

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING ADVANCE



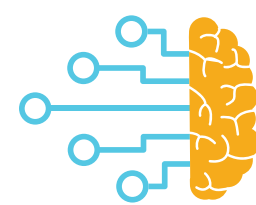
This course will cover all the topics which are most important for technical interviews. At the end of every topic questions based on the topic will be shared and solved.

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1 PYTHON

- Big Picture
- Pycharm
- Package Manager (PIP/Anaconda)
- Scaler Types, Operators and Control Flow
- Introducing Strings, Collections and Iteration
- Modularity in Python
- Object Oriented Programming
- Built-In Collections
- Exception Handling
- Iterations and Iterables
- Classes
- File IO and Resource Management
- Multithreading
- Beyond Basic Function
 - Callable Instances
 - Classes are callable
 - Conditional Expressions
 - Lambdas
 - Detecting Callable Objects
 - Extended Formal Argument Syntax
 - Extended Call Syntax
 - Forwarding Arguments
 - Transposing Tables
- Closures and Decorator
- Advance Properties and Class Methods
- Advance String Methods
- Advance Numeric Types
- Advance Iterables and Iteration
- Advance Collection and Exception Handling
- DateTime Types
- Inheritance and Subtype Polymorphism
- Junit Testing
- Virtual Environment
- Database
- REST Api
- Flask
 - Rest API Implementation
 - Storing Resources in a SQL Database
 - Simplifying Storage
 - Understanding Model Template View Pattern
 - Creating and Processing Webforms with Flask
 - Creating Model Layer for Flask
 - Flask Users, Sessions and Authentication
- Case Study
 - A Game Of Chance
 - Movie Store (using Collections)
 - Movie Store (using Database)
 - Build a static file generator with python
 - Add Extension to a Static Site Generator
 - Build a Personal Budget Report with Python Collections and Iterables
 - Decoding Sensor Data using Python
 - Build Your Own CLI Planner App using python abstract Base classes
 - Control drone from your laptop



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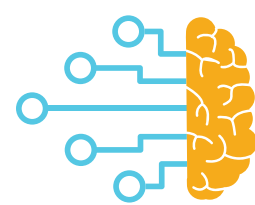
2 DATA STRUCTURES

- Introduction to Data Structure
- Big O Notation
- Essential Concept
- Memory and Logarithm
- Array
- Recursion
- Linked List
- Stack
- Queue
- Hash tables
- Trees
- Heaps
- Tries
- Graphs
- Searching Algorithm
- Sorting Algorithm
- Dynamic Programming



3 AI/ML

- Introduction
- Environment Setup
- Jupyter Overview
- Numpy
- Pandas
- Matplotlib
- Seaborn
- Introduction to Machine Learning
- Difference between Machine Learning, Deep learning and Data Science
- Supervised Learning and Unsupervised Learning
- Linear Regression
- Logistic Regression
- K-Nearest Neighbour
- Support Vector Machine
- K Means Clustering
- Principle Component Analysis
- Recommender System
- Decision trees and Random Forest
- OpenCV
- Natural Language Processing
- Introduction to Neural Nets and Deep Learning
- Introduction to Keras



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4 PROJECTS

- Build smart door lock based on Face Recognition
- Control Drone through Hand Gesture
- Build Your Personal Assistant like Jarvis
- Create your own emoji with Python
- Sentiment Analysis System
- Digit Recognition
- Housing Prices Prediction Project
- Stock Price Prediction
- Fake News Detection
- Handwritten Character Recognition
- Credit Card Fraud Detection
- Customer Segmentation
- Speech Emotion Recognition
- Automatic License Number Plate Recognition System
- Image Segmentation
- MoneyBall: the power of Sports Analytics
- Election Forecasting: Predicting the winner Before any Votes are Cast
- Predictive Diagnosis: Discovering Patterns for Disease Detection
- Boston House Pricing Prediction Project
- Build a Movie Recommender
- Loan Eligibility Prediction
- Music Recommendation System
- Rating Review System based on Text
- Summary Generator
- Many More...



5 ASSIGNMENTS

- Linear Regression
 - an Ecommerce company based in New York City that sells clothing online but they also have in-store style and clothing advice sessions. Customers come in to the store, have sessions/meetings with a personal stylist, then they can go home and order either on a mobile app or website for the clothes they want. The company is trying to decide whether to focus their efforts on their mobile app experience or their website. They've hired you on contract to help them figure it out!
- Logistic Regression
 - In this project we will be working with a fake advertising data set, indicating whether or not a particular internet user clicked on an Advertisement. We will try to create a model that will predict whether or not they will click on an ad based off the features of that user.
- Random Forest
 - Lending Club connects people who need money (borrowers) with people who have money (investors). Hopefully, as an investor you would want to invest in people who showed a profile of having a high probability of paying you back. We will try to create a model that will help predict this.
- Support Vector Machines
 - The Iris flower data set or Fisher's Iris data set is a multivariate data set introduced by Sir Ronald Fisher in the 1936 as an example of discriminant analysis. The data set consists of 50 samples from each of three species of Iris (Iris setosa, Iris virginica and Iris versicolor), so 150 total samples. Four features were measured from each sample: the length and the width of the sepals and petals, in centimeters.
- K-Means Clustering
 - For this project we will attempt to use KMeans Clustering to cluster Universities into to two groups, Private and Public.
- And Many More..

