



**LEARN WELL TECHNOCRAFT**

# **DATA ANALYTICS /MACHINE LEARNING USING PYTHON SYLLABUS**

**8th year of Accomplishments**

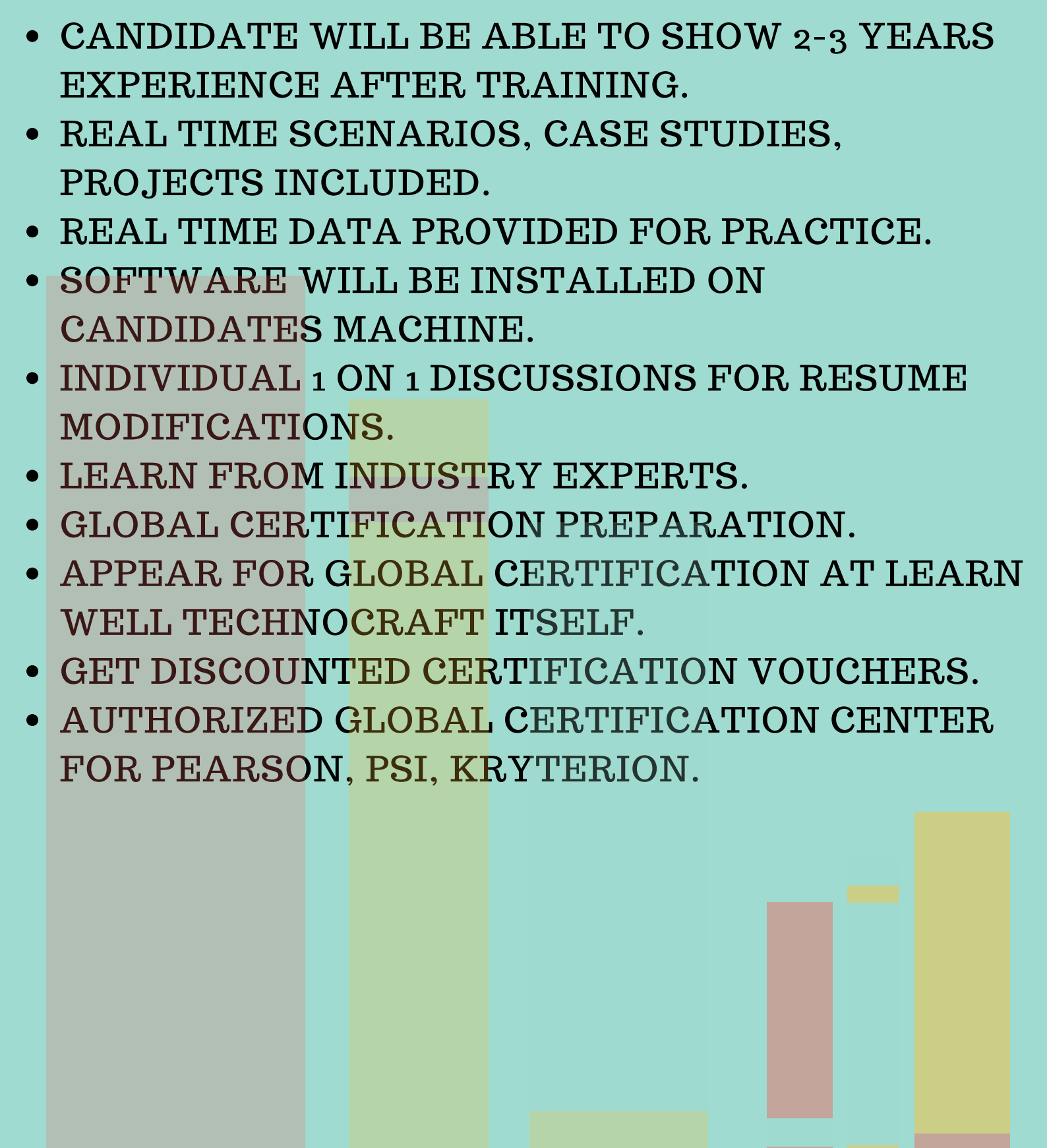
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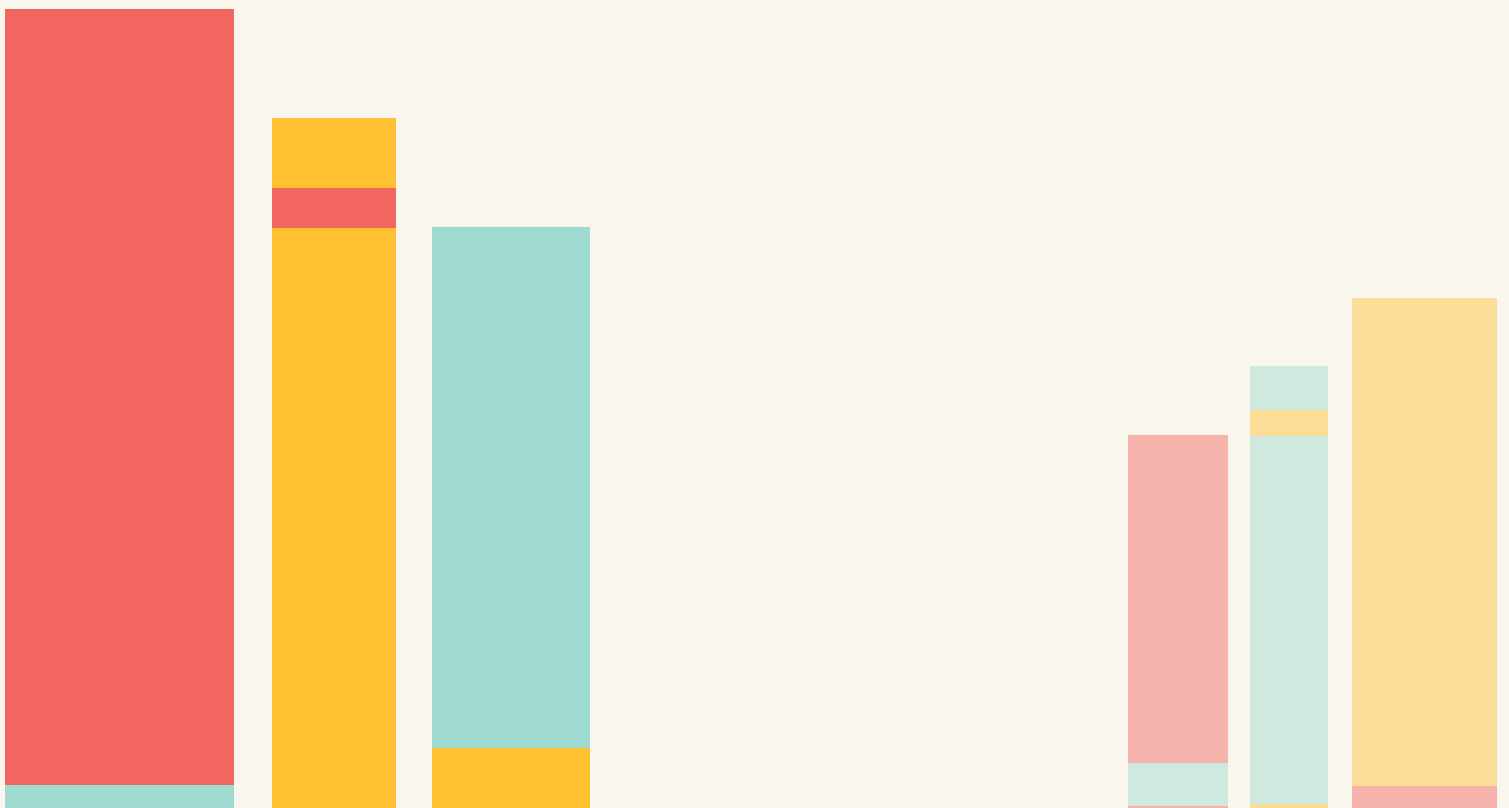
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Near Parihar Chowk, Aundh, Pune**

# ACHIEVEMENTS FROM TRAINING

- CANDIDATE WILL BE ABLE TO SHOW 2-3 YEARS EXPERIENCE AFTER TRAINING.
  - REAL TIME SCENARIOS, CASE STUDIES, PROJECTS INCLUDED.
  - REAL TIME DATA PROVIDED FOR PRACTICE.
  - SOFTWARE WILL BE INSTALLED ON CANDIDATES MACHINE.
  - INDIVIDUAL 1 ON 1 DISCUSSIONS FOR RESUME MODIFICATIONS.
  - LEARN FROM INDUSTRY EXPERTS.
  - GLOBAL CERTIFICATION PREPARATION.
  - APPEAR FOR GLOBAL CERTIFICATION AT LEARN WELL TECHNOCRAFT ITSELF.
  - GET DISCOUNTED CERTIFICATION VOUCHERS.
  - AUTHORIZED GLOBAL CERTIFICATION CENTER FOR PEARSON, PSI, KRYTERION.
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# RECOMMENDED

- Courses best Suited With Data Analytics/Machine Learning with Python
  - R Programming
  - Artificial Intelligence
  - Tableau



## What is Python?

- Birth and Rise of Python
- Links for the necessary software
- GUI of Python: IDLE and Statistical
- Python Notebooks
- Anaconda Python Distribution

## Basic Operations in Python

- Expressions: Basic Idea
- Constant Values: Numeric & Strings
- Arithmetic: Operations and BODMAS
- Common Mathematical functions
- Conditions: Equality, Greater Than, Less Than, etc.
- Function Calls: Introduction to Python Functions
- Symbols & Assignment, Declaring Python Variables
- Reserved Keywords
- Naming a Variable: Generally accepted conventions

## Data Types & Data Structures in Python

- Basic data types bool (Boolean), int (Integer/Long), float, complex
- Type conversions: into to float, float to int, etc.
- String definition and manipulation commands
- Lists
- Tuples
- Dictionary
- Sets

# Control structures and user defined Functions

- For Loop
- While Loop
- Range
- If- else construct
- User defined functions

## Numpy

- Introduction to Numpy: What is numpy
- ndarray
- arange
- list vs numpy
- zeros
- linspace
- random\_sample
- Statistical operations on numpy ( min, max, sum etc.)
- Reshaping
- Indexing
- Slice and dice numpy arrays

## Pandas

- Introduction to Pandas: what is Pandas
- Series
- Slice and Dice pandas Series
- any() and all()
- apply()
- id() – referencing of python objects
- Deep copy vs Shallow copy
- timeit usage
- Pandas Data Frame
- Slice and Dice Data Frame.
- Creating calculated columns
- Map()
- Drop()
- Reading data from CSV/TSV files

## Data Visualizations

- Matplotlib
- Seaborn
- Scatter plot
- Box Plot
- Stripplot
- Violinplot
- PairPlot

## Data Pre-Processing

- Treating Missing data
- Isnull()
- dropna()
- Imputer object
- Treating categorical variables
- Label Encoder
- Ordinal vs Nominal treatment
- One Hot Encoding
- Get\_dummies
- Standardization
- Normalization

## Machine Learning Using Python

- Machine Learning: Supervised Vs Unsupervised
- Correlation
- SciKit learn library (sklearn)
- Data Pre processing before Machine Learning
- Sampling
- Training and Testing split
- Linear Regression
- Multiple Linear Regression
- Polynomial Regression
- Measuring goodness of fit
- SSE (Sum of squared Errors)
- Classification models vs Regression models

- Logistic Regression
- Decision Trees
- Support Vector Machines
- KNN
- Naïve Bayes
- Measuring the performance of classifier
- Precision vs Recall
- Confusion Matrix
- True Positives, True Negatives, False Positives, False Negatives.
- Unsupervised Learning: Dimensionality reduction technique- PCA
- Unsupervised Learning: K-Means Clustering

## Text Mining with Python

- Introduction to Text Mining
- Unstructured data cleaning to remove clutter
- Extracting features from unstructured text
- Understanding the Document Term Matrix
- Keyword search
- Word cloud
- Sentiment Analysis
- Trend analysis using Twitter
- Finding global trends
- Finding Trends based on geographic location
- Finding Trends for a given topic
- Finding product sentiment in market using Text analysis
- Twitter Data Analysis – Case Study.

## Natural Language Processing with Python

- Introduction to nltk
- Nltk.download()
- Tokens: sent\_tokenize, word\_tokenize
- Stopwords removal
- Stemming

- Lemmatization
- POS tagging
- PunktSentenceTokenizer
- huniking
- Named Entity Recognition
- N-Grams



## Also Available

- Internships - Paid / Free
- Internship certifications on successful completion
- Final year Collage Projects on Latest Skills
- Special Project batches
- Collage Seminars