**Python Basics**

* Python Introduction, Installation and Setup
* Python Basics & Conditionals
* Conditionals & Loops
* Working with Loops
* Working with Strings & Lists
* List manipulation
* Tuple, Set & Dictionary
* Working with Functions
* Functions, Generators & File Handling
* Logging and debugging
* Modules and Exception

**OOPS**

* OOPs, Classes & Objects
* OOPS, Abstraction & Inheritance
* Inheritance, Polymorphism & Intro to Databases

**Databases**

* Working with SQL & Python
* SQL Continued, MongoDB installation & Working with MongoDB
* Working with Cassandra & Python

**Pandas**

* Introduction to Pandas
* Pandas Basics
* Pandas Data Manipulation
* Working with Pandas

**Numpy**

* Introduction to Numpy

**Matplotlib**

* Working with Pandas & Matplotlib

**Plotly**

* Working with Plotly

**Seaborn**

* Working with Seaborn

**EDA**

* EDA

**Web Frameworks**

* Rest API, Flask & Working with Postman
* Working with Flask & Debugging Calculator Application

**Python Projects with Deployment**

* Project Discussion Review Scraper with Deployment on Heroku, AWS and Azure
* Project Discussion Advance Review Scraper

**Stats**

* Different types of Statistics
* Population vs Sample
* Mean, Median and Mode
* Variance, Standard Deviation
* Sample Variance why n-1
* Standard Deviation
* Variables
* Random Variables
* Percentiles & quartiles
* 5 number summary
* Histograms
* Gaussian - Normal distribution
* Standard Normal distribution
* Application Of Zscore
* Basics Of Probability
* Addition Rule In Probability
* Multiplication rule in probability
* Permutation
* Combination
* Log Normal Distribution
* Central Limit theorem
* Statistics - Left Skewed And Right Skewed Distribution And Relation With Mean, Median And Mode
* Covariance
* Pearson And Spearman Rank Correlation
* What is P Value
* What is Confidence Intervals
* How To Perform Hypothesis Testing - Confidence IntervalZ Test Statistics Derive Conclusion
* Hypothesis testing part 2
* Hypothesis testing part 3
* Finalizing statistics

**Machine Learning**

* Introduction to Machine learning
* Linear Regression
* Linear Regression live coding demonstration part-1
* Linear Regression live coding demonstration part-2
* Project Admission Prediction, Lasso, Ridge & Elastic Net
* Project deployment in Heroku, Azure & AWS
* Logistic Regression
* Logistic Regression implementation
* Decision Tree
* Decision Tree Part 2 , Ensemble Tech, Random Forest & Boosting
* KNN and SVM
* Decision Tree Practical Implementation
* Decision Tree Live Coding & Grid Search
* Grid Search, Bagging Classifier & Random Forest
* KNN, SVC, SVR & Stacking
* Clustering
* Clustering and PCA
* PCA practical, DBSCAN and Naive Bayes
* XG Boost, NLTK & TF-IDF

**ML Projects**

* Detailed Project Report explanation
* Project :- Wafer Fault Detection Part 1
* Project :- Wafer Fault Detection Part 2
* Deployment in Heroku using docker and circleci

**ML Project 1 :- Fault detection in wafers based on sensor data**

* Introduction
* The problem statement and Data Description
* The Application Flow
* Ingestion and Validation Part1
* Validation Part2
* DB Operations
* Data Preprocessing
* Clustering
* Model Selection and Tuning
* Prediction
* Deployment

**ML Project 2 :- Cement Strength Prediction**

* Introduction
* The Problem Statement and Data Description
* The Application Flow
* Code Intro and Logging
* Validation and Transformation
* DB Operations
* Data Preprocessing
* Clustering
* Model Selection and Tuning
* Prediction
* Deployment

**ML Project 3 :- Credit Card Defaulters**

* Introduction
* The Problem Statement and Data Description
* The Application Flow
* Code intro and Logging
* Validation and Transformation
* DB Operations
* Data Preprocessing
* Deployment

**ML Project 4 :- Forest Cover**

* Introduction
* The Problem Statement and Data Description
* Application Flow
* Code intro and Logging
* Validation and Transformation
* DB Operations
* Data Preprocessing
* Clustering
* Model Selection and Tuning
* Prediction
* Deployment

**ML Project 5 :- Income Prediction**

* Introduction
* The Problem Statement and Data Description
* The Application Flow
* Code intro and Logging
* Validation and Transformation
* DB Operations
* Data Preprocessing
* Clustering
* Model Selection and Tuning
* Prediction
* Deployment

**ML Project 6 :- Insurance Fraud Detection**

* Introduction
* The Problem Statement and Data Description
* The Application Flow
* Code Intro and Logging
* Validation and Transformation
* DB Operations
* Data Preprocessing
* Clustering
* Model Selection and Tunning
* Prediction
* Deployment
* The Problem Statement and Data Description

**ML Project 7 :- Mushroom Classification**

* Introduction
* The Application Flow
* Code Intro and Logging
* Validation and Transformation
* DB Operations
* Data Preprocessing
* Clustering
* Model Selection and Tuning
* Predictions
* Deployment

**ML Project 8 :- Phishing Classifier**

* Introduction
* The Application Flow
* Code intro and Logging
* Validation and Transformation
* DB Operations
* Data Preprocessing
* Clustering
* Model Selection and Tuning
* Prediction
* Deployment

**ML Project 9 :- Thyroid Detection**

* Introduction
* The Problem Statement and Data Description
* The Application Flow
* Code intro and Logging
* Vallidation and Transformation
* DB Operation
* Data Preprocessing
* Clustering
* Model Selection and Tuning
* Prediction
* Deployment

**ML Project 10 :- Visibility Climate**

* Introduction
* The Problem Statement and Data Description
* The Application Flow
* Code intro and Logging
* Validations and Transformation
* DB Operations
* Data Preprocessing
* Clustering
* Model Selection and Tuning
* Prediction
* Deployment

**Time Series**

* Arima, Sarima, Auto Arima
* Time series using RNN LSTM, Prediction of NIFTY stock price
* Time series using RNN LSTM, Prediction of NIFTY stock price

**DL ANN - Introduction**

* Introduction to Deep Learning
* Importance of Deep learning
* Why you should study Deep Learning? (Motivation)
* ANN vs BNN
* The first Artificial Neuron

**DL ANN - Perceptron**

* Overview of Perceptron
* More about Perceptron
* Perceptron implementation using python - 1
* Perceptron implementation using python - 2
* Perceptron implementation using python - 3
* Perceptron implementation using python - 4
* Perceptron implementation using python - 5
* Perceptron implementation using python - 6
* Perceptron implementation using python - 7
* Python scripting & modular coding for Perceptron
* Python logging basics and docstrings

**DL ANN -1**

* Multilayer Perceptron
* Forward propagation
* Why we need Activation function?
* ANN implementation using tf.keras - 1
* ANN implementation using tf.keras - 2
* ANN implementation using tf.keras - 3
* ANN implementation using tf.keras - 4
* ANN with Callbacks | Tensorboard | Early Stopping | Model Checkpointing

**DL ANN - 2**

* Vector
* Differentiation
* Partial differentiation
* Maxima and minima concept
* Gradient descent basics
* In-depth understanding of Gradient descent with mathematical proof

**DL ANN - 3**

* Chain rule
* Back propagation

**DL ANN - 4**

* General problems in training Neural Networks
* Vanishing and Exploding gradients
* Activation Function Basics
* Weight initialization
* Activation Functions - 1
* Activation functions - 2
* Activation functions - 3
* Transfer learning
* Batch normalization -1
* Batch normalization -2
* Batch normalization -3

**DL ANN - 5**

* Introduction to fast optimizers
* Momentum optimization
* NAG
* Loss functions
* Regularization
* Dropout

**Computer Vision - Introduction**

* Introduction to Course
* Course Overview
* Installing Anaconda, Pycharm & Postman
* Working with Conda Envs
* Pycharm Introduction
* Pycharm with Conda
* Pycharm with venv
* Pycharm with Pipenv

**Computer Vision - CNN Foundations**

* Why CNN? Building an Intution for CNN
* CNN, Kernels, Channels, Feature Maps, Stride, Padding
* Receptive Fields, Image Output Dimensationality Calculations, MNIST Dataset Explorations with CNN
* MNIST CNN Intutiton, Tensorspace.js, CNN Explained, CIFAR 10 Dataset Explorations with CNN
* Dropout & Custom Image Classification Dog Cat Dataset
* Deployment in Heroku, AWS, Azure

**Computer Vision - CNN Architectures**

* LeNet-5
* LeNet-5 Practical
* AlexNet
* AlexNet Practical
* VGGNet
* VGG16 Practical
* Inception
* Inception Practical
* ResNet
* Resnet Practical

**Computer Vision - Data Augmentation**

* What is Data Augmentation?
* Benefits of Data Augmentation
* Exploring Papers like RICAP, Random Erasing, Cutout
* Exploring Augmentor
* Exploring Roboflow

**Computer Vision - Object Detection Basics**

* What is Object Detection?
* Competitions for Object Detection
* Bounding Boxes
* Bounding Box Regression
* Intersection over Union (IoU)
* Precision & Recall
* What is Average Precision?

**Computer Vision - Object Detection Architectures**

* Object Detection Family
* RCNN
* RCNN Network Architecture
* Cons of RCNN
* FAST RCNN
* FAST RCNN Network Architecture
* Cons of FAST RCNN
* FASTER RCNN
* FASTER RCNN Network Architecture
* YOLO
* YOLO Architecture
* YOLO Limitations

**Computer Vision - Practicals Object Detection using Tensorflow 1.x**

* Introduction to TFOD1.x
* Using Google Colab with Google Drive
* Installation of Libraries in Colab
* TFOD1.x Setup in Colab
* Visiting the Model Zoo
* Inferencing in Colab
* Inferencing in Local
* Important Configurations Files
* Webcam Testing

**Computer Vision - Practicals Training a Custom Cards Detector using Tensorflow1.x**

* Custom Model Training in TFOD1.x
* Our Custom Dataset
* Doing Annotations or labeling data
* Selection of Pretrained Model from Model Zoo
* Files Setup for Training
* Let's start Training in Colab
* Export Frozen Inference Graph
* Inferencing with our trained model in Colab
* Training in Local
* Inferencing with our trained model in Local

**Computer Vision - Practicals Creating an Cards Detector Web App with TFOD1**

* Code Understanding
* WebApp Workflow
* Code Understanding
* Prediction with Postman
* Debugging our Application

**Computer Vision - Practicals Object Detection using Tensorflow 2.x**

* Introduction to TFOD2.x
* Using the Default Colab Notebook
* Google Colab & Drive Setup
* Visting TFOD2.x Model Garden
* Inference using Pretrained Model
* Inferencing in Local with a pretrained model

**Computer Vision - Practicals Training a Custom Chess Piece Detector using Tensorflow2**

* Custom Model training in TFOD2.x
* Our Custom Dataset TF2
* File Setup for Training
* Let's start Training
* Let's start Training
* Stop Training or resume Training
* Evaluating the trained model
* Convert CKPT to Saved Model
* Inferencing using the Custom Trained Model in Colab
* Inferencing using the Custom Trained Model in Local PC

**Computer Vision - Practicals Creating an Chess Piece Detector Web App with TFOD2**

* Creating a Pycharm project & Environment Setup TF2
* Application Workflow
* Code understanding
* Testing our App with Postman
* Debugging our Application

**Computer Vision - Practicals Object Detection using Detectron2**

* Introduction to Detectron2
* Detectron2 Colab Setup

**Computer Vision - Practicals Training a Custom Detector using Detectron2**

* Detectron2 Custom Training
* Exploring the Dataset
* Registering Dataset for Training
* Let's start Training
* Inferencing using the Custom Trained Model in Colab
* Evaluating the Model

**Computer Vision - Practicals Creating an Custom Detector Web App with Detectron2**

* Creating a Pycharm project & Environment Setup Detectron2
* Application Workflow
* Code understanding
* Testing our App with Postman
* Debugging our Application

**Computer Vision - Practicals Object Detection using YoloV5**

* Introduction to YoloV5
* YoloV5 Colab Setup
* Inferencing using Pre Trained Model

**Computer Vision - Practicals Training a Custom Warehouse Apparel Detector using YoloV5**

* Custom Training with YoloV5
* Exploring the Dataset
* Doing Annotations or labeling data
* Setting up Google Colab & Drive
* Let's start Training
* Inferencing using the Custom Trained Model in Colab

**Computer Vision - Practicals Creating an Warehouse Apparel Detector Web App with YOLOV5**

* Creating a Pycharm project & Environment Setup Yolo
* Application Workflow
* Code understanding
* Testing our App with Postman
* Debugging our Application

**Computer Vision - Image Segmentation**

* Segmentation Introduction
* From Bounding Box to Polygon Masks
* What is Image Segmentation?
* Types of Segmentation
* MASKRCNN
* MASK RCNN Architecture

**Computer Vision - MASK RCNN Practicals with TFOD**

* Segmentation with TFOD1.x
* Local Setup MASKRCNN
* Exploring the Dataset
* Data Annotation
* Model Selection
* Files Setup for Training
* Model Training
* Export Frozen Inference Graph
* Model Prediction

**Computer Vision - MASKRCNN practical with Detectron2**

* Introduction to Detectron2
* Data Preparation
* Setup for Training
* Let's start Training
* Inferencing using the Custom Trained Model in Colab
* Evaluating the Model

**Computer Vision - Face Recognition Project**

* Introduction to Project
* Requirement Gathering
* Techstack Selection
* Project Installation
* Project Demo
* Project Workflow
* Core Components of the Application
* Data Collection Module
* Generate Face Embeddings
* Training Face Recognition Module
* Prediction Pipeline
* Entry point of the Application
* Application Workflow
* Debugging our Application

**Computer Vision - Object Tracking Project**

* Object Tracking project
* Project Installation Tracking
* Project Demo
* Code Understanding

**Computer Vision - GANS**

* Introduction to GANS
* GAN Architecture
* GAN PRACTICALS Implementation

**Computer Vision Project - Fashion Apparel Detection**

* Introduction to Fashion Apparel Detection project
* Requirement Gathering
* Techstack Selection
* Detailed Project Workflow
* Data Collection
* Data Preparation
* Data Augmentation
* Data Annotations

**Computer Vision Project - Image TO Text OCR**

* Introduction to Project
* Project Installation OCR
* Project Demo

**Computer Vision Project - Shredder System**

* Introduction to Shredder Systems
* Requirement Gathering
* Techstack Selection
* Data Collection
* Data Augmentation
* Data Preparation
* Data Annotation
* Model Selection from Zoo
* Model Training

**Computer Vision Project - Automatic Number plate Recognition with TFOD1.x**

* Introduction to ANPR Project
* Requirement Gathering
* Tech Stack Selection
* Data Collection
* Data Augmentation
* Data Preparation
* Data Annotation

**NLP Overview**

* NLP Overview
* NLP very basic

**NLP Word Embeddings**

* TFIDF
* Word Embeddings Part-1
* Word Embeddings Part-2

**NLP RNN**

* RNN basic
* RNN Implementation

**NLP Project:- Text to Speech**

* Introduction
* Project Setup Text to Speech
* Project Demo

**NLP Project:- Speech To Text**

* Introduction
* Project Setup Speech To Text
* Project Demo

**NLP Project:- Spell Corrector**

* Introduction
* Project Setup Spell Corrector
* Project Demo

**BigData - Introduction to Distributed Systems - Hadoop and MapReduce**

* Big Data Engineering Introduction

**BigData - Hive**

* Apache hive

**BigData - NoSQL and Hbase**

* Big Data HBase
* Hbase hands On

**BigData - Spark**

* Spark - Introduction
* Big Data Engineering using PySpark- RDDs
* Spark hands on - RDD
* Big Data Engineering using PySpark- Shared Vars , Coalesce Repartition
* Spark hands on - Dataframe

**BigData - Spark ML**

* Big Data Engineering using PySpark- MLLib
* Spark hands On - Spark ML Lib

**igData - Spark Streaming**

* Big Data Engineering using PySpark- Streaming Part 1
* Big Data Engineering using PySpark- Streaming Part 2
* Spark hands On - Spark Streaming

**BigData - Kafka**

* Big Data Kafka
* Big Data Kafka Hands on

**Basic Charts in Power BI**

* 2.0 Basic Charts in Power BI Desktop
* 2.1 Column Chart in Power BI
* 2.2 Stacked Column Chart in Power BI
* 2.3 Pie Chart in Power BI

**Working with Maps**

* 3.1 Creating a Map in Power BI
* 3.2 Filled Map
* 3.3 Map with Pie Chart
* 3.4 Formatting in Map

**Tables and Matrix in Power BI**

* 4.0 Table and Matrix in Power BI
* 4.1 Creating a Table in Power BI
* 4.2 Formatting a Table

**Introduction to tableau**

* Tableau Introduction
* Download and Install Tableau
* Tableau Vs Excel

**SQL**

* Database Architecture
* Introduction to SQL
* Constraints
* Joins
* Import Export
* Aggregate Functions
* Order by, Having & Limit Clause
* String Functions
* Datetime functions
* Nested Queries
* Views

**Excel**

* Introduction to Excel
* Pre-defined functions
* Datetime Funtions
* String functions
* Mathematical functions
* Lookup

**Chatbot - Google Dialog Flow**

* What is Chatbot?
* Why Chatbot?
* Types of Chatbot
* Use of Chatbot
* Examples of chatbot
* Dialogflow - Inline editor
* Create Intent and Entities
* Food order Intent