CodeSquadz

Data Science with Python

Online/Offline | 6 Months

Data Science with Python

Learning Collaboration

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Introduction of Data Science with Python Course

The Data Science with Python course offers a comprehensive introduction to the powerful tools and techniques used in modern data analysis and machine learning. Students will learn to harness Python's extensive libraries, including pandas for data manipulation, matplotlib for visualisation, and scikit-learn for machine learning.

What's Included in this Course

This comprehensive course is designed by industry experts so that students will be able to learn and master the following subjects.

- Python
- SQL
- Statistics, Probability, and Analytics
- Tableau/Power BI
- Machine Learning
- Deep Learning

Objectives of the Data Science with Python Course

- Learn core Python programming concepts, syntax, and best practices essential for data science applications.
- Gain proficiency in using libraries like Pandas and NumPy to efficiently handle, clean, and preprocess large datasets.
- Learn to create insightful and visually appealing graphs, charts, and plots using various Python libraries.
- Develop a strong foundation in statistical concepts and their implementation using Python for data interpretation and decision-making.
- Understand and implement various machine learning algorithms for classification, regression, and clustering using scikit-learn.
- Work on practical projects and case studies to apply data science techniques to solve real-world business and research challenges.

Data Scientist Salary

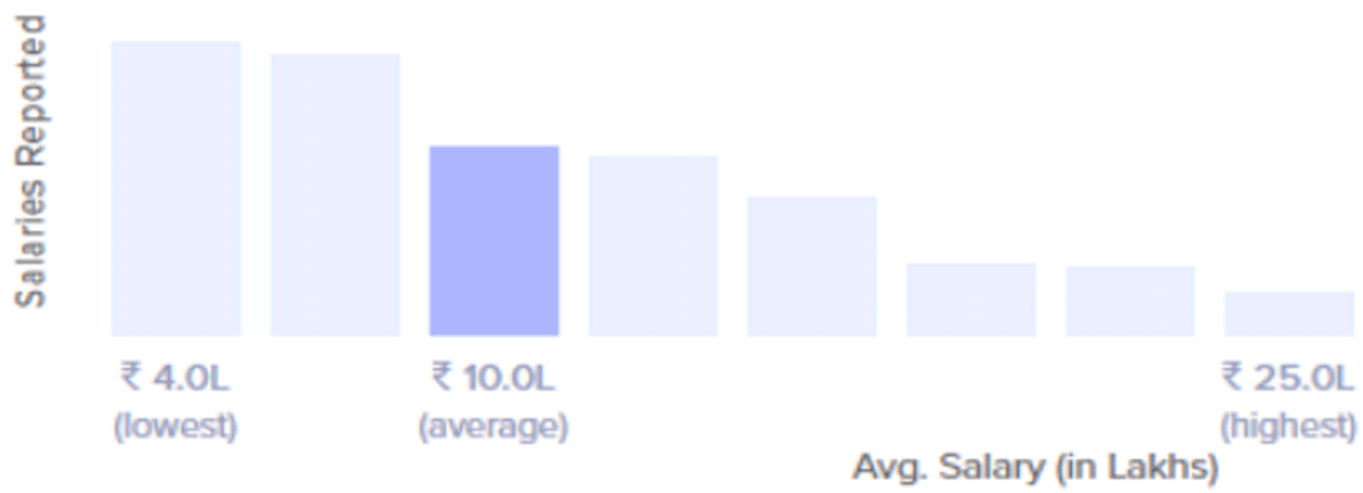
Average Annual Salary

₹ 10.0 LPA

Very High Confidence

Estimated Take Home Salary

₹ 72,177 - ₹ 74,038/month



Source: AmbitionBox

Our Data Science with Python Course Benefits

- Gain in-demand skills for today's job market.
- Learn from industry experts with practical experience.
- Hands-on projects to build a strong portfolio.
- Flexible learning schedule to fit your lifestyle.
- Comprehensive coverage from basics to advanced topics.
- Access to cutting-edge tools and technologies.
- Networking opportunities with peers and professionals.
- Career guidance and job placement assistance.
- Personalized mentoring and support.
- Industry-recognized certification upon completion.
- Exposure to real-world data sets and challenges.
- Develop problem-solving and analytical thinking skills.
- Learn to communicate insights effectively through data visualization.
- Stay updated with the latest trends in data science.
- Opportunity to specialize in areas like machine learning or AI.

Python

Introduction To Python

- Why Python
- Application areas of Python
- Python implementations
  - Cpython
  - Jython
  - Ironpython
  - Pypy
- Python versions
- Installing Python
- Python interpreter architecture
  - Python byte code compiler
  - Python vitual machine (PVM)

Writing and Executing First Python Program

- Using interactive mode
- Using script mode
  - General text editor and command
  - window Idle editor and idle shell
- Understanding print() function
- How to compile python program explicitly

Python Language Fundamentals

- Character set
- Keywords
- Comments
- Variables
- Literals
- Operators
- Reading input from console
- Parsing string to int, float

Python Conditional Statements

- If statement
- If else statement
- If elif statement
- If elif else statement
- Nested if statement

Looping Statements

- While loop
- For loop
- Nested loops
- Pass, break and continue keywords

Standard Data Types

- Int, float, complex, bool, nonetype
- Str, list, tuple, range
- Dict, set, frozenset

String Handling

- What is string
- String representations
- Unicode string
- String functions, methods
- String indexing and slicing
- String formatting

Python List

- Creating and accessing lists
- Indexing and slicing lists
- List methods
- Nested lists
- List comprehension

Python Tuple

- Creating tuple
- Accessing tuple
- Immutability of tuple

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Data Science with Python

Python Set

- How to create a set
- Iteration over sets
- Python set methods
- Python frozenset

Python Dictionary

- Creating a dictionary
- Dictionary methods
- Accessing values from dictionary
- Updating dictionary
- Iterating dictionary
- Dictionary comprehension

Python Functions

- Defining a function
- Calling a function
- Types of functions
- **Function arguments**
  - Positional arguments, keyword arguments
  - Default arguments, non-default arguments
  - Arbitrary arguments, keyword arbitrary arguments
- **Function return statement**
- **Nested function**
- **Function as argument**
- **Function as return statement**
- **Decorator function**
- **Closure**
- **Map(), filter(), reduce(), any() functions**
- **Anonymous or lambda function**

Modules & Packages

- Why modules
- Script v/s module
- Importing module
- **Standard v/s third party modules**
- **Why packages**
- **Understanding pip utility**

File 1/0

- **Introduction to file handling**
- **File modes**
- **Functions and methods related to file handling**
- **Understanding with block**

Object Oriented Programming

- **Procedural v/s object oriented programming**
- **OOP principles**
- **Defining a class & object creation**
- **Object attributes**
- **Inheritance**
- **Encapsulation**
- **Polymorphism**

Exception Handling

- **Difference between syntax errors and exceptions**
- **Keywords used in exception handling**
  - try, except, finally, raise, assert
- **Types of except blocks**

Regular Expressions (Regex)

- **Need of regular expressions**
- **Re module**
- **Functions /methods related to regex**
- **Meta characters & special sequences**

GUI Programming

- **Introduction to tkinter programming**
- **Tkinter widgets**

- Tk, label, Entry, Textbox, Button
- Frame, messagebox, filedialog etc

- **Layout managers**
- **Event handling**
- **Displaying image**

Multi-Threading Programming

- **Multi-processing v/s Multi-threading**
- **Need of threads**
- **Creating child threads**
- **Functions /methods related to threads**
- **Thread synchronization and locking**

SQL

Introduction to Database

- **Database Concepts**
- **What is Database Package?**
- **Understanding Data Storage**
- **Relational Database (RDBMS) Concept**

SQL (Structured Query)

- **SQL basics**
- **DML, DDL & DQL**
- **DDL: create, alter, drop**
- **SQL constraints:**
  - Not null, unique,
  - Primary & foreign key, composite key
  - Check, default
- **DML: insert, update, delete and merge**
- **DQL : select**
- **Select distinct**
- **SQL where**
- **SQL operators**
- **SQL like**
- **SQL order by**
- **SQL aliases**
- **SQL views**
- **SQL joins**
- Inner join
- Left (outer) join
- Right (outer) join
- Full (outer) join
- **MySQL functions**
- **String functions**
  - Char length
  - Concat
  - Lower
  - Reverse
  - Upper
- **Numeric functions**
  - Max, min, sum
  - Avg, count, abs
- **Date functions**
  - Curdate
  - Curtime
  - Now

Statistics, Probability And Analytics:

Introduction to Statistics

- **Sample or population**
- **Measures of central tendency**
  - Arithmetic mean
  - Harmonic mean
  - Geometric mean
  - Mode
  - Quartile
    - First quartile
    - Second quartile(median)
    - Third quartile
  - Standard deviation

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Probability Distributions

- Introduction to probability
- Conditional probability
- Normal distribution
- Uniform distribution
- Exponential distribution
- Right & left skewed distribution
- Random distribution
- Central limit theorem

Hypothesis Testing

- Normality test
- Mean test
  - T-test
  - Z-test
  - ANOVA test
- Chi square test
- Correlation and covariance

Numpy Package

- Difference between list and numpy array
- Vector and matrix operations
- Array indexing and slicing

Pandas Package

Introduction to pandas

- Labeled and structured data
- Series and dataframe objects

How to load data sets

- at & iat
- loc & iloc
- head() & tail()

Exploratory Data Analysis (EDA)

- describe()
- groupby()
- crosstab()
- boolean slicing / query()

Data Manipulation & Cleaning

- Map(), apply()
- Combining data frames
- Adding/removing rows & columns
- Sorting data
- Handling missing values
- Handling duplicacy
- Handling data error

Handling Date and Time

Data Visualization using matplotlib and seaborn p kages

- Scatter plot, lineplot, bar plot
- Histogram, pie chart,
- Jointplot, pairplot, heatmap
- Outlier detection using boxplot

Tableau/Power BI

Tableau - Home

- Tableau - overview
- Tableau - environment setup
- Tableau - get started
- Tableau - navigation
- Tableau - design flow
- Tableau - file types
- Tableau - data types
- Tableau - show me
- Tableau - data terminology

Tableau - Data Sources

- Tableau - custom data view
- Tableau - data sources
- Tableau - extracting data
- Tableau - fields operations
- Tableau - editing metadata
- Tableau - data joining
- Tableau - data blending

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Tableau - Work Sheet

- Tableau - add worksheets
- Tableau - rename worksheet
- Tableau - save & delete worksheet
- Tableau - reorder worksheet
- Tableau - paged workbook

Tableau - Calculation

- Tableau - operators
- Tableau - functions
- Tableau - numeric calculations
- Tableau - string calculations
- Tableau - date calculations
- Tableau - table calculations
- Tableau - lod expressions

Tableau - Sorting & Filter

- Tableau - basic sorting
- Tableau - basic filters
- Tableau - quick filters
- Tableau - context filters
- Tableau - condition filters
- Tableau - top filters
- Tableau - filter operations

Tableau - Charts

- Tableau - bar chart|
- Tableau - line chart
- Tableau - pie chart
- Tableau - crosstab
- Tableau - scatter plot
- Tableau - bubble chart
- Tableau - bullet graph
- Tableau - box plot
- Tableau - bump chart
- Tableau - gantt chart
- Tableau - histogram
- Tableau - motion charts
- Tableau - waterfall charts
- Tableau - dashboard

Handling Date and Time

- One project using python & sql
- One project using python & mi
- One dashboard using tableau

Introduction to Excel

Basics Of Excel

Workbooks (File) and Worksheet

Excel Limitation

Excel shortcut use and benefits

Excel setting and custom list creation

Excel Template and File location system

Advanced Paste Special|

Calculation with Paste Special Link Data range as Picture link

Lookup picture in excel worksheet

Advance Formatting for Reports and Dashboards

Formatting methods

Data and Time

Advanced Custom Formatting

Conditional Formatting

Advanced Conditional Formatting using Formulas

File, Sheets or Cells Protection method

Data Handle and Data Analysis

Data Fill and Selection Method

Advanced Sorting and Filter methods

Data Summarization with Pivot table

External Data Pivot table

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Setting and Form Creation

- Draw Form in Excel sheet
- Hyperlink in Excel
- Text and Symbol
- Page Setup
- Manage View
- Sheets option and Arrange

Calculations

- Mathematical Calculations in Excel
- Logical Formulas (IF, and, Or, Xo, If Error Formulas) Nested If Formulas (Multicondition in If, and, or)
- Text and Advanced Text Formulas
- Date and Time Calculation using Data Time Formulas
- Ref# Formulas and VLookup
- Lookup Method (VLookup, HLookup, Match, Index, Offset)
- Advanced VLookup and VLookup Listing
- Data Summerization Formulas
- Financial Formulas Advanced Formulas

Advance Formulas

- Advanced Array Formulas
- Complicated Large Formulas Creation
- Advanced Naming methods with Formulas
- Report Automation Projects
- Use formulas in Conditional Formatting

Dashboard Designing

- Overview of Dashboards
- Deciding on Dashboards
- Trends and Scenarios using charts
- Advanced Charting Techniques
- Designing Sample for Dashboard using Form Controls
- Tips and Tricks to enhance Dashboard designing

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- Overview of Dashboards
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- Trendsand Scenarios using charts
- Advanced Charting Techniques
- Designing Sample for Dashboard using From Controls
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Introduction of VBA

- What is VBA
- Advantage of VBA
- The First Excel Macro
- Recording and Executing Macros
- Using the VBA Editor

Variables and Data Types in VBA

- Declaring VBA
- Variable Names
- Putting Values in Variables
- Creating Constants
- Data Types
- Simple Arithmetic Operators
- Relational or Comparison Operators
- Logical Operators
- Mathematical Expressions

Machine Learning:

Introduction To Machine Learning

- Sample or population
- Measures of central tendency
- Traditional v/s Machine Learning Programming
- Real life examples based on ML
- Steps of ML Programming
- Data Preprocessing revised
- Terminology related to ML

Supervised Learning

- Classification
- Regression

Unsupervised Learning

- clustering

KNN Classification

- clus Math behind KNN
- KNN implementation
- Understanding hyper parameterstering

Performance metrics

- Math behind KNN
- KNN implementation
- Understanding hyper parameters

Regression

- Math behind regression
- Simple linear regression
- Multiple linear regression
- Polynomial regression
- Boston price prediction
- Cost or loss functions
  - Mean absolute error
  - Mean squared error
  - Root mean squared error
  - Least square error
- Regularization

Logistic Regression for classification

- Theory of logistic regression
- Binary and multiclass classification
- Implementing titanic dataset
- Implementing iris dataset
- Sigmoid and softmax functions

Support Vector Machines

- Theory of SVM
- SVM Implementation
- kernel, gamma, alpha

Decision Tree Classification

- Theory of decision tree
- Node splitting
- Implementation with iris datasel
- Visualizing tree

Ensemble Learning

- Random forest
- Bagging and boosting
- Voting classifier

Model Selection Techniques

- Cross validation
- Grid and random search for hyper parameter tuning

Recommendation System

- Content based technique
- Collaborative filtering technique
- Evaluating similarity based on correlation
- Classification-based recommendations

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Clustering

- K-means clustering
- Hierarchical clustering
- Elbow technique
- Silhouette coeficient
- Dendogram

Text Analysis

- Install nitk
- Tokenize words
- Tokenizing sentences
- Stop words customization
- Stemming and lemmatizatior
- Feature extraction
- Sentiment analysis
- Count vectorizer
- Tfidfvectorizer
- Naive bayes algorithms

Dimensionality Reduction

- Principal component analysis (pca)

OpenCV

- Reading images
- Understanding gray scale image
- Resizing image
- Understanding haar classifiers
- Face, eyes classification
- How to use webcam in open cv
- Building image data set
- Capturing video
- Face classification in video
- Creating model for gender prediction

Deep Learning

- Basic of Neural Network
- Type of NN
- Cost Function
- Gradient descent
- Linear algebra basics
- Vanilla implementation of Neural Network in Python
- Tensor flow basics
- Hands on simple NN with tensor flow
- Word embedding
- CBOW & ekip-gram
- Word eelations
- Convolution Neural Network
- Max pool
- Window padding
- Image classification using Convolution Neural Network
- Recurrent Neural Network
- Long Short Term Memory (LSTM) architecture
- Building story writer using character level RNN
- Sentiment analysis hands on
- Seq-to-Seq model
- Encoder Decoder
- GAN
- Generative Model Using GAN
- Semi-supervised learning using GAN
- Restricted Boltzmann Machine(RBM) and Auto encoders

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CodeSquadz

Talib Khan
Software Engineer

Milanote

"CodeSquadz is a great place to learn and master your IT skills with updated study materials and training under the guidance of industry experts.

IDEMIA augmented identity

Alok Kumar Chaudhary
Software Developer

"It was a great experience to turn from a student to an IT professional. This all started when I joined the 6 months internship program under the guidance of Manish Bhatia sir, an expert of Java who is well-versed ."

Saurav Kumar
Software Developer

BITCOMM TECHNOLOGIES
Innovate Implement Improve

"I joined the 6-month JAVA internship program from Manish Bhatia sir at CodeSquadz. Where I got an opportunity to learn all concepts of JAVA using the practical learning approach."

50 HERTZ
ENERGY REDEFINED

Ravi Prasad Panjiyar
Software Developer

"I joined the 6 months JAVA internship program at CodeSquadz where my mentor was Manish Bhatia sir who taught me how to level up the IT skills with practical training."

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Our Recently Placed Students

Bhoopendra

Techcompiler

Software Engineer

Vishal Kumar

Krinvi Technologies

Full Stack Developer

Jyoti Sharma

MERN Developer

Cost 2 Action

Saurabh Kumar

Adverb Technologies

Java Developer

Vicky Mehta

Krinvi Technologies

Full Stack Developer

Suraj Brajesh

E2x Infotech

Software Developer

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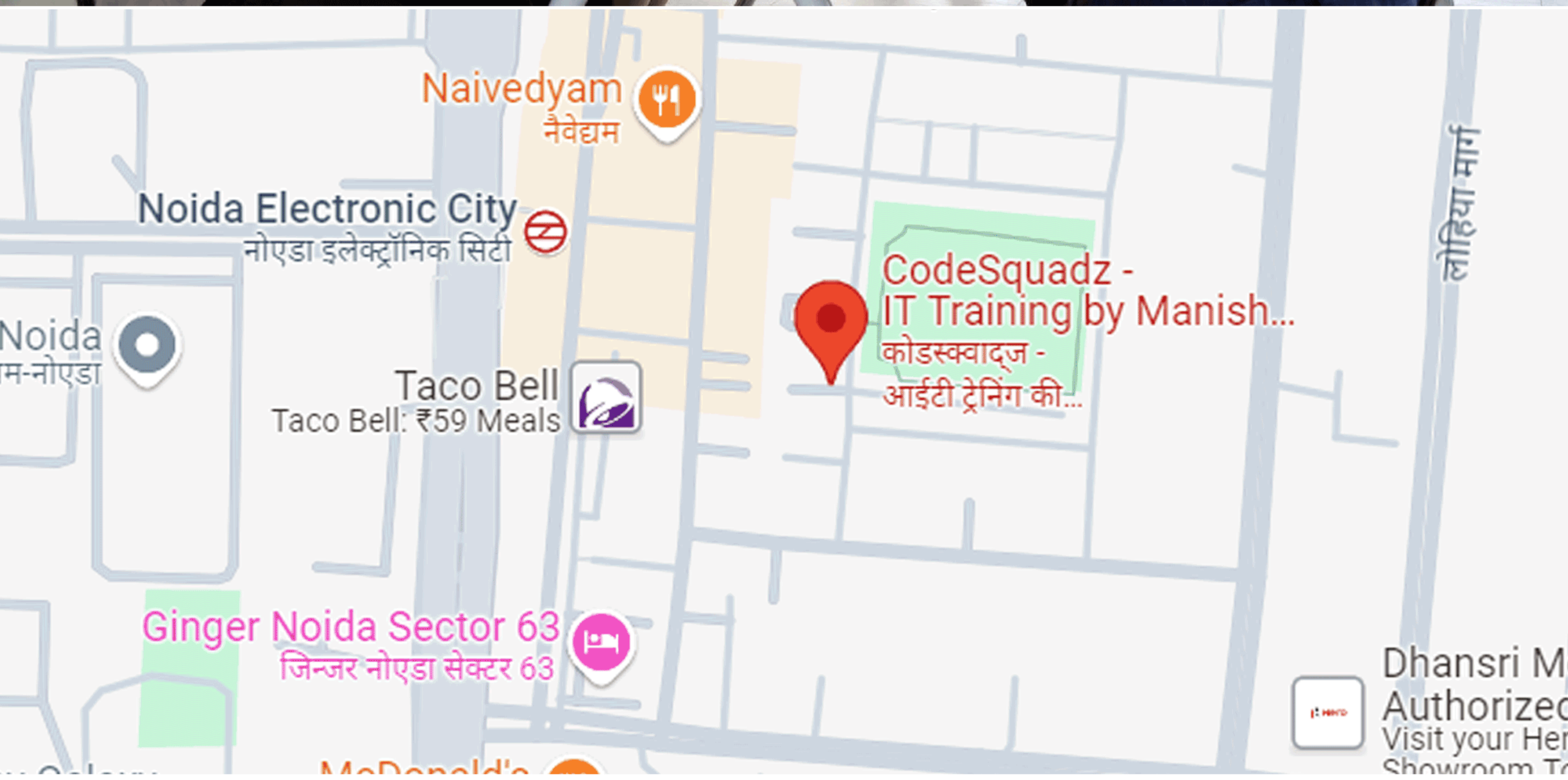

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