CROMA CAMPUS 15 YEARS | in Collaboration with Microsoft

Professional Program

MASTERS IN DATA SCIENCE WITH AI TRAINING CURRICULUM

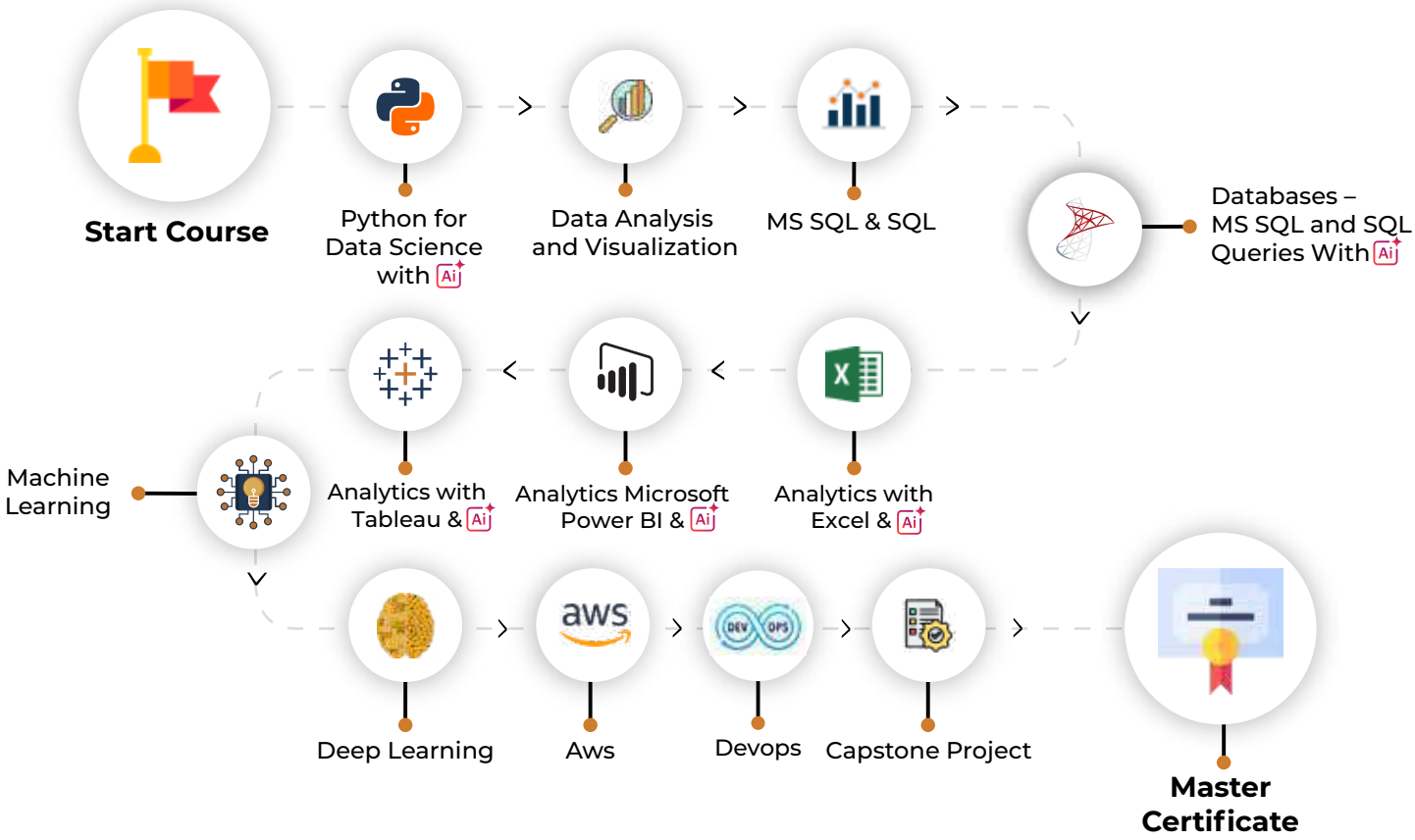
500K+	100K+	300+	300K+	200+	150+
Satisfied Students	Online Students	Trainers	Placements	Global Certifications	Companies

CC-V2

Program INDEX

- Module 1: Python for Data Analyst With AI
- Module 2: Data Analysis and Visualization
- Module 3: Statistics for Data Science
- Module 4: Databases MS SQL and SQL Queries With AI
- Module 5: Analytics with Excel & AI
- Module 6: Analytics Microsoft Power BI & AI
- Module 7: Analytics with Tableau & AI
- Module 8: Mastering Machine Learning
- Module 9: Understanding Deep Learning
- Module 10: Cloud: AWS (Amazon Web Services)
- Module 11: DevOps
- Module 12: Data Science-Live Projects

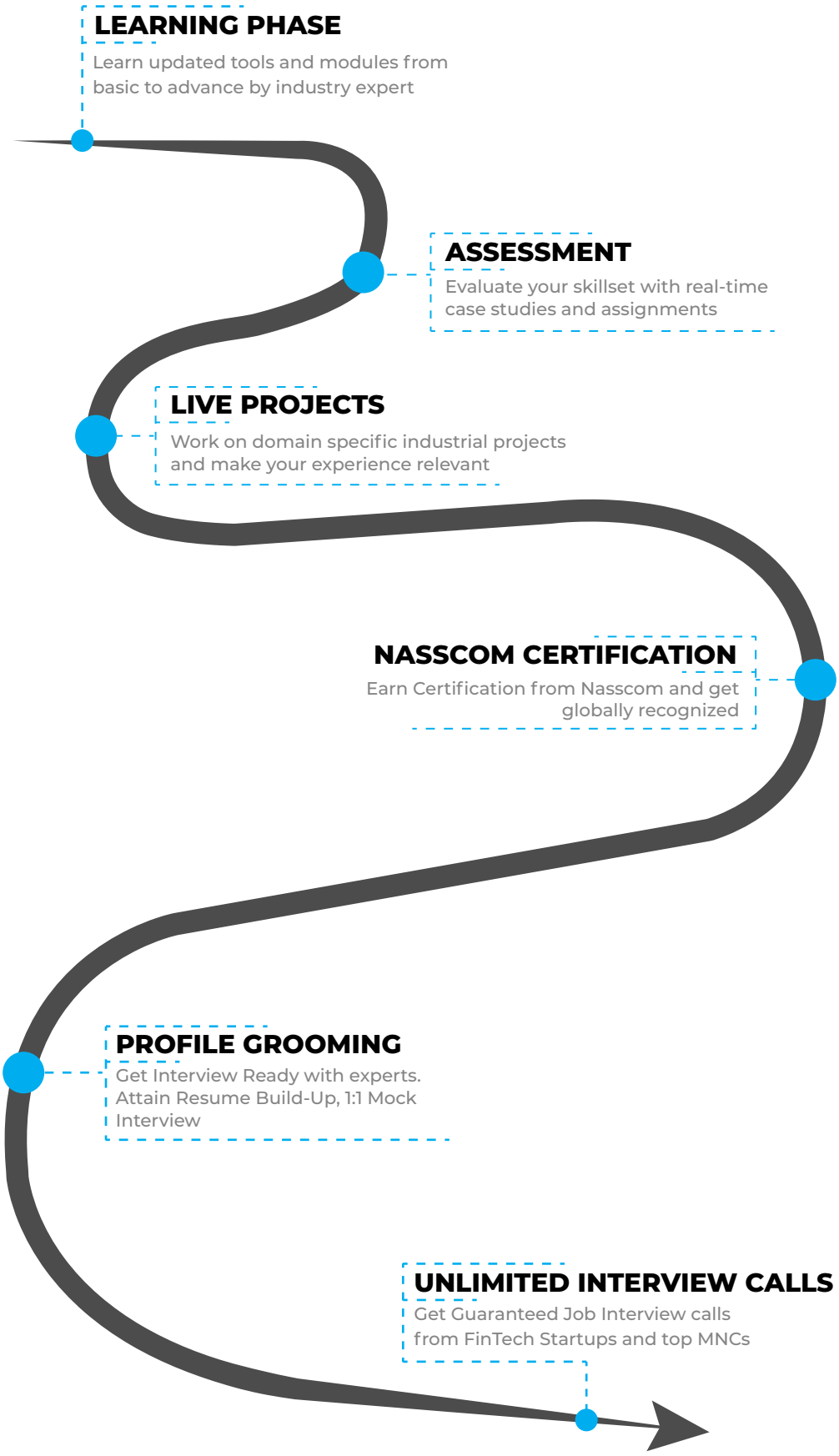
Learning Curve



Modules of **Masters in Data Science**

- **Module 1: Python for Data Analyst With AI**
- **Module 2: Data Analysis and Visualization**
- **Module 3: Statistics for Data Science**
- **Module 4: Databases MS SQL and SQL Queries With AI**
- **Module 5: Analytics with Excel & AI**
- **Module 6: Analytics Microsoft Power BI & AI**
- **Module 7: Analytics with Tableau & AI**
- **Module 8: Mastering Machine Learning**
- **Module 9: Understanding Deep Learning**
- **Module 10: Cloud: AWS (Amazon Web Services)**
- **Module 11: DevOps**
- **Module 12: Data Science-Live Projects**

Transition Process



Module 1: Python for Data Analyst With AI

Introduction To Python

- Installation and Working with Python
- Understanding Python variables
- Python basic Operators
- Understanding the Python blocks.

Python Keyword And Identi?Ers

- Python Comments, Multiline Comments.
- Python Indentation
- Understating the concepts of Operators
- Arithmetic
- Relational
- Logical
- Assignment
- Membership
- Identity

Introduction To Variables

- Variables, expression condition and function
- Global and Local Variables in Python
- Packing and Unpacking Arguments
- Type Casting in Python
- Byte objects vs. string in Python
- Variable Scope

Python Data Type

- Declaring and using Numeric data types
- Using string data type and string operations
- Understanding Non-numeric data types
- Understanding the concept of Casting and Boolean.
- Strings
- List
- Tuples
- Dictionary
- Sets

Control Structure & Flow

- Statements-if, else, elif
- How to use nested IF and Else in Python
- Loops
- Loops and Control Statements.
- Jumping Statements - Break, Continue, pass
- Looping techniques in Python
- How to use Range function in Loop?

- Programs for printing Patterns in Python
- How to use if and else with Loop
- Use of Switch Function in Loop
- Elegant way of Python Iteration
- Generator in Python
- How to use nested Loop in Python
- Use If and Else in for and While Loop
- Examples of Looping with Break and Continue Statement
- How to use IN or NOT IN keyword in Python Loop.

List

- What is List.
- List Creation
- List Length
- List Append
- List Insert
- List Remove
- List Append & Extend using + and Keyword
- List Delete
- List related Keyword in Python
- List Reverse
- List Sorting
- List having Multiple Reference
- String Split to create a List
- List Indexing
- List Slicing
- List count and Looping
- List Comprehension and Nested Comprehension

Tuple

- What is Tuple
- Tuple Creation
- Accessing Elements in Tuple
- Changing a Tuple
- Tuple Deletion
- Tuple Count
- Tuple Index
- Tuple Membership
- TupleBuilt in Function (Length, Sort)

Dictionary

- Dict Creation
- Dict Access (Accessing Dict Values)
- Dict Get Method
- Dict Add or Modify Elements
- Dict Copy
- Dict From Keys.
- Dict Items

- Dict Keys (Updating, Removing and Iterating)
- Dict Values
- Dict Comprehension
- Default Dictionaries
- Ordered Dictionaries
- Looping Dictionaries
- Dict useful methods (Pop, Pop Item, Str , Update etc.)

Sets

- What is Set
- Set Creation
- Add element to a Set
- Remove elements from a Set
- PythonSet Operations
- Frozen Sets

Strings

- What is Set
- Set Creation
- Add element to a Set
- Remove elements from a Set
- PythonSet Operations

Python Function, Modules And Packages

- Python Syntax
- Function Call
- Return Statement
- Arguments in a function - Required, Default, Positional, Variable-length
- Write an Empty Function in Python -pass statement.
- Lamda/ Anonymous Function
- args and kwargs
- Help function in Python
- Scope and Life Time of Variable in Python Function
- Nested Loop in Python Function
- Recursive Function and Its Advantage and Disadvantage
- Organizing python codes using functions
- Organizing python projects into modules
- Importing own module as well as external modules
- Understanding Packages
- Random functions in python
- Programming using functions, modules & external packages
- Map, Filter and Reduce function with Lambda Function
- More example of Python Function

Decorator, Generator And Iterator

- Creation and working of decorator
- Idea and practical example of generator, use of generator
- Concept and working of Iterator

Python Exception Handling

- Python Errors and Built-in-Exceptions
- Exception handing Try, Except and Finally
- Catching Exceptions in Python
- Catching Specific Exception in Python
- Raising Exception
- Try and Finally

Python File Handling

- Opening a File
- Python File Modes
- Closing File
- Writing to a File
- Reading from a File
- Renaming and Deleting Files in Python
- Python Directory and File Management
- List Directories and Files
- Making New Directory
- Changing Directory

Memory Management Using Python

- Threading, Multi-threading
- Memory management concept of python
- working of Multi tasking system
- Different os function with thread

Python Database Interaction

- SQL Database connection using
- Creating and searching tables
- Reading and Storing config information on database
- Programming using database connections

Reading An Excel

- Working With Excel
- Reading an excel file using Python
- Writing to an excel sheet using Python
- Python| Reading an excel file
- Python | Writing an excel file
- Adjusting Rows and Column using Python
- ArithmeticOperation in Excel file.
- Play with Workbook, Sheets and Cells in Excel using Python
- Creating and Removing Sheets
- Formatting the Excel File Data
- More example of Python Function

Complete Understanding Of OS Module Of Python

- Check Dirs. (exist or not)

- How to split path and extension?
- How to get user profile detail?
- Get the path of Desktop, Documents, Downloads etc.
- Handle the File System Organization using OS
- How to get any files and folder's details using OS?

AI And LLM Integration In Python:

- PandasAI: Natural language queries on DataFrames
- OpenAI API (GPT) to generate code, EDA, and reports
- LangChain for building chat-based data apps
- Autogen/Code Interpreter tools for automating insights

Module 2: Data Analysis and Visualization

Data Analysis And Visualization Using Pandas.

- Statistics
  - Categorical Data
  - Numerical Data
  - Mean
  - Median
  - Mode
  - Outliers
  - Range
  - Interquartile range
  - Correlation
  - Standard Deviation
  - Variance
  - Box plot
- Pandas
  - Read data from Excel File using Pandas More Plotting, Date Time Indexing and writing to files
  - How to get record specific records Using Pandas Adding & Resetting Columns, Mapping with function
  - Using the Excel File class to read multiple sheets More Mapping, Filling Nonvalue's
  - Exploring the Data Plotting, Correlations, and Histograms
  - Getting statistical information about the data Analysis Concepts, Handle the None Values
  - Reading files with no header and skipping records Cumulative Sums and Value Counts, Ranking etc
  - Reading a subset of columns Data Maintenance, Adding/Removing Cols and Rows
  - Applying formulas on the columns Basic Grouping, Concepts of Aggre gate Function
  - Complete Understanding of Pivot Table Data Slicing using iLoc and Loc property (Setting Indices)

- Under sting the Properties of Pivot Table in Pandas Advanced Reading CSVs/HTML, Binning, Categorical Data
- Exporting the results to Excel Joins
- Python | Pandas Data Frame Inner Join
- Under sting the properties of Data Frame Left Join (Left Outer Join)
- Indexing and Selecting Data with Pandas Right Join (Right Outer Join)
- Pandas | Merging, Joining and Concatenating Full Join (Full Outer Join)
- Pandas | Find Missing Data and Fill and Drop NA Appending Data Frame and Data
- Pandas | How to Group Data How to apply Lambda / Function on Data Frame
- Other Very Useful concepts of Pandas in Python Data Time Property in Pandas (More and More)

Data Analysis And Visualization Using NumPy And MatPlotLib

- NumPy
  - Introduction to NumPy Numerical Python
  - Importing NumPy and Its Properties
  - NumPy Arrays
  - Creating an Array from a CSV
  - Operations an Array from a CSV
  - Operations with NumPy Arrays
  - Two-Dimensional Array
  - Selecting Elements from 1-D Array
  - Selecting Elements from 2-D Array
  - Logical Operation with Arrays
  - Indexing NumPy elements using conditionals
  - NumPy's Mean and Axis
  - NumPy's Mode, Median and Sum Function
  - NumPy's Sort Function and More
- MatPlotLib
  - Bar Chart using Python MatPlotLib
  - Column Chart using Python MatPlotLib
  - Pie Chart using Python MatPlotLib
  - Area Chart using Python MatPlotLib
  - Scatter Plot Chart using Python MatPlotLib
  - Play with Charts Properties Using MatPlotLib
  - Export the Chart as Image
  - Understanding plt. subplots () notation
  - Legend Alignment of Chart using MatPlotLib
  - Create Charts as Image
  - Other Useful Properties of Charts.
  - Complete Understanding of Histograms
  - Plotting Different Charts, Labels, and Labels Alignment etc.

Introduction To Data Visualization With Seaborn

- Introduction to Seaborn
  - Introduction to Seaborn

    - Making a scatter plot with lists
    - Making a count plot with a list
    - Using Pandas with seaborn
    - Tidy vs Untidy data
    - Making a count plot with a Dataframe
    - Adding a third variable with hue
    - Hue and scattera plots
    - Hue and count plots
- Visualizing Two Quantitative Variables
    - Introduction to relational plots and subplots
    - Creating subplots with col and row
    - Customizing scatters plots
    - Changing the size of scatter plot points
    - Changing the style of scatter plot points
    - Introduction to line plots
    - Interpreting line plots
    - Visualizing standard deviation with line plots
    - Plotting subgroups in line plots
- Visualizing a Categorical and a Quantitative Variable
    - Current plots and bar plots
    - Count plots
    - Bar plot with percentages
    - Customizing bar plots
    - Box plots
    - Create and interpret a box plot
    - Omitting outliers
    - Adjusting the whisk
    - Point plots
    - Customizing points plots
    - Point plot with subgroups
- Customizing Seaborn Plots
    - Changing plot style and colour
    - Changing style and palette
    - Changing the scale
    - Using a custom palette
    - Adding titles and labels Part 1
    - Face Grids vs. Axes
    - Adding a title to a face Grid object
    - Adding title and labels Part 2
    - Adding a title and axis labels
    - Rotating x-tics labels and subplot
    - Putting it all together
    - Box plot with subgroups
    - Bar plot with subgroups and subplots
    - LM plot and heatmap

Module 3: Statistics for Data Science

Introduction To Statistics

- Descriptive Statistics
- Sample vs Population Statistics
- Random variables
- Probability distribution functions
- Expected value
- Normal distribution
- Gaussian distribution
- Z-score
- Spread and Dispersion
- Correlation and Co-variance

EDA (Exploratory Data Analysis)

- Need for structured exploratory data
- EDA framework for exploring the data and identifying any problems with the data (Data Audit Report)
- Identify missing data
- Identify outliers' data
- Imbalanced Data Techniques

Data Pre-Processing & Data Mining

- Data Preparation
- Feature Engineering
- Feature Scaling, Feature Transformation and Dimensionality Reduction
- Datasets
- Dimensionality Reduction (PCA, ICA,LDA)
- Anomaly Detection
- Parameter Estimation
- Data and Knowledge
- Selected Applications in Data Mining

Introduction To Predictive Modelling

- Difference between Analysis and Analytics
- Concept of model in analytics and how it is used?
- Common terminology used in Analytics & Modelling process
- Popular Modelling algorithms, Data Analytics Life cycle
- Types of Business problems - Mapping of Techniques
- Introduction to Machine Learning

Module 4: Databases MS SQL and SQL Queries With AI

SQL Server Fundamentals

- SQL Server 2019 Installation
- Service Accounts & Use, Authentication Modes & Usage, Instance Con?gurations

- SQL Server Features & Purpose
- Using Management Studio (SSMS)
- Con?guration Tools & SQLCMD
- Conventions & Collation

SQL Server 2019 Database Design

- SQL Database Architecture
- Database Creation using GUI
- Database Creation using T-SQL scripts
- DB Design using Files and File Groups
- File locations and Size parameters
- Database Structure modi?cations

SQL Tables In MS SQL Server

- SQL Server Database Tables
- Table creation using T-SQL Scripts
- Naming Conventions for Columns
- Single Row and Multi-Row Inserts
- Table Aliases
- Column Aliases & Usage
- Table creation using Schemas
- Basic INSERT
- UPDATE
- DELETE
- SELECT queries and Schemas
- Use of WHERE, IN and BETWEEN
- Variants of SELECT statement
- ORDER BY
- GROUPING
- HAVING
- ROWCOUNT and CUBE Functions

Data Validation And Constraints

- Table creation using Constraints
- NULL and IDENTITY properties
- UNIQUE KEY Constraint and NOT NULL
- PRIMARY KEY Constraint & Usage
- CHECK and DEFAULT Constraints
- Naming Composite Primary Keys
- Disabling Constraints & Other Options

Views And Row Data Security

- Benefits of Views in SQL Database
- Views on Tables and Views
- SCHEMA BINDING and ENCRYPTION
- Issues with Views and ALTER TABLE
- Common System Views and Metadata
- Common Dynamic Management views

- Working with JOINS inside views

Indexes And Query Tuning

- Need for Indexes & Usage?
- Indexing Table & View Columns
- Index SCAN and SEEK
- INCLUDED Indexes & Usage
- Materializing Views (storage level)
- Composite Indexed Columns & Keys
- Indexes and Table Constraints
- Primary Keys & Non-Clustered Indexes

Stored Procedures And Bene?Ts

- Why to use Stored Procedures?
- Types of Stored Procedures
- Use of Variables and parameters
- SCHEMABINDING and ENCRYPTION
- INPUT and OUTPUT parameters
- System level Stored Procedures
- Dynamic SQL and parameterization

System Functions And Usage

- Scalar Valued Functions
- Types of Table Valued Functions
- SCHEMABINDING and ENCRYPTION
- System Functions and usage
- Date Functions
- Time Functions
- String and Operational Functions
- ROW_COUNT
- GROUPING Functions

Triggers, Cursors, Memory Limitations

- Why to use Triggers?
- DML Triggers and Performance impact
- INSERTED and DELETED memory tables
- Data Audit operations & Sampling
- Database Triggers and Server Triggers
- Bulk Operations with Triggers

Cursors And Memory Limitations

- Cursor declaration and Life cycle
- STATIC
- DYNAMIC
- SCROLL Cursors
- FORWARD_ONLY and LOCAL Cursors
- KEYSET Cursors with Complex SPs

Transactions Management

- ACID Properties and Scope
- EXPLICIT Transaction types
- IMPLICIT Transactions and options
- AUTOCOMMIT Transaction and usage

AI Integration In SQL:

- AI Tools:
  - ChatGPT/Vanna.ai/DataGPT for Natural Language to SQL
  - Explain SQL queries using AI
  - Suggest query improvements with AI
- Copilot in Azure Data Studio or GitHub for SQL suggestions

Module 5: Analytics with Excel & AI

Understanding Concepts Of Excel

- Creation of Excel Sheet Data
- Range Name, Format Painter
- Conditional Formatting, Wrap Text, Merge & Centre
- Sort, Filter, Advance Filter
- Different type of Chart Creations
- Auditing, (Trace Precedents, Trace Dependents)Print Area
- Data Validations, Consolidate, Subtotal
- What if Analysis (Data Table, Goal Seek, Scenario)
- Solver, Freeze Panes
- Various Simple Functions in Excel(Sum, Average, Max, Min)
- Real Life Assignment work

Ms Excel Advance

- Advance Data Sorting
- Multi-level sorting
- Restoring data to original order after performing sorting
- Sort by icons
- Sort by colours
- Lookup Functions
  - Lookup
  - VLookup
  - HLookup
- Subtotal, Multi-Level Subtotal
- Grouping Features
  - Column Wise
  - Row Wise
- Consolidation With Several Worksheets
- Filter
  - Auto Filter
  - Advance Filter

- Printing of Raw & Column Heading on Each Page
- Workbook Protection and Worksheet Protection
- Specified Range Protection in Worksheet
- Excel Data Analysis
  - Goal Seek
  - Scenario Manager
- Data Table
  - Advance use of Data Tables in Excel
  - Reporting and Information Representation
- Pivot Table
  - Pivot Chat
  - Slicer with Pivot Table & Chart
- Generating MIS Report In Excel
  - Advance Functions of Excel
  - Math & Trig Functions
- Text Functions
- Lookup & Reference Function
- Logical Functions & Date and Time Functions
- Database Functions
- Statistical Functions
- Financial Functions
- Functions for Calculation Depreciation

MIS Reporting & Dash Board

- Dashboard Background
- Dashboard Elements
- Interactive Dashboards
- Type of Reporting In India
  - Industry Related Dashboard
  - Indian Print Media Reporting

AI Integration In Excel:

- Excel Copilot (Microsoft 365):
  - AI-assisted formula creation
  - Data summary using natural language prompts
  - Generate charts and pivot tables via prompts
- Ideas in Excel: Automated pattern recognition
- Integration with Power Automate for Workflow Automation

Module 6: Analytics Microsoft Power BI & AI

Introduction To Power BI

- Overview of BI concepts
- Why we need BI?
- Introduction to SSBI
- SSBI Tools

- Why Power BI?
- What is Power BI?
- Building Blocks of Power BI
- Getting started with Power BI Desktop
- Get Power BI Tools
- Introduction to Tools and Terminology
- Dashboard in Minutes
- Interacting with your Dashboards
- Sharing Dashboards and Reports

Power BI Desktop

- Power BI Desktop
- Extracting data from various sources
- Workspaces in Power BI

Power BI Data Transformation

- Data Transformation
- Query Editor
- Connecting Power BI Desktop to our Data Sources
- Editing Rows
- Understanding Append Queries
- Editing Columns
- Replacing Values
- Formatting Data
- Pivoting and Unpivoting Columns
- Splitting Columns
- Creating a New Group for our Queries
- Introducing the Star Schema
- Duplicating and Referencing Queries
- Creating the Dimension Tables
- Entering Data Manually
- Merging Queries
- Finishing the Dimension Table
- Introducing the another DimensionTable
- Creating an Index Column
- Duplicating Columns and Extracting Information
- Creating Conditional Columns
- Creating the FACT Table
- Performing Basic Mathematical Operations
- Improving Performance and Loading Data into the Data Model

Modelling With Power BI

- Introduction to Modelling
- Modelling Data
- Manage Data Relationship
- Optimize Data Models
- Cardinality and Cross Filtering
- Default Summarization & Sort by

- Creating Calculated Columns
- Creating Measures & Quick Measures

Data Analysis Expressions (DAX)

- What is DAX?
- Data Types in DAX
- Calculation Types
- Syntax, Functions, Context Options
- DAX Functions
- Date and Time
- Time Intelligence
- Information
- Logical
- Mathematical
- Statistical
- Text and Aggregate
- Measures in DAX
- Measures and Calculated Columns
- ROW Context and Filter Context in DAX
- Operators in DAX - Real-time Usage
- Quick Measures in DAX - Auto validations
- In-Memory Processing DAX Performance

Power BI Desktop Visualisations

- How to use Visual in Power BI?
- What Are Custom Visuals?
- Creating Visualisations and Colour Formatting
- Setting Sort Order
- Scatter & Bubble Charts & Play Axis
- Tooltips and Slicers, Timeline Slicers & Sync Slicers
- Cross Filtering and Highlighting
- Visual, Page and Report Level Filters
- Drill Down/Up
- Hierarchies and Reference/Constant Lines
- Tables, Matrices & Conditional Formatting
- KPI's, Cards & Gauges
- Map Visualizations
- Custom Visuals
- Managing and Arranging
- Drill through and Custom Report Themes
- Grouping and Binning and Selection Pane, Bookmarks & Buttons
- Data Binding and Power BI Report Server

Introduction To Power BI Dashboard And Data Insights

- Why Dashboard? and Dashboard vs Reports
- Creating Dashboards
- Configuring a Dashboard Dashboard Tiles, Pinning Tiles
- Power BI Q&A

- Quick Insights in Power BI

Direct Connectivity

- Custom Data Gateways
- Exploring live connections to data with Power BI
- Connecting directly to SQL Server
- Connectivity with CSV & Text Files
- Excel with Power BI Connect Excel to Power BI, Power BI Publisher for Excel
- Content packs
- Update content packs

Publishing And Sharing

- Introduction and Sharing Options Overview
- Publish from Power BI Desktop and Publish to Web
- Share Dashboard with Power BI Service
- Workspaces (Power BI Pro) and Content Packs (Power BI Pro)
- Print or Save as PDF and Row Level Security (Power BI Pro)
- Export Data from a Visualization
- Export to PowerPoint and Sharing Options Summary

Refreshing Datasets

- Understanding Data Refresh
- Personal Gateway (Power BI Pro and 64-bit Windows)
- Replacing a Dataset and Troubleshooting Refreshing

AI Integration In Power BI:

- Smart Narrative visual (AI-generated insights)
- Decomposition Tree (Root Cause Analysis)
- Q&A Visual (Natural Language Querying)
- Azure Cognitive Services integration
- Power BI Copilot (Preview): Report creation via prompts
- Integration with Power Automate for alerts and workflows

Module 7: Analytics with Tableau & AI

Introduction To Data Preparation Using Tableau Prep

- Data Visualization
- Business Intelligence tools
- Introduction to Tableau
- Tableau Architecture
- Tableau Server Architecture
- VizQL Fundamentals
- Introduction to Tableau Prep
- Tableau Prep Builder User Interface
- Data Preparation techniques using Tableau Prep Builder tool

Data Connection With Tableau Desktop

- Features of Tableau Desktop
- Connect to data from File and Database
- Types of Connections
- Joins and Unions
- Data Blending
- Tableau Desktop User Interface

Basic Visual Analytics

- Visual Analytics
- Basic Charts Bar Chart, Line Chart, and Pie Chart
- Hierarchies
- Data Granularity
- Highlighting
- Sorting
- Filtering
- Grouping
- Sets

Calculations In Tableau

- Types of Calculations
- Built-in Functions (Number, String, Date, Logical and Aggregate)
- Operators and Syntax Conventions
- Table Calculations
- Level of Detail (LOD) Calculations
- Using R within Tableau for Calculations

Advanced Visual Analytics

- Parameters
- Tool tips
- Trend lines
- Reference lines
- Forecasting
- Clustering

Level Of Detail (LOD) Expressions In Tableau

- Count Customer by Order
- Profit per Business Day
- Comparative Sales
- Profit Vs Target
- Finding the second order date
- Cohort Analysis

Geographic Visualizations In Tableau

- Introduction to Geographic Visualizations
- Manually assigning Geographical Locations
- Types of Maps
- Spatial Files
- Custom Geocoding

- Polygon Maps
- Web Map Services
- Background Images

Advanced Charts In Tableau

- Box and Whisker's Plot
- Bullet Chart
- Bar in Bar Chart
- Gantt Chart
- Waterfall Chart
- Pareto Chart
- Control Chart
- Funnel Chart
- Bump Chart
- Step and Jump Lines
- Word Cloud
- Donut Chart

Dashboards And Stories

- Introduction to Dashboards
- The Dashboard Interface
- Dashboard Objects
- Building a Dashboard
- Dashboard Layouts and Formatting
- Interactive Dashboards with actions
- Designing Dashboards for devices
- Story Points

Get Industry Ready

- Tableau Tips and Tricks
- Choosing the right type of Chart
- Format Style
- Data Visualization best practices

Exploring Tableau Online

- Publishing Workbooks to Tableau Online
- Interacting with Content on Tableau Online
- Data Management through Tableau Catalog
- AI-Powered features in Tableau Online (Ask Data and Explain Data)
- Understand Scheduling
- Managing Permissions on Tableau Online
- Data Security with Filters in Tableau Online

AI Integration In Tableau:

- Ask Data: Natural Language Data Exploration
- Explain Data: Automatic statistical insights
- Tableau GPT (Einstein Copilot - Salesforce)
- AI forecasting in visualizations

- Integration with Python (TabPy) and R

Module 8: Mastering Machine Learning

Introduction To Machine Learning

- What is Machine Learning?
- Machine Learning Use-Cases
- Machine Learning Process Flow
- Machine Learning Categories

Time Series Analysis

- What is Time Series Analysis?
- Importance of TSA
- Components of TSA
- White Noise
- AR model
- MA model
- ARMA model
- ARIMA model
- Stationarity
- ACF & PACF

Statistical Foundations (Self-Paced)

- What is Exploratory Data Analysis?
- EDA Techniques
- EDA Classification
- Univariate Non-graphical EDA
- Univariate Graphical EDA
- Multivariate Non-graphical EDA
- Multivariate Graphical EDA
- Heat Maps

Introduction To Text Mining And NLP

- Overview of Text Mining
- Need of Text Mining
- Natural Language Processing (NLP) in Text Mining

Module 9: Understanding Deep Learning

Introduction To Deep Learning

- What are the Limitations of Machine Learning?
- What is Deep Learning?
- Advantage of Deep Learning over Machine learning
- Reasons to go for Deep Learning
- Real-Life use cases of Deep Learning

Neural Networks & Deep Learning

- Understand The Inner Workings Of Neural Networks And Train Them With Keras.
- Introduction to Neural Networks & Deep Learning
- Activation Functions (ReLU, Sigmoid, Tanh)
- Feedforward Neural Network
- Fully Connected Layer- Forward/Backward Pass
- Regularization-Dropout, Batch Normalization
- Data Preprocessing & Data Augmentation
- Babysitting Learning: Overfit detection, TensorBoard Monitoring
- Hands-on: MLP on MNIST / Tabular data (e.g. HR Analytics)

Computer Vision

- Master CNNs, Object Detection, Segmentation, And Deployment.
- Basics of Images, Image Preprocessing
- Convolution: 2D Conv, Forward & Backward
- Pooling, Padding, Stride, Transposed Conv
- CNN Architectures: LeNet, AlexNet, VGG, ResNet
- GPU vs CPU for DL
- Transfer Learning: Inception, MobileNet, fine-tuning
- Semantic Segmentation using UNet
- Object Detection-YOLO, SSD, Region Proposal
- Bounding Box Regressor
- Siamese Networks for Similarity Search
- Hands-on:
- Image Classification with CNN
- Object Detection with YOLOv8
- Visual Search with Embeddings

Natural Language Processing (NLP)

- Train Text Models From Scratch And With BERT.
- Introduction to NLP and Use Cases
- Preprocessing: Tokenization, Lemmatization, Stopwords, Normalization
- Feature Extraction: BOW, TF-IDF, N-Grams
- Word Embeddings: Word2Vec, GloVe, Dense Vectors
- POS Tagging, Named Entity Recognition
- RNN, LSTM-Forward Pass and BPTT
- Advanced LSTM Applications + Architectures
- Attention Mechanism + Encoder-Decoder
- Transformers, BERT, Hugging Face Pipelines
- NLP Evaluation Metrics: BLEU, ROUGE
- Hands-on:
- Sentiment Classifier (LSTM or BERT)
- Deploy NLP Model with Streamlit

Module 10: Cloud: AWS (Amazon Web Services)

Introduction To Cloud Computing

- In this module, you will learn what Cloud Computing is and what are the different models of Cloud Computing along with the key differentiators of different models. We will also introduce you to virtual world of AWS along with AWS key vocabulary, services and concepts.
  - A Short history
  - Client Server Computing Concepts
  - Challenges with Distributed Computing
  - Introduction to Cloud Computing
  - Why Cloud Computing?
  - Benefits of Cloud Computing

Amazon EC2 And Amazon EBS

- In this module, you will learn about the introduction to compute offering from AWS called EC2. We will cover different instance types and Amazon AMIs. A demo on launching an AWS EC2 instance, connect with an instance and hosting a website on AWS EC2 instance. We will also cover EBS storage Architecture (AWS persistent storage) and the concepts of AMI and snapshots.
  - Amazon EC2
  - EC2 Pricing
  - EC2 Type
  - Installation of Web server and manage like (Apache/ Nginx)
  - Demo of AMI Creation
  - Exercise
  - Hands on both Linux and Windows

Amazon Storage Services S3 (Simple Storage Services)

- In this module, you will learn how AWS provides various kinds of scalable storage services. In this module, we will cover different storage services like S3, Glacier, Versioning, and learn how to host a static website on AWS.
  - Versioning
  - Static website
  - Policy
  - Permission
  - Cross region Replication
  - AWS-CLI
  - Life cycle
  - Classes of Storage
  - AWS CloudFront
  - Real scenario Practical
  - Hands-on all above

Cloud Watch & SNS

- In this module, you will learn how to monitoring AWS resources and setting up alerts and notifications for AWS resources and AWS usage billing with AWS CloudWatch and SNS.
  - Amazon Cloud Watch

- SNS - Simple Notification Services
- Cloud Watch with Agent

Scaling And Load Distribution In AWS

- In this module, you will learn about 'Scaling' and 'Load distribution techniques' in AWS. This module also includes a demo of Load distribution & Scaling your resources horizontally based on time or activity.
  - Amazon Auto Scaling
  - Auto scaling policy with real scenario based
  - Type of Load Balancer
  - Hands on with scenario based

AWS VPC

- In this module, you will learn introduction to Amazon Virtual Private Cloud. We will cover how you can make public and private subnet with AWS VPC. A demo on creating VPC. We will also cover overview of AWS Route 53.
  - Amazon VPC with subnets
  - Gateways
  - Route Tables
  - Subnet
  - Cross region Peering

Identity And Access Management Techniques (IAM)

- In this module, you will learn how to achieve distribution of access control with AWS using IAM.
- Amazon IAM
  - add users to groups,
  - manage passwords,
  - log in with IAM-created users.
- User
- Group
- Role
- Policy

Amazon Relational Database Service (RDS)

- In this module, you will learn how to manage relational database service of AWS called RDS.
  - Amazon RDS
  - Type of RDS
  - RDS Failover
  - RDS Subnet
  - RDS Migration
  - Dynamo DB (No SQL DB)
  - Redshift Cluster
  - SQL workbench
  - JDBC / ODBC

Multiple AWS Services And Managing The Resources' Lifecycle

- In this module, you will get an overview of multiple AWS services. We will talk about how do you manage life cycle of AWS resources and follow the DevOps model in AWS. We will also talk about notification and email service of AWS along with Content Distribution Service in this module.
    - Cloud Trail,

AWS Architecture And Design

- In this module, you will cover various architecture and design aspects of AWS. We will also cover the cost planning and optimization techniques along with AWS security best practices, High Availability (HA) and Disaster Recovery (DR) in AWS.
    - AWS High Availability Design
    - AWS Best Practices (Cost +Security)
    - AWS Calculator & Consolidated Billing

Migrating To Cloud & AWS

Router S3 DNS

- Public DNS
- Private DNS
- Routing policy
- Records
- Register DNS
- Work with third party DNS as well

Cloud Formation

- Stack
- Templet
- Json / Ymal

Elastic Beanstalk

EFS / NFS (hands-On Practice)

Hands-On Practice On Various Topics

Linux

- Installation of Linux
- Configuration
- Manage
- Installation of app on Linux (apache / Nginx etc)
- AWS cli configuration on Linux
- Complete hands-on on Linux.
- Scenario based lab and practical
- Each topic and services will be cover with lab and theory.

Module 11: DevOps

DevOps Fundamentals

- Overview of DevOps:
  - Why DevOps?
  - What is DevOps?
  - DevOps Market Trends
  - DevOps Engineer Skills
  - DevOps Delivery Pipeline
  - DevOps Ecosystem
- Introduction to DevOps on Cloud
  - Why Cloud?
  - Introduction to Cloud Computing
  - Why DevOps on Cloud?
  - Introduction to AWS
  - Various AWS Services
  - DevOps using AWS

Git, Jenkins & Maven

- Version Control with Git
  - What is Version Control
  - What is Git
  - Why Git for your Organization
  - Install Git
  - Common Commands in Git
  - Working with Remote Repositories
  - GIT Installation, Version Control, Working with Remote Repository
- Git, Jenkins & Maven Integration
  - Branching and Merging in Git
  - Git Workflows
  - Git Cheat Sheet
  - What is CI
  - Why CI is Required
  - Introduction to Jenkins (With Architecture)
  - Introduction to Maven
  - Branching and Merging, Stashing, Rebasing, Reverting and Resetting
  - Build and Automation of Test using Jenkins and Maven

Jenkins

- Continuous Integration using Jenkins
  - Jenkins Management
  - Adding a Slave Node to Jenkins
  - Building Delivery Pipeline
  - Pipeline as a Code
  - Implementation of Jenkins
  - Build the Pipeline of Jobs using Jenkins
  - Create a Pipeline Script to Deploy an Application over the Tomcat Server

Terraform

- Terraform
  - Terraform Configuration & Terraform Common Commands
  - Managing Terraform Resources
  - Setting Up AWS and Terraform
  - Executing a Terraform Configuration
  - Understanding Resources & Providers
  - Creating first EC2 instance with Terraform

Ansible

- Configuration Management with Ansible
  - Introduction to Ansible
  - Ansible Installation
  - Configuring Ansible Roles
  - Write Playbooks
  - Executing Adhoc Command & Installing Ansible
  - Configuring Ansible Role & Write Playbooks
  - Execute Adhoc Commands

Grafana

- Continuous Monitoring with Grafana
  - Introduction to Continuous Monitoring
  - Introduction to Grafana
  - Installing Grafana
  - Grafana Plugins(NRPE) and Objects
  - Grafana Commands and Notification
  - Installing Grafana
  - Monitoring of different servers using Grafana

Module 12: Data Science-Live Projects

Capstone Project

Course Projects

Domain: Cricket Sports

Project Name:

IPL Data Analysis

Indian Premier League more popularly called IPL is a Cricket Tournament hoisted by the Cricket Board of India(BCCI). Players from different countries participate in IPL making it an exciting opportunity to entertain cricket lovers. IPL was established in 2008 when the first season of IPL was hoisted. We perform the EDA task to find the insights in data of a highest scorer player in the Indian team.

Tool & Technology Used:

EXCEL | POWER BI | POWER BI SERVICE

Domain: CAB Services

Project Name:

Uber Supply Demand Gap Analysis

For this project i would like to do Uber supply demand gap analysis. I hope everyone experienced of travelling in any of the cab services like uber. sometimes we may face the problem of cancellation by the driver or non-availability of cars. These are the problems faced by customers and it impact the business of Uber. If drivers cancel the request of riders or if cars are unavailable, Uber loses out on its revenue.

Tool & Technology Used:

EXCEL | TABLEAU

Domain: OTT Platform

Project Name:

Movies Exploratory Data Analysis

The Internet Movie Database (IMDb) is an online database containing information and statistics about movies, TV shows and video games as well as actors, directors and other film industry professionals. This platform acts as a comprehensive resource for entertainment enthusiasts. Along with this, it provides information about the user reviews, ratings, cast and crew biographies. IMDB has proven to be an invaluable tool for navigating the vast world of entertainment.

Tool & Technology Used:

EXCEL | POWER BI | PYTHON | STATISTICS

Domain: Drugs and Crimes

Project Name:

Uber Supply Demand Gap Analysis

The 2022 report estimates that 50 million people were victims of modern slavery in any given day in 2021. Out of these, an estimated 27.6 million people were in situations of forced labour and another 22 million people were in a forced marriage.

The purpose of this analysis to get the insights of all crime and victims.

Tool & Technology Used:

EXCEL | TABLEAU

DISCLAIMER

"Course Curriculum, Training Certificates & Projects details are subject to change without notice, based on industry standards and guidelines.

Course Projects

Domain: E-Commerce

Project Name:

C2C Model

Business model Customer to Customer (C2C) allows customers to do business with each other. This model is growing fast with e-commerce platforms where sellers may be required to pay some amount and buyer can buy it without paying anything.

E-Commerce website brings the seller and buyer to the same platform.

Tool & Technology Used:

EXCEL | SQL SERVER

Domain: Sales

Project Name:

Zomato Pizza Sales Analysis

Better decision-making with respect to Best-seller and Least-seller Category-wise analysis like Pizza category and Date.

Helps to identify the weak area and work on that.

Optimize the sales performance.

Tool & Technology Used:

EXCEL | SQL SERVER | POWER BI | MYSQL

Domain: HR

Project Name:

Hiring Process Analytics

Hiring process is the fundamental and the most important function of a company. Here, the MNCs get to know about the major underlying trends about the hiring process. Trends such as- number of rejections, number of interviews, types of jobs, vacancies etc. are important for a company to analyse before hiring freshers or any other individual. Thus, making an opportunity for a Data Analyst job here too!

Tool & Technology Used:

ADVANCED EXCEL | PIVOT

Domain: Automobile

Project Name:

Car Price Prediction

To be able to predict used cars market value can help both buyers and sellers. There are lots of individuals who are interested in the used car market at some points in their life because they wanted to sell their car or buy a used car. In this process, it's a big corner to pay too much or sell less then it's market value. In this Project, we are going to predict the Price of Used Cars using various features like Present_Price, Selling_Price, Kms_Driven, Fuel_Type, Year etc.

Tool & Technology Used:

EXCEL | PYTHON | ML | NUMPY | PANDAS

DISCLAIMER

"Course Curriculum, Training Certificates & Projects details are subject to change without notice, based on industry standards and guidelines.

Course Projects

Domain: Fitness and Health

Project Name:

Calories Burnt Prediction

The Calories Burnt Prediction project aims to develop an advanced machine learning model that can accurately predict the number of calories an individual burns based on various physiological and activity-related factors. This project has significant applications in the fields of health and fitness, personalized training programs, weight management, and overall wellness.

Tool & Technology Used:

PYTHON | NUMPY | PANDAS | MATPLOTLIB | SEABORN | PLOTLY

Domain: Social Media

Project Name:

Instagram Reach Analysis

Instagram reach analysis is a vital topic for social media marketing. This project aims at teaching learners how to use data to analyze their Instagram reach. It involves collecting data on the reach of your past posts and using Python to understand how different factors affect the number of people who see your posts.

Tool & Technology Used:

PYTHON | NUMPY | PANDAS | MATPLOTLIB | SEABORN | PLOTLY

Domain: Automobile Safety

Project Name:

Driver Drowsiness Detection

A new approach towards automobile safety and security with autonomous region primarily based automatic automotive system is projected during this conception. In recent time's automobile fatigue connected crashes have very enlarged. so as to attenuate these problems, we've incorporated driver alert system by watching each the driver's eyes still as sensing still because the driver state of affairs based primarily based native setting recognition based AI system is projected.

Tool & Technology Used:

PYTHON | OPENCV | IMUTILS | DLIB | SCIPY

Domain: Hotel and Travel

Project Name:

Investigate Hotel Business

Business performance analysis is an important key for companies to achieve success in their business. Companies can carry out analyzes to identify their problems, weaknesses and strengths. In the hospitality business, it is important to understand customer behavior. By understanding customer behavior, companies can find out what factors influence customers in making hotel reservations.

Tool & Technology Used:

PYTHON | NUMPY | PANDAS | SEABORN | MATPLOTLIB

DISCLAIMER

"Course Curriculum, Training Certificates & Projects details are subject to change without notice, based on industry standards and guidelines.

Course Projects

Domain: Finance

Project Name:

Credit Card Fraud Detection

This project aims to create a cluster of customers with similar credit card spending patterns, providing valuable insights for credit card companies. It will use Python libraries and unsupervised machine-learning techniques to analyze credit card transaction data and identify customer segments.

Tool & Technology Used:

PYTHON | NUMPY | PANDAS | MATPLOTLIB | SEABORN

Domain: Hotel and Travel

Project Name:

Airbnb Bookings - Exploration

Understanding the factors that influence Airbnb prices in New York City, or identifying patterns of all variables and Our analysis provides useful information for travelers and hosts in the city and also provides some best insights for Airbnb business.

Tool & Technology Used:

PYTHON | NUMPY | PANDAS | MATPLOTLIB | SEABORN

Domain: Health

Project Name:

COVID19 - EDA

The first wave of covid-19 impacted the global economy as the world was never ready for the pandemic. It resulted in a rise in cases, a rise in deaths, a rise in unemployment and a rise in poverty, resulting in an economic slowdown. Here, you are required to analyze the spread of Covid-19 cases and all the impacts of covid-19 on the economy.

Tool & Technology Used:

PYTHON | NUMPY | PANDAS | SEABORN | PLOTLY

Domain: Finance and Health

Project Name:

Medical Insurance Cost Prediction

This project aims to build a model that can predict medical insurance prices based on certain factors like age, body mass index, sex, number of children, etc. It will help families to identify their insurance premiums and get themselves covered for emergency health scenarios.

Tool & Technology Used:

PYTHON | NUMPY | PANDAS | SEABORN | SKLEARN

DISCLAIMER

"Course Curriculum, Training Certificates & Projects details are subject to change without notice, based on industry standards and guidelines.

e-Learning through LMS

Learning **Management System**

Our LMS (LearnPitch) is for the administration, documentation, tracking, reporting, automation, and delivery of educational courses, training programs, or learning and development programs.

Our LMS has been designed to identify training and learning gaps, using analytical data and reporting to keep you up with the class activities.

Key Features **Learning Management System**

- Live Sessions with Class recordings
- Get study material with Assignments.
- Track your curriculum covered.
- Track your class wise attendance
- Share your feedback for Trainer & Training
- Get your Training Certificate from LMS

Training Certification

Earn Your **Certificate**

Your certificate and skills are vital to the extent of jump-starting your career and giving you a chance to compete in a global space.

Croma Campus is Nasscom Certified

Croma Campus is now

NASSCOM®

Certified Member

|Croma Campus! Reviews

"The most rewarding part of my experience has been achieving a prestigious certification in the subject that I love. Moreover, the training offered out by the specialists are of world-class and prepares out the students for corporate world. For me Croma Campus means a lot."

"By The Students For The Students"

Your Success is **Our Story**

Bharat

"I am fully satisfied with the excellent training services received by the expert staff at Croma Campus. I want to thank Croma Campus for providing me with the most innovative and affordable training services for learning all the software testing procedures and guidelines."

Ankit

"It was a lifetime experience for me to get trained by IT Experts of Croma Campus. What I liked most about the training was the consistent high-quality education, which was friendly and co-active. The placement department was also proactive, they keep me updated regarding new job opportunities and provide the grooming session to crack the interview. At last, I would like to thank all faculty members of Croma Campus for their immense help and support."

Umesh

"Without any second thought, I will give Croma Campus 10/10. Their placement department is highly proactive. I remember they started scheduling interviews for me from the very next day when I told them my course has been completed. These people are doing a phenomenal job and I highly recommend Croma Campus to everyone."

Shams Khan

"Croma Campus is doing a phenomenal job in the IT training industry. The reason why I decided to join their training program was that they provide quality training at very a nominal price. Plus, the online training mode was also a factor due to which I decided to join the training program of Croma Campus as I didn't want to attend physical classes."

4.2/5

4.8/5

4.6/5

4.3/5

4.5/5

Meet Our Team

Sales Team

Our Sales team is highly passionate, emphatic, positive attitude, great listening skills, ability to deliver quick solutions, and they are multitasker too. Our team always remains up-to-date about all the latest technologies and market trends. With effective communication skills, they always work to deliver the right information to customers when it is needed.

Product Team

Our product team is highly functional and collaborative working together to achieve the common outcome of designing exceptional digital experiences. Each of our members is a contributor to help us achieve success in long-run. Sitting at the high-end of technology and innovation, team helps to deliver high-end customer experiences and always comes out with a big idea as a game-changing plan.

Marketing Team

Our Marketing team works as gladiators and helps us to achieve business success in all possible ways. They are included in almost everything either it is building a brand, creating brand awareness, promoting products or services, delivering trailblazing customer experiences or increasing engagement at public forums. They are the true backbone of the Company.

Content Team

Our content team is responsible for ideation, creation, optimization, and distribution of content throughout the company. The team always starts its work with a strategy, how to create high-quality contents, and how to promote or share the content. Our in-house content team help us to produce all types of contents either they are educational content pieces, marketing content, SEO content, or any other forms too.

Customer Access Team

This is the team that has actually been taken up us from reactive state to a pro-active state. The team utilizes high-valued solutions to satisfy customers in all possible ways. It is truly said that no company can succeed if your customers are not satisfied. And our customer success team is dedicatedly working to keep all the customers satisfied and we always consider our customer feedback on priority.

HR Team

Our HR team is committed to provide high-end solutions to employees as they require. Our HR team has the right skills and knowledge to make sure that the HR department can always be legally and strategically successful. They know how to keep employees motivated all the time with the best HR policies and fun activities too from time to time.

|Glimpse Of Our Office

Look **Who We are**

Our office's infrastructure comprises all the necessary software and network resources that are required to deliver IT & Design, Human Resources, Digital Marketing, and training services.

We are well-equipped with bright designed work bays for employees and managers having separate cabins with spacious cafeteria and training classrooms.

About Croma Campus

“Our Mission is to Build Nation through Education & Beyond Limitation.”

CROMA CAMPUS #1 Asia's Leading Edtech Company

Croma Campus Training & Development Private Limited is an education platform providing rigorous industry-relevant programs designed and delivered in collaboration with world-class faculty, industry & Infrastructure. In the past 15 years we have trained 18000+ candidates and out of which we are able to place 12000+ professionals in various industries successfully.

We're Here to Help –

Reach Out to Our Global Offices

India

Croma Campus Training & Development Private Limited

G-21, Block-G, Sector 3, Noida, Uttar Pradesh-201301

+91-971 152 6942 Chat on WhatsApp

View on Google Maps

Canada

Croma Campus Training & Development Private Limited

279-B Baltzan BLVD, Saskatoon, Saskatchewan, Canada-S7W0S1

+1 (647) 370-6470 Chat on WhatsApp

View on Google Maps

USA

Croma Campus Training & Development Private Limited

454 church street Cairo, GA-39828, United States of America

+1 (647) 370-6470 Chat on WhatsApp

View on Google Maps

follow us on:

CromaCampusNoidaOfficial/facebook

cromacampus/pinterest

cromacampus/instagram

cromacampusofficial/linkedin

cromacampus/twitter

CromaCampusOfficial/youtube