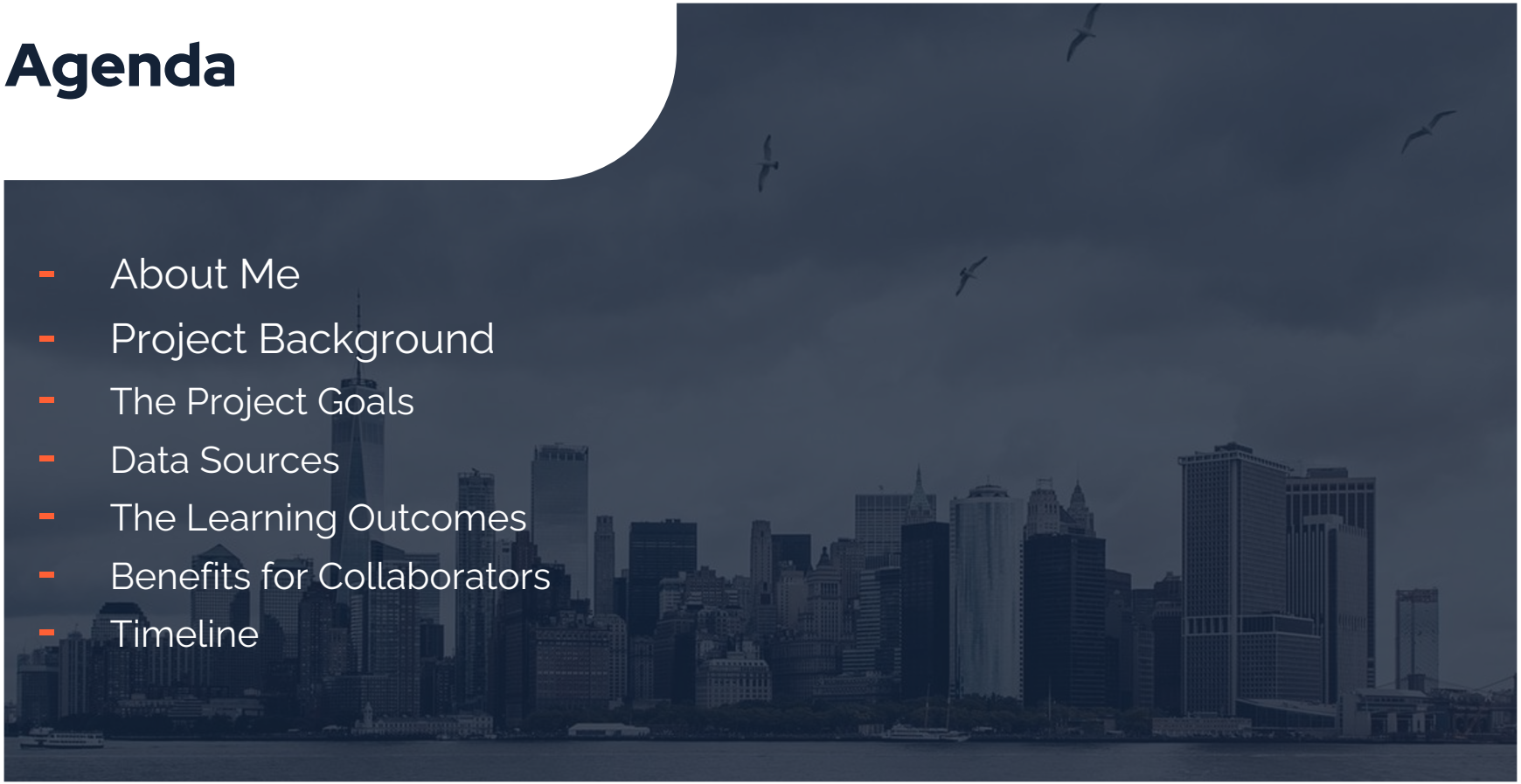
Air Quality Analysis in Gurugram Using Machine Learning Techniques

Presented by:
Deepanshu Kaushik

Agenda



- About Me
- Project Background
- The Project Goals
- Data Sources
- The Learning Outcomes
- Benefits for Collaborators
- Timeline

Chapter Lead- Deepanshu Kaushik

- Statistical academic background understanding of the machine learning life cycle.
- Experienced in applying analytics and ML in various domains including marketing, B2B marketing, SEO, Trade Analytics etc.
- Passionate about exploring the field of MLOps with a focus on model monitoring and experiment tracking.

1 Project Background

- Air pollution is a major environmental and public health issue in India, with Gurugram being one of the worst affected cities. Gurugram is a rapidly growing industrial and urban hub in the National Capital Region (NCR) of India, and is known for its high levels of air pollution.
- The Air Quality Index (AQI) is a measure of how polluted the air is and it reflects the concentration of major air pollutants, such as PM2.5 and PM10.
- By leveraging machine learning algorithms, it is possible to develop predictive models, identify sources of pollution, and assess the effectiveness of control measures.

2 Project Goals

Project Goals

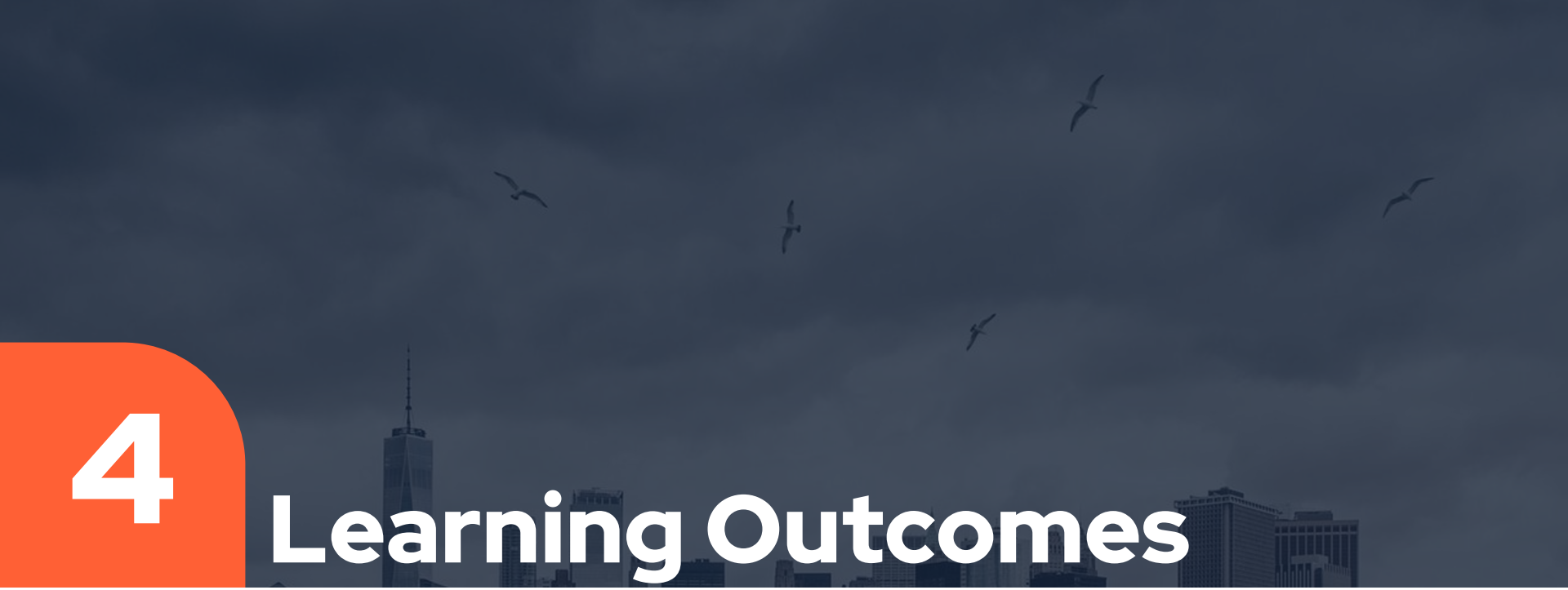
Aim is to develop a model to predict AQI from the given data.

- Relevant Data Collection
- Data Cleaning and Preprocessing
- Developing AQI calculation strategy
- Evaluating trends and patterns in AQI and other parameters
- Applying machine learning modelling
- Model training and evaluation
- Deploying model as an API using FastAPI or Flask

3 Data Sources

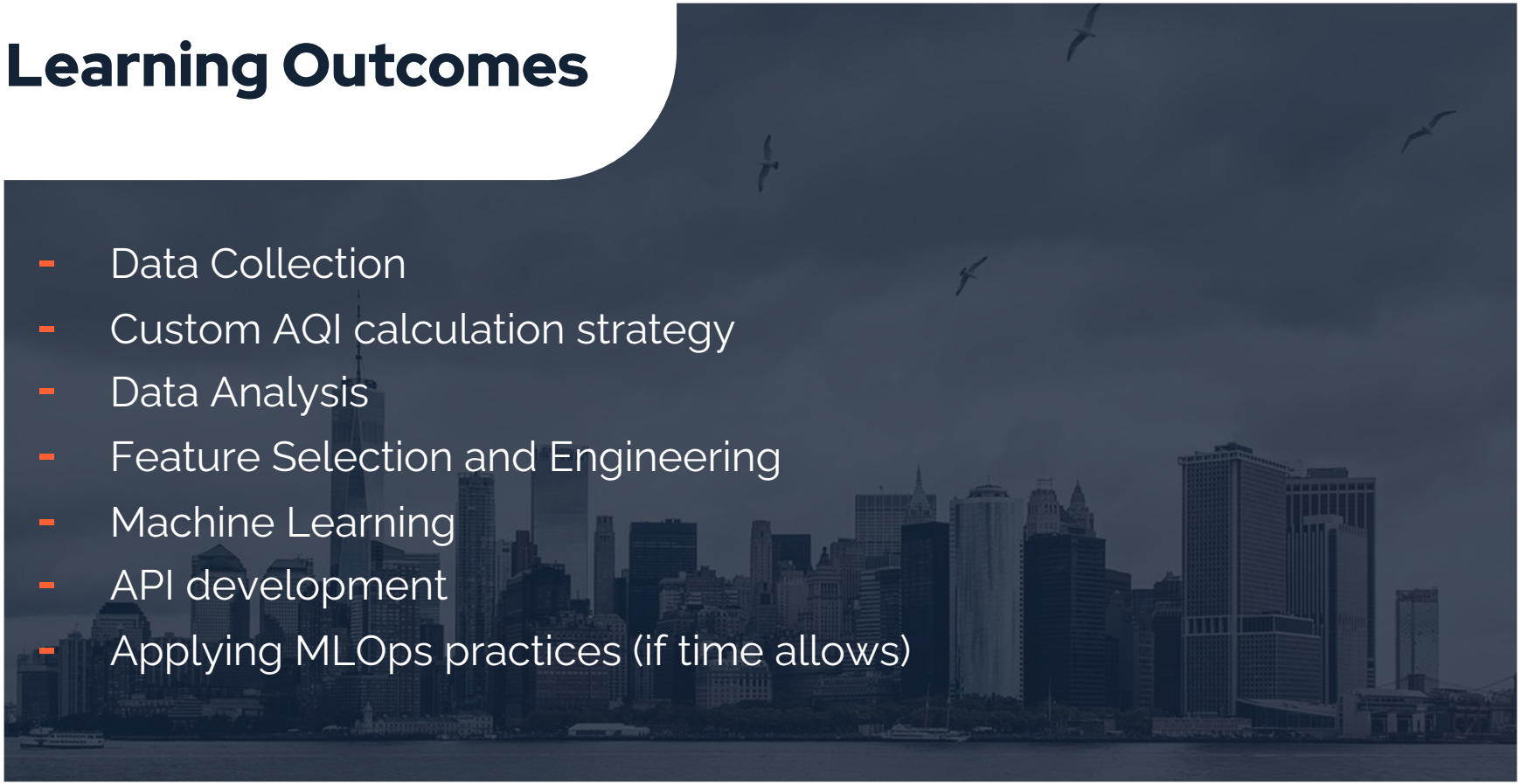
Data Sources

- Tapping into different public APIs using Python
- Using government website sources



4 Learning Outcomes

Learning Outcomes



- Data Collection
- Custom AQI calculation strategy
- Data Analysis
- Feature Selection and Engineering
- Machine Learning
- API development
- Applying MLOps practices (if time allows)

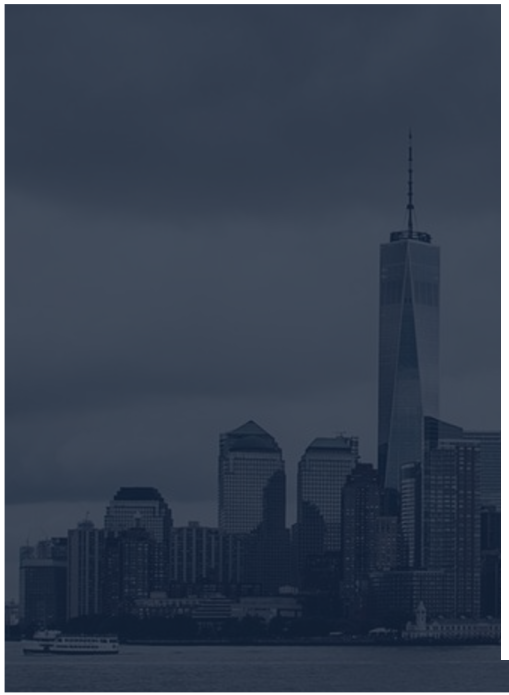
5 Benefits for Collaborators

Benefits

- Professional Development
- Networking with like-minded people and receive mentorship at the same time
- Certificates & other perks like access to free courses & training opportunities
- Exposure to global community
- Develop skillset and project for resume

6 Project Timeline

Timeline



Week 1	Week 2	Week 3	Week 4
Understanding the problem	Developing custom AQI calculation from available parameters	Feature Engineering	Deploying the model as an API using FastAPI or Flask
Identifying data sources	Exploratory Data Analysis(EDA)	Developing and Evaluating Machine Learning model to predict AQI	
Collecting relevant data	Data Preprocessing and Visualization		

Thankyou