Data Science

Training Program

LevelUp
Coaching • Mentoring • Consulting

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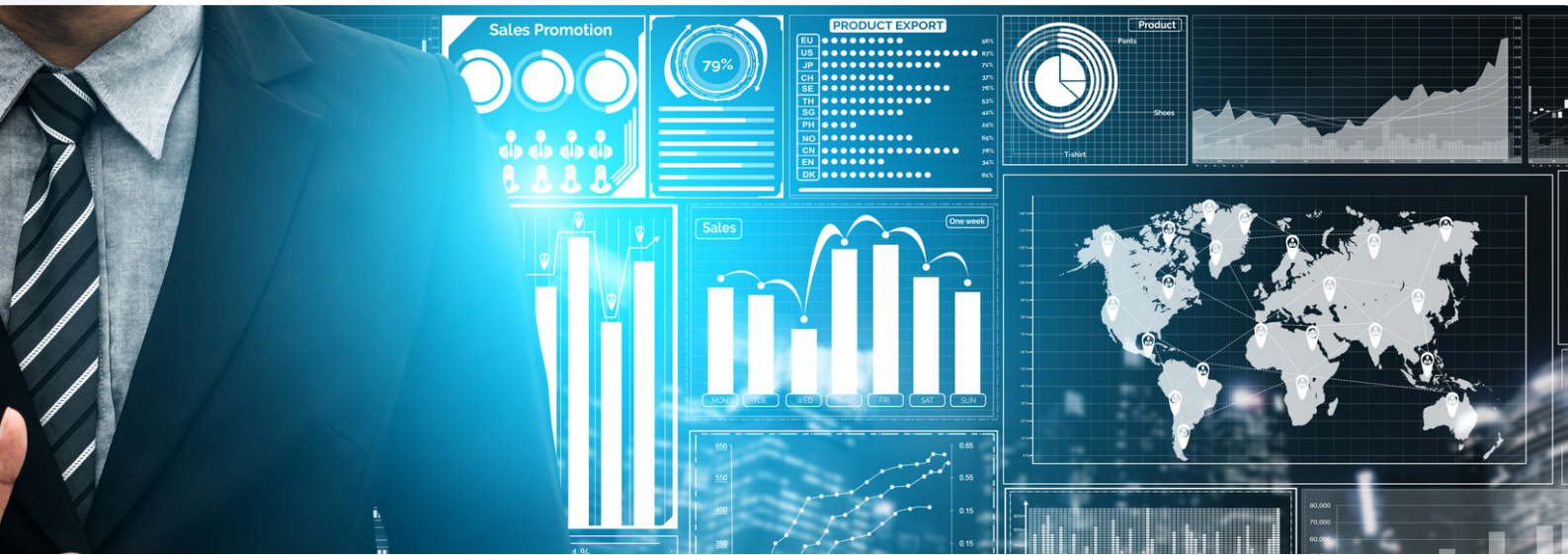

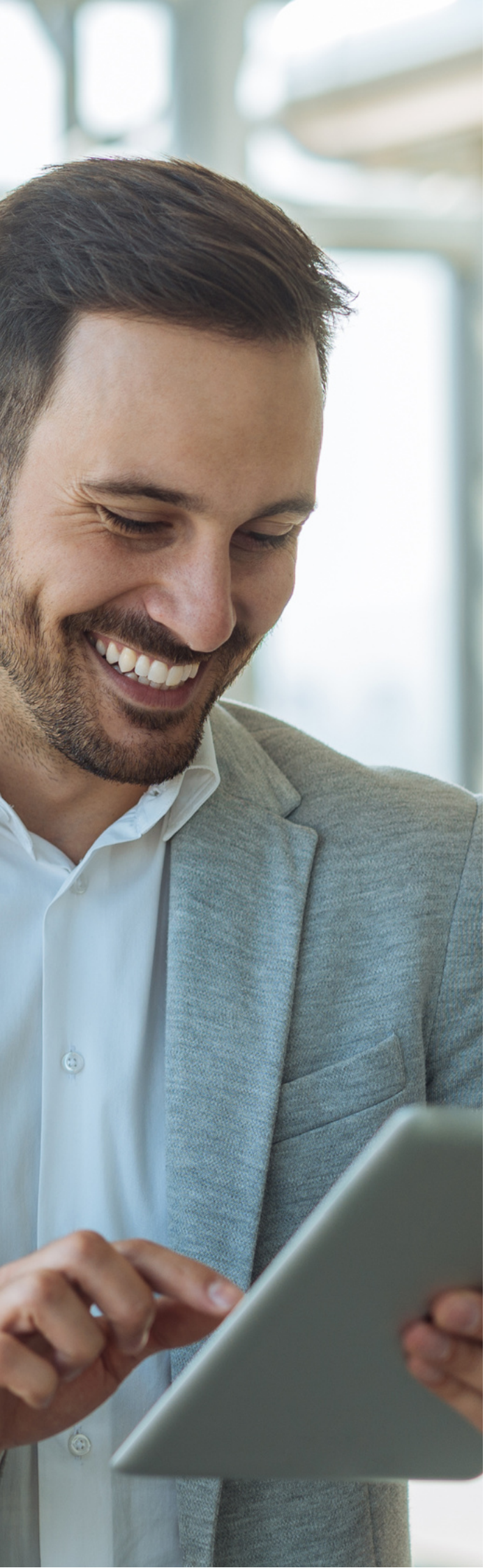

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About the Program

Embark on a transformative journey with our comprehensive Data Science Program.
Gain the tools to extract valuable insights from complex datasets, make data-driven decisions, and drive innovation.

Our curriculum covers statistical analysis, machine learning, data visualization, and programming languages such as Python, SQl.

Hands-on learning through real-world case studies ensures practical application.
Expert faculty provide guidance, while networking opportunities foster professional connections.

Become a skilled data scientist ready to tackle complex challenges and make a profound impact in data-driven organizations.

Enroll today and unlock the potential of data science.

Key Features

Industry Relevant Curriculum

Limited class size for an optimal experience

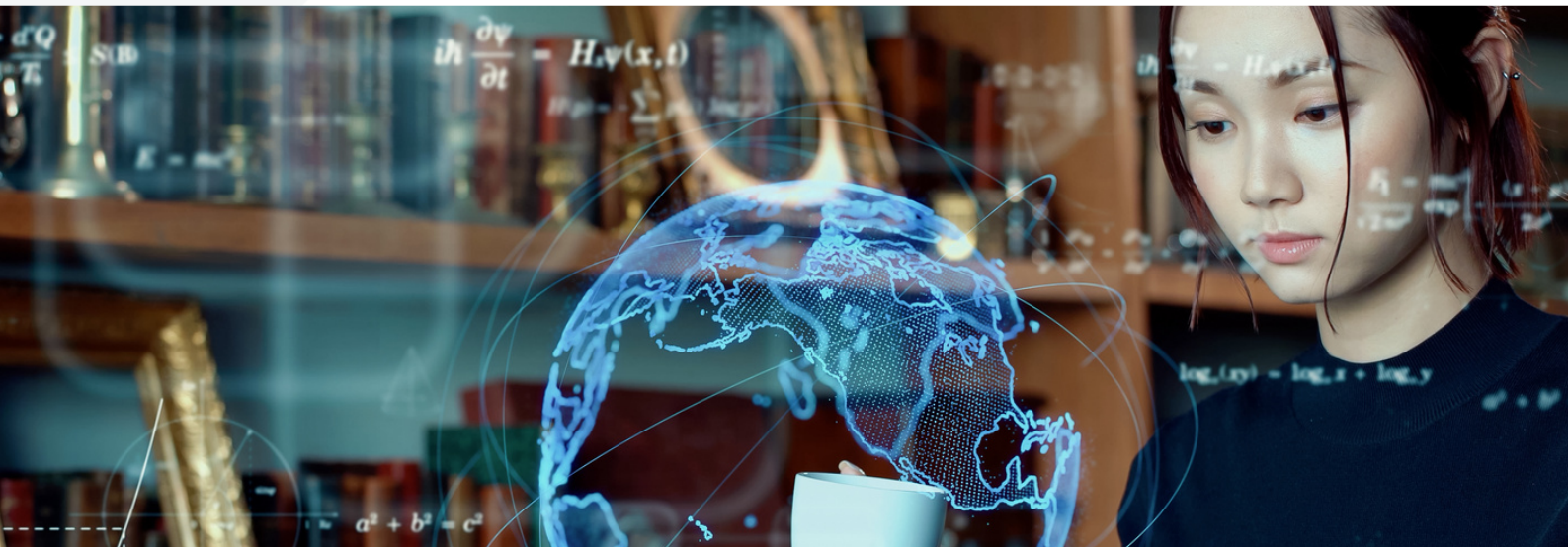
Constantly Updated According to Industry Trends

50+ hands-on assignments and 2 capstone

Life-time Access to the recorded sessions

1:1 mock interview Sessions

Career Guidance & Placement Support



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Tools Covered

Python
NumPy
pandas
Microsoft SQL Server
mongoDB
+ableau
Power BI
matplotlib
Hadoop
kafka
Flask
aws
Machine Learning
AI

Course Curriculum

Module -01 - Python

Basic Python

- Introduction to Python
- History of Python
- Python Installation
- IDE's – Pycharm
- Identifiers
- Statements
- Comments
- Variables
- Types of Data Types
- Integers
- Float
- Complex
- Boolean
- String
- Operators
- Memory Management

Core Python

- Conditional Statements
- Iterative Statements
- Interruptive Statements
- List
- Tuple
- Set
- Dictionary
- Functions
- Arguments Type
- Nested Function
- Closure Property
- Recursion
- Files
- Text Files
- CSV Files
- PDF Files

Course Curriculum

Advance Python

- Oops
- Inheritance
- Polymorphism
- Encapsulation
- Abstraction
- Lambda Function
- Map, Filter, Reduce
- Regular Expression
- Exception Handling
- Serialization
- REST API
- GIT / GIT HUB

Module - 02- Database / Data Manipulation

Numpy

- What is Numpy
- History of Numpy
- What is Ndarray
- Creating Numpy Array
- Array Function
- Creating Numpy Array
- Array Attributes
- Creating Multi-Dimensional Array
- Extracting Data from Arrays
- Using Indexing
- Using Slicing
- Boolean Indexing
- Random Indexing
- Resizing & Reshaping
- Transpose
- Vector multiplication
- Array Attributes
- Array Operations
- Broadcasting Rules

Course Curriculum

Module - 02- Database / Data Manipulation

Pandas

- What is Data Manipulation
- What is Pandas
- History of Pandas
- What is Data Structure
- Pandas Data Structure Series
- DataFrame
- Creating Series
- Creating DataFrame
- Extracting Data
- Manipulation of Data
- Inserting Columns & Rows Changing Columns & Rows
- Deleting column / rows Re-indexing Options Customization
- Indexing & Selecting
- Date Functionality Identifying Outlier
- Replace NaN using
- Deleting using Drop, Dropna
- Concatenate and Merge
- Groupby, Pivot Table and Cross Tab

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Course Curriculum

Module - 02- Database / Data Manipulation

Databases

- What is Database?
- Types of Databases?
- What is DBMS?
- What is RDBMS?
- History of RDBMS

SQL Database

SQL Server / MySql

- CRUD Operation
- Select ... Where
- Insert
- Update
- Delete
- Joins
- Primary & Foreign Keys
- Connectivity with Python

NoSQL Database

MongoDB

- What is NoSQL DB
- NoSQL DB and SQL DB
- History MongoDB
- Features NoSQL Databases
- Create & Drop Database
- Create & Drop Collection
- Data Types
- Create, Insert, Update, Delete
- Query Document

Course Curriculum

Module - 03- Statistics

Statistics

- What is Statistics
- Types of Statistics
- What is Population
- What is Sample
- Different Sampling Techniques
- Statistics Terminology

Descriptive Statistics

- Central Tendency Measure
- Measure of Variability
- Dispersion Measures
- Data Distributions

Inferential Statistics

- Hypothesis
- Types of Hypothesis
- Null Hypothesis
- Alternative Hypothesis
- Chi-Square Test
- Anova Test
- T-Test
- Z-Test

Course Curriculum

Module - 04- Feature Engineering

Outlier Detection

- Standard Deviation Method
- Inter Quartile Range Method
- Z-Score Method
- Percentile Method

Exporatory Data Analysis

- Uni - Variate Analysis
- Bi – Variate Analysis Multi – Variate Analysis
- Matplotlib
- Seaborn

Encoding Techniques

- Pandas Dummies
- One Hot Encoding
- Label Encoding
- Ordinal Encoding
- Lambda with Apply Function
- Lambda with Map Function

Inferential Statistics

- Hypothesis
- Types of Hypothesis
- Null Hypothesis
- Alternative Hypothesis
- Chi-Square Test
- Anova Test
- T-Test
- Z-Test

Imbalance Dataset

- Under Sampling
- Over Sampling

Course Curriculum

Module - 05 - Visualization

Matplotlib

- Bar Graph.
- Pie Chart.
- Box Plot.
- Histogram.
- Line Chart
- Subplots
- Scatter Plot.

Tableau

- What is Tableau
- Tableau Architecture
- Server Components
- Install Tableau
- Data Connections to Databases
- Types of Filters
- Groups in Tableau
- Tableau Charts
- Tableau Graphs

Seaborn

- Count plot
- Heatmap
- Scatter plot
- Pair plot
- Violin Plot
- Box plot
- Strip Plot
- Swarm Plot

Course Curriculum

Module - 06 - Machine Learning

Supervised Learning

Classification

- Logistic Regression
- Decision Tree
- SVC – SVC
- Naïve Bayes
- KNN
- Ensemble

1. Random Forest
2. Ada Boost
3. GradientBoost
4. XGBoost

Regression

- Linear Regression
- Multi Linear Reg
- Polynomial Reg
- Lasso Regression
- Ridge Regression
- Decision Tree
- SVM -- SVR
- Ensemble Methods

Unsupervised Learning

Clustering

- K-Means
- C-Means
- Hierarchical
- Neural Network

Course Curriculum

Module - 06 - Machine Learning

Linear Regression

- What is Correlation
- What is Regression
- What is Linear Regression
- Linear Regression Overview
- Simple Linear Regression
- Multi Linear Regression
- Polynomial Regression
- Related Concepts

1. Bias
2. Variance
3. Bias-Variance Tradeoff
4. Under Fitting Problem
5. Over Fitting Problem

- What is Regularization
- Types of Regularization

1. Lasso Regression
2. Ridge Regression

Mathematical Intuition

- Linear Regression
- Polynomial Regression
- Lasso Regression
- Ridge Regression

Regression / Evolution Metrics

- What is Actual Value
- What is Predicted Value
- What is Residual
- R Squared (R^2)
- Mean Squared Error (MSE)
- Root Mean Squared Error (RMSE)
- Mean Absolute Error (MAE)

Course Curriculum

Module - 06 - Machine Learning

Classification Algorithms

Decision Tree Classifier

- What is Decision Tree?
- Terminology of DT

1. Root Node
2. Splitting
3. Decision Node
4. Leaf Node
5. Pruning

- Sub Algorithm of DT
- CART Algorithm
- ID3 Algorithm
- Gini, Entropy, Information Grain
- Mathematical Intuition
- Real World Data Implementation

Naive Bayes Algorithm

- What is Probability
- Conditional Probability
- What is Bayes Theorem
- Naïve Bayes Algorithm
- Types of Naïve Bayes

Logistic Regression

- Logistic Regression Overview
- What is Sigmoid Function
- Mathematical Intuition
- Implementation on real world data

Support Vector Machines

- Introduction to SVMs
- SVC & SVR
- SVM History
- Vectors Overview
- Decision Surfaces
- Linear SVMs
- The Kernel Trick
- Non-Linear SVMs
- The Kernel SVM

Course Curriculum

Module - 07 - Ensemble Learning

Ensemble Learning

- Introduction to Ensemble Learning
- Weak Learning?
- Types of Ensemble Learning
- Boosting Algorithms

1. Ada Boost
2. GradientBoost
3. XGBoost

- Implementation of
  - Ada Boost
  - GradientBoost
  - XGBoost

Hyperparameter Tuning

- What is Hyperparameter?
- Types of Hyperparameter Tuning
- Grid Search Tuning
- Randomize Search Tuning

Cross Validation

- What is Cross Validation?
- Why we need Cross Validation
- Types of Cross Validation
- Leave One Out Cross Validation
- Hold Out Cross Validation Method
- K-Fold Cross Validation Method
- Stratified Cross Validation Method

Course Curriculum

Module - 08 - Clustering & Time Series

Clustering

- What is Clustering
- Types of Clustering Methods
- Partitioning Clustering
- Hierarchical Clustering
- Density Based Clustering
- K-Means Clustering algorithm
- Implement K-Means
- Hierarchical Clustering Algorithm
- Implement Hierarchical Clustering

Image Processing using Opencv

- Image to Numpy Array
- Grayscale Image
- Image Resize
- Image Events
- Image Flip
- Image crop

Time Series Analysis

- Time Series data ?
- Format Time Series data
- components of Time Series data
- Time Series scenarios
- Time Series Model Selection
- Time Series Model for Forecast
- What is ARIMA Model ?
- Implementation of ARIMA model

Course Curriculum

Module - 09 - Deep Learning

Deep Learning

- What is Deep Learning
- Machine Learning VS Deep
- Learning
- Biological Neural Network
- Deep Learning Application
- Artificial Neural Network
- (ANN)
- Convolutional Neural Network
- (CNN)
- Recurrent Neural Network
- (RNN)

Keras

- What is Keras
- Keras Model
- Sequential Model
- Functional Model
- Keras Layers

Tensor Flow

- What is TensorFlow
- What are Tensors
- Tensor Graph
- TensorFlow Perceptron
- Single Layer Perceptron
- Hidden Layer Perceptron
- Multi-Layer Perceptron

Activation Function

- What is Activation Function
- Types of Activation Function
- What is Optimizer
- What is Loss Function

Course Curriculum

Module - 09 - Deep Learning

Artifical Neural Network

- The Detailed ANN
- How do ANNs work
- Gradient Descent
- Stochastic Gradient Descent
- Forward Propagation
- Backpropagation
- limitations of a Single Perceptron
- Neural Networks in Detail
- Understand Backpropagation

Computer Vision (Using CNN)

- Convolutional Neural Network
- Why CNN
- Application on CNN
- Convolutional Layers
- Pooling Layers
- Batch Normalization Layers
- Dropout Layers

Natural Language Processing

- Natural Language Processing?
- Tokenization
- Stemming
- Lemmatization
- Stop Words
- Phrase Matching
- Vocabulary
- Part of Speech Tagging
- Named Entity Recognition
- Part of Speech Tagging
- Named Entity Recognition
- Sentence Segmentation
- Sentiment Analysis with NLTK
- Text Classification
- Recurrent Neural Network

Course Curriculum

Module - 10 - Additional Concepts

Hadoop

- Hadoop Introduction
- Hadoop Architecture
- Hadoop Eco - System
- HDFS
- Hadoop Coursera
- Py-Spark
- Hive

Flask

- Flask Introduction
- Flask Application
- Flask URL
- Templates
- Merge the ML Model

AWS

- Cloud Computing
- AWS Introduction
- Creating AWS Account
- EC2 Details
- Deploying Flask & ML Model

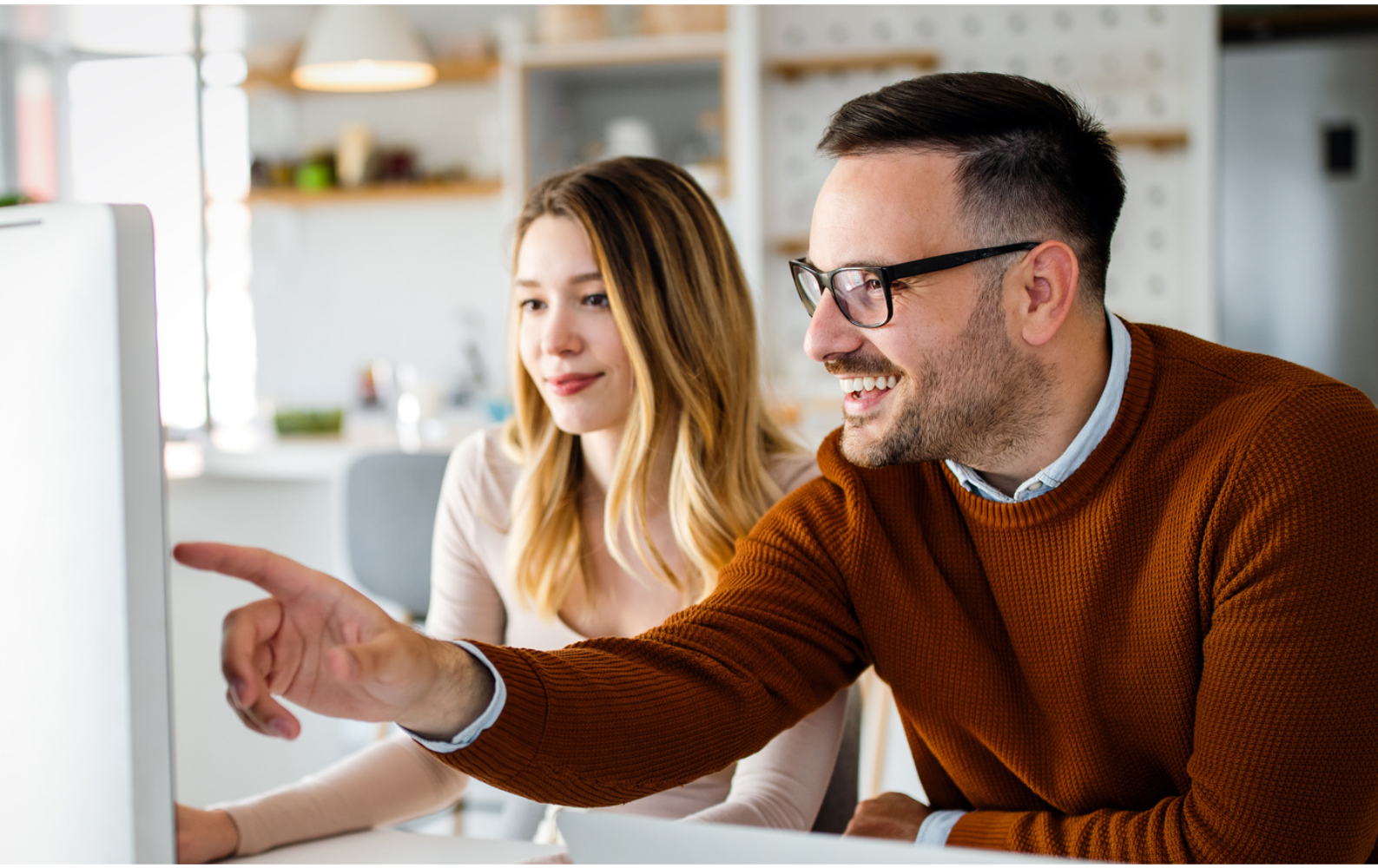
Kafka

- What is Message Service
- Kafka Introduction
- Kafka Architecture
- Implementation with Python

AGILE SCRUM METHODOLOGY

- Agile Introduction
- Advantages of Agile
- Scrum Introduction
- Scrum Process
- Scrum Terminology

Eligibility Criteria



- A bachelor’s degree with an average of 50% or higher marks
- Basic understanding of programming concepts and mathematics
- Freshers / Working Professionals can apply for this program

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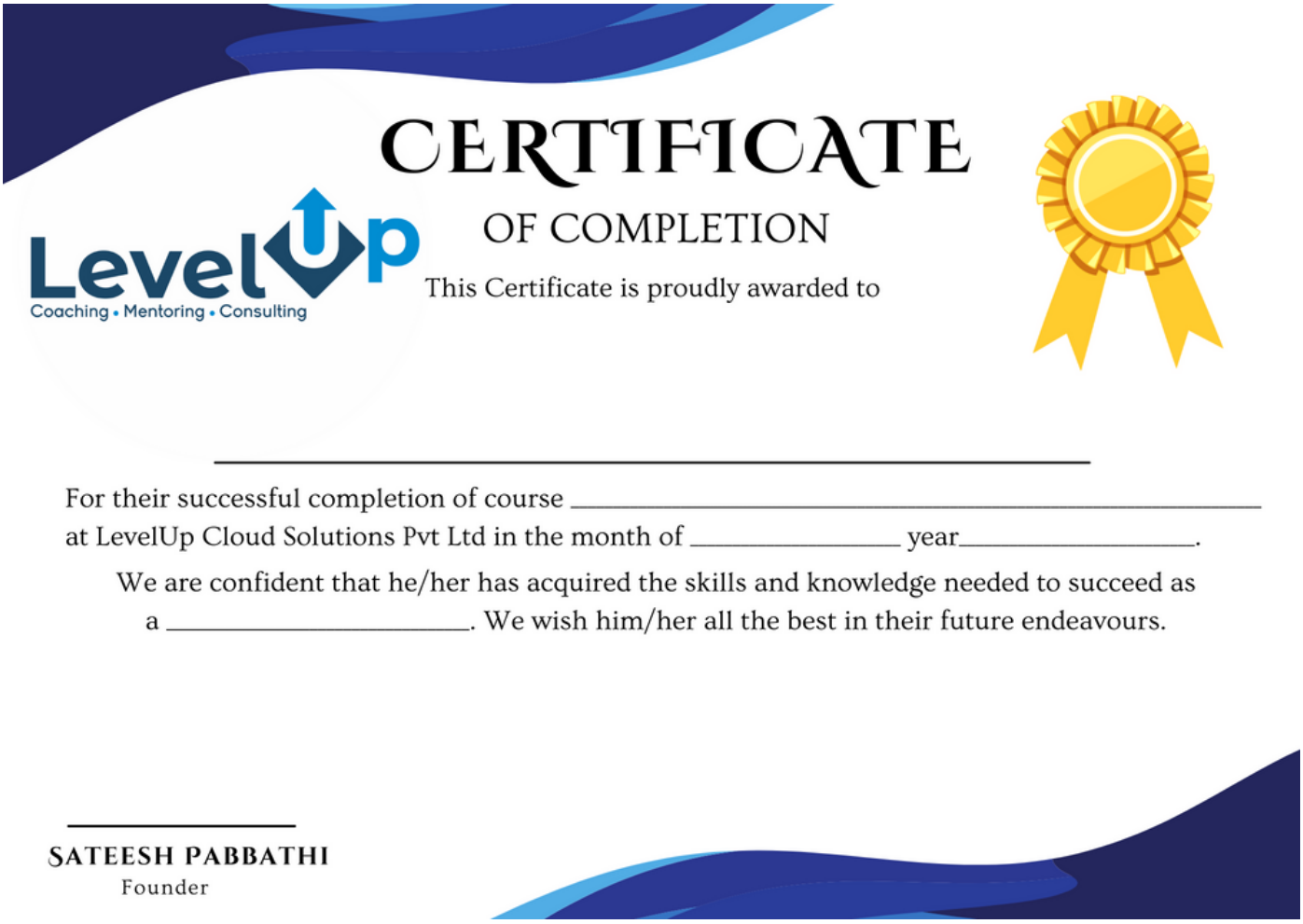
Certification



Industry Recognised Certification

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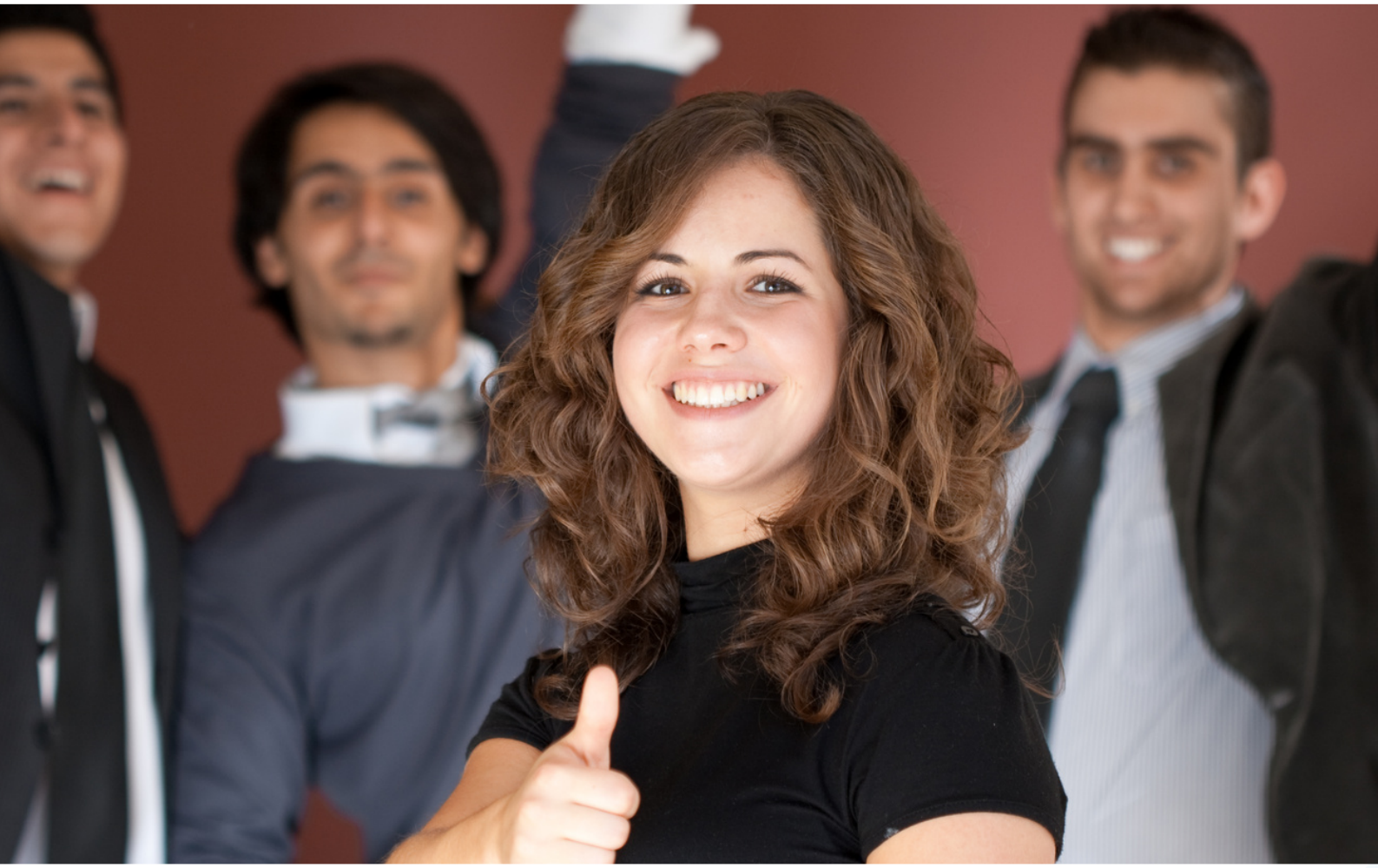

Get in Touch with Us!

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