PROFOUND
Edutech Private Limited

TRANSFORM DATA INTO A CAREER

Data Science with Gen AI

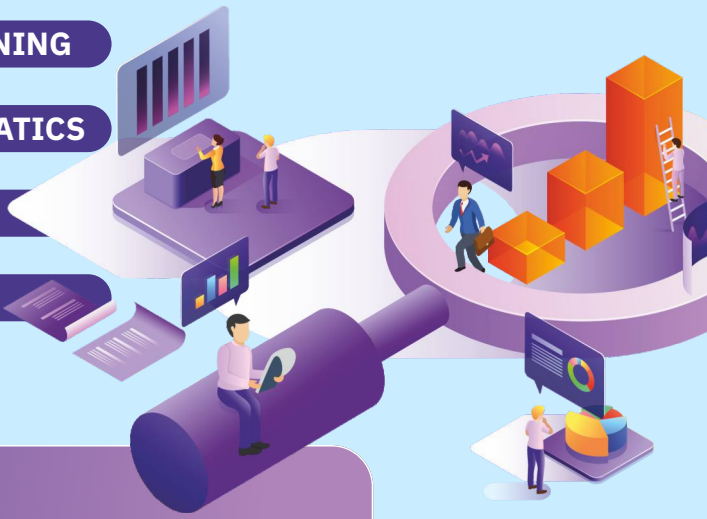
In today's data-driven world, the power of Data Science is transforming industries — and the future belongs to those who can combine analytics with the creativity of Generative AI.

Our **Data Science with Generative AI** program is a cutting-edge, industry-aligned certification course that brings together the best of both worlds: the analytical depth of traditional data science and the innovation of modern AI tools like ChatGPT.

Whether you're aiming to uncover hidden patterns in data, build intelligent chatbots, automate content generation, or deploy smart AI-powered apps — this program is your launchpad.

Designed for graduates, freshers, and tech enthusiasts, this hands-on course equips you with in-demand skills in:

- PYTHON PROGRAMMING
- MACHINE LEARNING AND DEEP LEARNING
- ADVANCED STATISTICS AND MATHEMATICS
- NATURAL LANGUAGE PROCESSING
- TEXT/IMAGE GENERATION



PROGRAM HIGHLIGHTS

- Master the Core Statistics and Mathematics concepts
- Solid Foundation of Core Python
- Detailed study of Numpy, Pandas libraries
- Learn Visualization tool Matplotlib, Seaborn
- Become expertise on Power BI tool
- Deep dive into Machine Learning Techniques
- Generative AI integration
- Curriculum by Industry Experts

WHY DATA SCIENCE A PROMISING CAREER OPTION?

HIGH DEMAND ACROSS INDUSTRIES

Every company, from tech giants to startups, is collecting data — but they need skilled professionals to make sense of it. Data scientists are in demand across Finance & Banking, Healthcare, E-commerce & Retail, Manufacturing, Media & Entertainment, Government & Research

EXCELLENT SALARY PACKAGES

Due to the specialized skill set and demand-supply gap, data science professionals command top salaries. Even entry-level roles start strong

POWER TO DRIVE BUSINESS DECISIONS

Data scientists influence real-world decisions like what products to launch, how to optimize pricing, how to reduce risk or fraud, where to invest resources. This strategic value makes data roles mission-critical.

GLOBAL & FLEXIBLE CAREER PATH

With remote work and cloud tools, data science roles are globally relevant, location-flexible and scalable from analyst to AI researcher or data product manager

CONTINUOUS INNOVATION

The field evolves rapidly — adding exciting domains like Generative AI, Natural Language Processing (NLP), Computer Vision, Reinforcement Learning etc

AFTER THE COURSE YOU WILL BE ABLE TO WORK AS

DATA SCIENTIST	Analyse complex data, build Machine Learning models, generate insights
DATA ANALYST	Process and analyse data, create dashboards and reports
BUSINESS INTELLIGENT ANALYST	Create reports and dashboards to support business decisions
AI/ML ENGINEER	Design and deploy Machine Learning algorithms into production
QUANTITATIVE ANALYST	Use data for Financial Modelling and Risk Management
DATA ENGINEER	Build data pipelines, manage ETL, optimise storage and retrieval
BIG DATA ENGINEER	Work with massive datasets using distributed computing

SYLLABUS

ENSURES YOU DEVELOP A STRONG ANALYTICAL MINDSET AND TECHNICAL PROFICIENCY

Module 1 : Data Science Fundamentals

- What is Data Science?
- Why its important?
- Life Cycle of Data Science
- Role of a Data Scientist
- Difference between Data Analytics & Data Science

Module 2 : Essential Statistics

Probability

- Introduction
- Why do we need to learn Probability and Statistics?
- The Basic Probability Formula
- Computing Expected Values
- Frequency
- Events and Their Complements

Probability - Combinatorics

- Fundamentals of Combinatorics
- Permutations and How to Use Them
- Simple Operations with Factorials
- Solving Variations with Repetition
- Solving Variations without Repetition
- Solving Combinations
- Symmetry of Combinations
- Solving Combinations with Separate Sample Spaces
- Combinatorics in Real-Life: The Lottery

Probability - Bayesian Inference

- Sets and Events
- Intersection of Sets
- Union of Sets
- Mutually Exclusive Sets
- Dependence and Independence of Sets
- The Conditional Probability Formula
- The Law of Total Probability
- The Additive Rule
- The Multiplication Law
- Bayes' Law
- A Practical Example of Bayesian Inference

Probability - Distributions

- Fundamentals of Probability Distributions
- Types of Probability Distributions
- Characteristics of Discrete Distributions
- Discrete Distributions: The Uniform Distribution
- Discrete Distributions: The Bernoulli Distribution
- Discrete Distributions: The Binomial Distribution
- Discrete Distributions: The Poisson Distribution
- Characteristics of Continuous Distributions
- Continuous Distributions: The Normal Distribution
- Continuous Distributions: The Standard Normal Distribution
- Continuous Distributions: The Students' T Distribution
- Continuous Distributions: The Chi-Squared Distribution
- Continuous Distributions: The Exponential Distribution
- Continuous Distributions: The Logistic Distribution
- A Practical Example of Probability Distributions

Module 3 : Descriptive Statistics

- Types of Data
- Levels of Measurement
- Categorical Variables - Visualization Techniques
- Numerical Variables - Frequency Distribution Table
- The Histogram
- Cross Tables and Scatter Plots
- Mean, median and mode
- Skewness
- Variance
- Standard Deviation and Coefficient of Variation
- Covariance
- Correlation Coefficient

Statistics - Inferential Statistics

- Introduction
- What is a Distribution
- The Normal Distribution
- The Standard Normal Distribution
- Central Limit Theorem
- Standard error
- Estimators and Estimates

Statistics - Inferential Statistics: Confidence Intervals

- What are Confidence Intervals?
- Confidence Intervals; Population Variance Known; Z-score
- Confidence Interval Clarifications
- Student's T Distribution
- Confidence Intervals; Population Variance Unknown; T-score
- Margin of Error
- Confidence intervals. Two means. Dependent samples, Independent Samples

Statistics - Hypothesis Testing

- Null vs Alternative Hypothesis
- Further Reading on Null and Alternative Hypothesis
- Null vs Alternative Hypothesis
- Rejection Region and Significance Level
- Type I Error and Type II Error
- Test for the Mean. Population Variance Known
- p-value
- Test for the Mean. Population Variance Unknown, Dependent Samples, Independent Samples

Module 4 : Essential Mathematics

- What is a Matrix?
- Scalars and Vectors
- Linear Algebra and Geometry
- Arrays in Python - A Convenient Way To Represent Matrices
- Addition and Subtraction of Matrices
- Errors when Adding Matrices
- Transpose of a Matrix
- Dot Product
- Dot Product of Matrices
- Why is Linear Algebra Useful?

Module 5 : Introduction to Data Analysis Using Spreadsheet Excel

- Perform basic spreadsheet tasks
  - viewing, entering and editing data, and moving, copying
- Cleaning & wranggling data
  - remove duplicate / inaccurate data / empty rows, manipulate & standardize data
- Conditional Formatting
- Functions
  - CONCATINATE, LEN, TRIM, COUNTA, AGGREGATEIFS, SUMIF, COUNTIF
- Fundamentals of analyzing data using filter and sort data.
- Pivot Tables
- HLOOKUP, VLOOKUP
- What-if analysis
- Charts
- Descriptive Statistics - Annova, Regression

Module 6 : Database & SQL

- Create DB, Drop DB
- Create Table, Drop Table, Alter Table
- Data Types
- Constraints, Not Null, Unique
- Primary Key, Foreign Key
- Create Index
- Dates
- Views
- Summarizing results using group functions
- Joins
- Retrieving Data With Sub Queries
- Manipulating Data

Module 7 : Core Python For Data Science

- Introduction to Python Programming
- Installation & working
- Basic Operators, Data types, Variables
- Control Statements & Conditional Looping
- Functions
- Collections in Python
- Object Oriented Programming
- Modules and Packages
- String
- File Handling
- Exception Handling

Module 8 : Advance Python (Data Analysis)

- NumPy
- Introduction, installation
- 1D & 2D arrays
- Array indexing – slicing & advance
- Operations – Arithmetic, Logical, Math, String, Statistical, Set, Broadcasting
- Pandas
- Introduction, installation
- Series – Creation, indexing, slicing, attributes & functions
- Dataframes – Creation, operations, merging dataframes, Concatenate dataframes, binary operations
- Data input and output

Module 9 : Data Visualization with Python

- Matplotlib
- Introduction, installation
- Data Visualization
- Plots – single line, multiple line
- Grid axes, Labels, color line markers
- Seaborn
- Distribution plots
- Category plots
- Matrix plots
- Grids, Regression Plots
- Introduction to plotly, Altair, ggPlot

Module 10 : Data Visualization with Power BI

- Introduction Microsoft Power BI Desktop
- Connecting & Shaping Data
- Creating a Data Model
- Calculated Fields with DAX
- Visualizing Data with Reports
- Artificial Intelligence & Microsoft Power BI
- Power BI Optimization Tools

Module 11 : Machine Learning Foundation

- What is Machine learning?
- Machine Learning Methods - Predictive Models, Descriptive Models
- Regression
- Simple Linear Regression
- Multiple Linear Regression
- Bias-Variance trade-off
- Classification

- Logistic Regression
- K-Nearest Neighbors (K-NN)
- SVM
- Decision Trees
- Random Forest
- Clustering
- K-means
- Hierarchical
- DBSCAN
- Dimensional Reduction
- Linear discriminant analysis
- Principal component analysis

Module 12 : Deep Learning

Neural Networks

- Introduction to Neural Networks
- Back propagation
- Maths of neural networks

Conventional Neural Networks (CNN)

- Introduction to Image processing
- Basic convolution
- Convolution Neural Network Application
- Fine tuning

Recurrent Neural Networks (RNN)

- Introduction to Recurrent Neural Networks
- Application in Time series and text Analytics
- Convolution Neural Network Application
- Fine tuning

Natural Language Processing with Deep Learning

- Introduction to NLP
- Text representation with DL
- Text classification, Grammar detection, Sentiment analysis with Deep Learning

Module 13 : Gen AI In Data Science

- What is Gen AI? History and trends
- Difference between Discriminative vs Generative Models
- LLMs overview: GPT, Gemini, Claude, LLaMA, Falcon
- Pre-training, Fine-tuning, RLHF
- ChatGPT (OpenAI)
- Google Gemini
- Hugging Face Transformers (beginner)
- LangChain (Intro)
- Prompt Engineering Basics
- Text summarizer using ChatGPT API
- Conversational bot for CSV file (Q&A using ChatGPT)
- Generating synthetic data for ML training
- Gen AI for report creation & code debugging

Note :

- Internship Letter for Data Science course
- Syllabus for Data Analytics is from Module 1 to 10

EMPLOYABILITY SKILLS

Soft Skills

- Personality Development
  - Communication Skills
  - Body Language
  - Presentation Skills
  - Leadership Skills
- Group Discussions-Techniques
- Interviews- Techniques, FAQs
- Resume Writing
- Email Writing

Aptitude

Quantitative Aptitude

- Numbers (HCF & LCM)
- Interests and Partnerships
- Mixtures & Allegations
- Ratio & Proportion
- Profit & Loss
- Time, Speed & Distance
- Time & Work
- Mensuration
- Permutations & Combinations
- Average & Percentages

Reasoning

- Logical Reasoning
- Probability
- Coding-Decoding, Series
- Directions
- Blood Relations
- Clocks & Calenders

Verbal

- Analogy & Odd Man Out
- Antonyms & Synonyms
- Reading Comprehension
- One Word substitution & Idioms phrase

Interview Preparation

- Mock Test on MNC Pattern
- Coding Test
- Technical Interviews
- Group Discussion
- Presentations

THROUGH CASE STUDIES AND PROJECTS, YOU'LL DEVELOP THE SKILLS TO TURN RAW DATA INTO ACTIONABLE INSIGHTS

Case Study 1 : Rating Predictions

Discover how to use machine learning models. This includes analysing movie ratings to understand audience preferences, evaluating product reviews to determine customer feedback trends, and conducting customer satisfaction analysis to gauge overall user experiences. Gain hands-on experience with data preprocessing, feature engineering, model selection, and evaluation techniques to create accurate and insightful predictive models tailored to these applications.

Case Study 2 : House Price Prediction

Learn how to build a robust machine learning model capable of predicting house prices. Through hands-on experience, you will train the model using historical house price data, exploring key concepts such as data preprocessing, feature selection, algorithm implementation, and model evaluation. You will have a solid understanding of how to develop predictive models that can accurately estimate property values based on historical trends and market data.

Case Study 3 : Banking Problem

Gain practical expertise in solving real-world banking challenges through machine learning models in this hands-on course. Tackle critical problems such as fraud detection to safeguard transactions, credit risk assessment to evaluate loan eligibility, and data-driven decision-making to optimise financial operations. Learn to preprocess banking data, implement advanced algorithms, and interpret model results to deliver impactful solutions tailored to the financial industry.

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Case Study 4 : Spam Detection

Learn how to tackle spam detection using machine learning models. Dive into real-world challenges, such as identifying and filtering spam messages, emails, or content, while exploring techniques like natural language processing, feature engineering, and classification algorithms. Develop efficient models that can accurately distinguish between spam and legitimate messages, enhancing communication systems and user experiences.

Case Study 5 : Disease Prediction

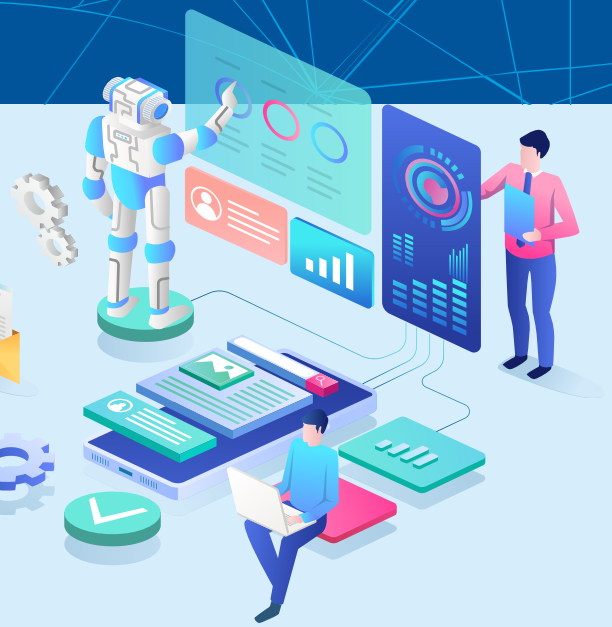
Develop a machine learning model to predict the likelihood of cardiovascular disease in patients by analysing their medical records and history. This project examines key factors such as age, lifestyle, medical conditions, and test results to calculate the probability of cardiovascular disease. By identifying individuals at higher risk, the model serves as a valuable tool for enabling early detection, personalised care, and proactive intervention, ultimately improving patient outcomes and reducing healthcare burdens.

Case Study 6 : Traffic Management

Build a predictive model to analyse and forecast traffic flow using historical data, including vehicle counts (cars, bikes, buses, trucks), time of day, and day of the week.This project aims to uncover patterns in traffic behaviour, anticipate traffic conditions, and generate actionable insights to optimise congestion management and enhance urban mobility. By leveraging this model, city planners and transportation authorities can make data-driven decisions to improve traffic flow, reduce delays, and create smarter, more efficient transportation systems.

Capstone Project :
ML + Power BI + Gen AI Project:

- Clean data (Python)
- Build ML model (scikit-learn)
- Create interactive dashboard (Power BI)
- Auto-generate report using ChatGPT prompts



After the Program you will be able to :

- Load, clean, and preprocess structured and unstructured data using Pandas and NumPy
- Perform exploratory data analysis (EDA) with statistical summaries and visualizations
- Identify and handle missing values, outliers, duplicates, and feature inconsistencies
- Summarize key insights from data to guide decision-making
- Understand and apply descriptive & inferential statistics
- Perform hypothesis testing, regression, and correlation analysis
- Apply probability distributions, Bayes' Theorem, and sampling methods
- Use linear algebra and calculus concepts behind machine learning and deep learning models
- Interpret model assumptions and feature relationships mathematically
- Train and evaluate regression and classification models using scikit-learn
- Implement clustering and dimensionality reduction (K-Means, PCA)
- Build and evaluate models from scratch

Top Recruiters

accenture, ADP, AURUS, Atos, amdocs, amazon, bmc, bitwise, Bentley, Bajaj Allianz, bluepineapple, Capgemini, CYBAGE, Course5, datamato, Deloitte., DATAMATICS, EMERGYS, vyomlabs, e-Zest, Emtec, FSS, Futurism, GoldenSource, GlobalStep, HSBC, HEXAWARE, HITACHI, HCL, ID MISSION, kiva.ai, KPIT, LTIMindtree, Mphasis, MEDITAB, PubMatic, Persistent, PEOL, Qualitas, Quinnox, QualityKiosk, Quick Heal, Rakuten, SOFTENGER, Synechron, sears, T Systems, Tech Mahindra, TRIGYN, TATA CONSULTANCY SERVICES, Thomas Cook, TIBCO, vodafone, wipro, XL Dyanamics, YASH, ZenSar

& many more

PROFOUND
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NASHIK - ASHOK STAMBH
2nd Floor, Kaveri Sankul, Wakilwadi Corner,
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PUNE - VIMANNAGAR
A-133, Ashoka Plaza, Nagar Road, next to Ibis Hotel,
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