system and collect user feedback for continuous improvement. This project will enhance user experience by offering personalized book recommendations. Increase user engagement and retention on our platform and provide valuable insights into user preferences and behavior.

**Isha savaliya ideas:**

**Coupon Purchase Prediction:**

Project Idea: By analyzing the reaction of customers to different kinds of coupons, it is possible to determine their future behavior and interest in various coupons. Since many times when a customer receives a coupon, it gives the feeling of having received a deal from the business, coupons help to increase customer loyalty.  For new consumers, coupons are a form of fresh exposure to a new product or service and give the consumer more reason to try something new. This can help to have a competitive edge over other businesses in the same field. Data Visualization tools, Machine learning algorithms, deep learning techniques, can be applied to analyze customer usage behavior for various coupons and in that manner, perform coupon purchase prediction. This helps generate a better recommendation system so that coupons can be generated more specifically to various customers.

**Gaurav Singh Rawat’s idea:**

Movie Success Prediction

Project Overview

The objective of this project was to develop a predictive model that could forecast the financial and critical success of movies before their release. Success in the movie industry can be highly variable and depends on multiple factors. Therefore, understanding and predicting this success can provide significant advantages for producers, distributors, and marketers.

Predictive Model Ideas

Model Approach:

explored several machine learning techniques to predict movie success:

Regression Models to estimate box office revenue.

Classification Models to categorize films as hits, average, or flops based on predefined thresholds.

Sentiment Analysis to gauge pre-release public sentiment from social media and critic reviews.

Time Series Analysis for understanding trends over time that affect movie success.

Predictive Outcomes

Model Performance:

   - Revenue Prediction Accuracy: The regression models provided a reasonably accurate prediction of box office revenue.

   - Hit or Flop Classification: The classification models achieved an accuracy of approximately 70%, distinguishing between hits, average, and flop movies.

Challenges Faced

1. Data-Related Challenges:

   - Limited Access to Comprehensive Data: Data on marketing budgets and exact release strategies was often incomplete or unavailable.

   - Quality and Completeness: The available data sometimes had inconsistencies, especially in international box office numbers.

2. Model Development Challenges:

   - Dealing with Subjectivity: Success is a subjective measure and aligning it across different stakeholders (audience, critics, financial returns) was complex.

   - Dynamic Market Conditions: Changing audience tastes, and unexpected hits made it difficult to model based purely on historical data.

**Urjeet Parmar’s Ideas:**

Brainstormed new topics for the project and suggested for the project Traffic Flow Prediction. But was not able to find a reliable data source because traffic data is very complicated as it includes data from various car sensors and data collected from various signals and traffic patterns may change due to accidents, constructions to implementing these changes in real-time can be challenging and overall, it seemed me as a Computer Vision problem.

**Developing such models can be challenging due to various factors:**

1.Data Quality: Obtaining consistent traffic data is challenging because it can be incomplete, inconsistent due many factors such as road quality and accidents and factors such as rain.

2.Traffic Patterns: Traffic Patterns are different in various regions so predicting this pattern requires sophisticated models that can have such variability.

3.Model can be uncertain many times due to sophisticated nature and occurrence of unpredictable circumstances.

4.Model Scalability: It can use multiple sources of data from GPS services and Traffic Cameras and Sensors. Ensuring Interoperability and consistency among these sources is challenging.

5.Model Evaluation: Evaluating and validating this model performance requires access to ground truth which may be costly and hard to obtain.

**Gaurav Singh’s Idea:**

1. Bungie player base prediction   
   The project idea is for predicting the playerbase of Bungie, a video game developer having  titles like Destiny2 and Halo. By using predictive analytics, the aim is to forecast the number of active players engaging with Bungie's games over a specific timeframe and who will buy their next game installment.   
   What to Predict: The primary objective is to estimate the playerbase, accounting for factors such as new game releases, updates, in-game events, and seasonal trends.   
   How to Get Database: To obtain the necessary data, a combination of sources will be utilized.   
   Bungie API: Accessing data directly from Bungie's servers or use api that have already getting data from api charlmagne , such as active player counts, game statistics, and engagement metrics. Analyzing discussions, sentiments, and trends on platforms like Reddit and Twitter to gauge community interest and potential impacts on playerbase.   
   Challenges Faced: Several challenges may arise during the project: getting consistent access to accurate and up-to-date data from Bungie's servers without breaking any laws. Dealing with inaccuracies, or missing data points that could affect the reliability of predictions. Designing a robust predictive model that accounts for various influencing factors while maintaining simplicity and interpretability. Accounting for unexpected events, market dynamics, or industry shifts that may impact player behavior .   
   Impact: The successful implementation of this project will have significant implications for Bungie, Bungie can allocate resources , and optimize server capacities based on predicted player demand, leading to cost savings and improved user experiences. By anticipating the playerbase, Bungie can strategize marketing, content releases, and community engagements to maximize player engagement. The project will provide valuable insights into player needs, behavior patterns, and  trends, facilitating data-driven decision-making and  a deeper understanding of the gaming community.
2. Twitch recommender and analyzer:   
   The idea of the project is to develop a dashboard that predicts viewer, analyzes streamer performance, and recommends tailored content to users of what they would like to see and are the stats for it. This project targets the viewers of Twitch, to make their viewing experience better and to get better recommendations.   
   What to Predict: Predicting viewer engagement levels based on factors such as streamer activity, game popularity, and time of day. Analyzing streamer metrics like viewer count, chat activity, and follower growth to identify trends and patterns. Predicting upcoming trends in gaming content based on viewer preferences, game releases, and social media buzz.   
   How to Get Database: From the Twitch API we can collect data on streams, viewership, streamers, and games. Extracting more data from Twitch channels, user comments, and external sources to enrich the dataset.   
   Challenges Faced: Managing large volumes of streaming data and diverse data formats from various Twitch channels and games. Ensuring the accuracy and reliability of collected data, especially considering issues like bot activity and fake engagement which is hard as we cannot find who is real and who is not. Developing robust predictive models and recommendation algorithms that can adapt to dynamic changes in viewer behavior and content trends.    
   Impact: Enhanced viewing experience through personalized recommendations, discovery of new content, and insights into trending topics. Improved understanding of audience preferences, increased visibility through targeted recommendations, and opportunities for growth. Access to valuable insights into gaming trends, streamer performance metrics, and viewer engagement patterns. Potential for informed decision-making by game developers, marketers, and streaming platforms, leading to better content creation, marketing strategies, and community engagement.

# Devendra Singh Shekhawat Ideas:

1. Predicting Flight Delays with Weather Data":

"Predicting Flight Delays with Weather Data" involves using historical flight data and weather information to forecast the likelihood of flight delays for upcoming flights. This process allows airlines and travelers to anticipate potential disruptions and plan, accordingly, minimizing inconvenience and ensuring smoother travel experiences.

2. "Music Genre Classification with Audio Features"

"Music Genre Classification with Audio Features" involves developing a system that can automatically categorize music tracks into different genres based on their audio characteristics. This process enables music streaming platforms, recommendation systems, and content organizers to better understand and organize their music libraries, providing users with more personalized and relevant music recommendations.

**Swetha Tanikonda’s Ideas:**

1. Water quality monitoring in aquaculture:

This project aims in creating a smart system for aquaculture farms that uses models to keep an eye on water quality factors like temperature, pH, oxygen, etc. By collecting and analyzing real-time data from sensors installed in water bodies, the system can detect changes in water quality and provide early warnings of potential issues.

1. Smart waste sorting and recycling:

This project uses AI and machine learning to make recycling better. At waste processing facilities, the system can identify several types of materials (for example plastics, metals, paper) and sort them automatically, increasing recycling efficiency and reducing contamination.

**Jankiba Zala ‘s Idea :-**

Air Quality Prediction :

Develop a model that uses information from weather predictions, air quality monitoring stations, and other environmental factors to anticipate the levels of air quality in metropolitan areas in real-time.