

# AIOPS Live Projects

## Instructors:

### Avnish Yadav:

3+ years of experience in various domains such as data scientist, data analyst, database developer, and .net developer. Implemented various sophisticated business requirements, performed an analysis of various data to capture insights and hidden patterns. Fine and tuned various regression and classification-based algorithms for prediction. Implemented various ETL pipelines to fulfil the business requirement. Automated various machine learning pipelines such as data loading, data cleaning, data validation, model selection, model tuning, and model monitoring pipeline. Implemented machine learning pipeline in azure machine learning studio. I have a keen interest to solve complicated machine learning problems to fulfil business requirements.

## Curriculum:

### Building Machine learning Pipeline

- Overview of Machine Learning Pipeline
- Need for Machine Learning Pipeline
- Discussion on each step of ML Pipeline
- Introduction to Tensorflow Extend
- Task Communication with each other
- TFX component Internal Mechanism
- Machine Learning Meta data Store and It's uses
- Introduction to Apache Beam
- TFX component internal uses of Apache Beam

## **Data Ingestion**

- About Data Ingestion
- Retrieval of data and data versioning

## **Data Validation**

- About Data Validation
- Data Validation using TensorFlow Data Validation
- Implementation of alert due to data drift

## **Data Preprocessing**

- About Data Preprocessing
- Feature Engineering using TensorFlow Transform

## **Model Training and Model Tuning**

- Discussion on model training
- Implementation of model training in ML Pipeline
- Discussion on model tuning
- Implementation of model tuning

## **Model Evaluation**

- Overview of Model Evaluation
- Understanding useful metrics to evaluate model performance
- Capturing biases of model
- Versioning of Model

## **Model Deployment**

- Model Deployment using TensorFlow Serving
- Simple Flask Implementation
- Implementation of monitoring deployed model
- Deployment using Kubernetes

### **Integration with Apache Beam and Apache Airflow**

- Implementation of Pipeline
- Configure pipeline for Orchestration platform

### **Feedback Loop**

- Understanding of feedback loop
- Implementation of feedback loop to improve models

### **Data Privacy for Machine Learning**

- Understanding the need for data privacy
- Methods to implement data privacy
- Differential Privacy
- Federated Learning
- Encrypted machine Learning

### **Deployment of End to End Pipeline**

- Cloud Deployment (AWS/ GCP/ AZure)