

# GCP Machine Learning Certification

## Instructors:

### Khushali Shah:

A data scientist having rich experience working with MNCs and start-ups in the field of data science and machine learning. She has expertise in Chatbot development for various domains & been developing professionally for 6+ years with diverse job history. She also had positions in software module development, web app development, functional designs, requirement gathering, client interaction, and server setup/admin & can help everywhere in the stack; she loves wearing multiple hats to an extent. She also believes in enhancing her skills by training and learning new things day by day.

## Curriculum:

### Introduction

- Syllabus Overview
- Things to learn

### Big Data & ML Fundamentals

- Necessity of Compute Power for ML Workloads
- Storage, networking & security importance
- Big Data & Big query tools

### Recommendation System

- Recommendation System Fundamentals
- Diff products of GCP for recommendation system
- Practical:- Query Public Dataset in bigquery

- Practical:- Loading and querying data

## **BigQuery ML**

- BigQuery ML
- BigQuery Keypoints
- BigQuery Features
- Bigquery GIS Example
- ML Flow
- ML Process
- BigQueryML create Model
- BigqueryML evaluate model
- BigqueryML predict model

## **PubSub/Dataflow/Pipeline**

- Overview of pipeline
- PubSub Features
- Core concepts
- Hands-on send/receive messages with gcloud
- Dataflow

## **ML**

- Overview
- AI Platform
- DataPrep Tool
- Understanding ML Workflow

- What is vertex AI
- Pricing
- Managing ML Datasets with vertex AI
- Managed dataset handson
- Build & Train ML model with vertex AI
- Training a model using AutoML Vertex AI
- AutoML training & deployment
- AutoML prediction
- Clean up resources
- Overview of custom model
- Enable API
- Create Notebook instance
- Create container image
- custom ML model training with vertex AI
- Deployment
- Prediction
- Image classification application overview
- Collection of yoga pose image dataset
- Build image classification model with vertex AI
- Deployment & prediction
- Vertex AI SDK
- Vertex AI SDK code walkthrough
- Vertex AI SDK code walkthrough -2
- Vertex AI SDK handson-1

- Vertex AI SDK handson-2
- Vertex AI SDK handson-3
- Vertex AI SDK handson-4
- Vertex AI SDK handson-5
- Vertex AI SDK handson-6
- What is Hyperparameter tuning
- Hyperparameter tuning
- Hyperparameter tuning mechanism
- Hyperparameter tuning handson-1
- Hyperparameter tuning handson-2
- Hyperparameter tuning handson-3
- Hyperparameter tuning handson-4

## **Conversational AI**

- Overview
- Speech-to-Text using UI Console
- Speech-to-text using gcloud
- Speech-to-text using python library
- Different types of Speech recognition
- Asynchronous speech recognition demo
- Assignment Speech-text for streaming data
- Cloud Text-to-Speech overview
- TTS using python handson
- TTS list down voices available
- TTS basics

- TTS SSML to audio handson
- Assignment Translating text from a photo
- Cloud Natural Language AI Overview
- Analyze sentiment
- Sentiment\_analysis\_in\_different\_language
- Analyze entities in a string
- Classify text
- Analyzing syntax
- Analyzing entity sentiment
- Video Intelligence

### **Designing AI systems**

- Problem overview
- Change in Data
- System Failure
- Concept of drift
- Risks in ML system
- Rules of ML
- Best Practices of data
- Hybrid ML Model
- Kubeflow

### **MLOps Fundamentals**

- Basics
- Implementation:- Creating GKE Cluster with kubeflow

- Implementation:- defining custom component using KFP SDK
- Implementation:- Running/deploying pipeline
- CI/Cd pipeline
- Cloud Build trigger

### **Explainable AI**

- Overview of explainable AI
- Vertex Explainable AI

### **GCP ML Certification sample questions**

- QnA part-1
- QnA part-2
- QnA part-3