# Project Ideas

## Covid data analysis and ML model to generate future projections

1. **Context**: Travel and tours industry is one of the worst hit industries that had a major revenue fall after the outbreak of Covid 19 pandemic. Having a system that can monitor the current situation of Covid around the world provides better control and improve confidence at a time of uncertainty. We are interested in developing the following:
   * machine learning model that can make projections on the number of covid cases, hospitalizations, and deaths for the upcoming 3-month period based on past data and current trends.
   * Dashboard with different visualizations for analysing the covid related data and projections

1. **Criteria for Success**:
2. On a given date, ability to generate various projections for up to 3 months.
3. Interactive dashboard with necessary sliders and filters to visualize number of hospitalizations, vaccination numbers, trends of new variants and death toll.

1. **Scope of the Solution Space**:

* Offline versus live data, depends on data availability.
* Model deployed in cloud with GUI for making predictions
* Online dashboard that is accessible from mobile and desktop devices.

1. **Constraints within the Solution Space**:

Needs re training of model at periodic intervals. Can be weekly or daily.

1. **Stakeholders**:

Client:

Travel and tourism companies, airlines, customers who wish to travel in the near future.

Domain expert

1. **Data Sources**:

Athena API – WHO

https://ourworldindata.org/coronavirus-source-data

## Analysis of sales of different products and build a ML model to predict sales at a particular store

**1. Context**: Accurately predicting the sales of every product is important in supply chain management. This helps the company to make sure that they have enough stock to meet the demands and prevent any back order, thereby improving the customer experience. We are interested in developing the following:

* + machine learning model that can make predictions of the anticipated sales on various products at different stores.
  + Dashboard with different visualizations for analysing and gaining insights about past sales data of different products at different stores.

**2. Criteria for Success**:

1. Sales predictions for various products.
2. Interactive dashboard with necessary sliders and filters to visualize the past sales and seasonal effects of various products at different stores.

1. **Scope of the Solution Space**:

Offline data, model deployed in cloud with GUI for making predictions, dashboard that is accessible from mobile and desktop devices.

1. **Constraints within the Solution Space**:

Needs re training of model if there is a lot of change in data and trends. Can be done offline.

1. **Stakeholders**:

Client:

Company with multiple products sold at multiple locations.

Domain expert

1. **Data Sources**:

https://www.kaggle.com/knightbearr/sales-product-data

## Analysis of World Bank data

**Context**: Investing in the right stocks that has a potential to grow is very critical for investors and third parties that provide financial advising services. We are interested in creating the following:

* + machine learning model that can predict the price of various stocks.
  + Dashboard with different visualizations for analysing the trends of various popular stocks

1. **Criteria for Success**:
2. For a given stock, the model should be capable of analysing various factors on make predictions on the stock price.
3. Interactive dashboard with necessary sliders and filters to visualize stock trends.

1. **Scope of the Solution Space**:

Feed live data and use it in dashboards

ML can be taken offline for retraining

1. **Constraints within the Solution Space**:

Needs re training of model at periodic intervals. Can be weekly or daily.

1. **Stakeholders**:

Client:

Consumers who are interested in investing in stocks, companies that provide financial advise.

Domain expert

1. **Data Sources**:

Yahoo Finance