



Introduction to Data Science



16 - 20 September 2024
Barcelona (Spain)



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Introduction:

This training program is a dynamic field that integrates domain expertise, programming skills, and statistical knowledge to extract valuable insights from data. It involves techniques like data mining, machine learning, and big data analysis to uncover patterns and drive decision-making processes. This program equips participants with essential skills and knowledge to excel in the data-driven landscape.

Program Objectives:

- Develop strong analytical skills.
- Build proficiency in programming.
- Understand statistical methods thoroughly.
- Master machine learning techniques effectively.
- Learn data visualization for clear communication of insights.
- Gain insights from real-world data applications.

Targeted Audience:

- Employees seeking to enhance data science skills.
- Managers fostering a data-driven culture.
- Executives improving organizational efficiency.
- Teams interested in data-driven decision-making.
- Individuals aiming for skill development in analytics.

Program Outlines:

Unit 1.

Fundamentals:

- Introduction to data science concepts.
- Exploring data types and structures.

- Understanding the data analysis process.
- Overview of statistical methods.
- Introduction to programming for data science

Unit 2.

Data Wrangling and Preprocessing:

- Data collection methods and sources.
- Cleaning and handling missing data.
- Data transformation and normalization techniques.
- Exploratory data analysis practices.
- Feature engineering strategies.

Unit 3.

Machine Learning Essentials:

- Overview of machine learning algorithms.
- Supervised, unsupervised, and semi-supervised learning.
- Model evaluation and selection criteria.
- Hyperparameter tuning and optimization.
- Ensemble methods and model stacking.

Unit 4.

Data Visualization and Communication:

- Principles of effective data visualization.
- Choosing the right visualization techniques.
- Tools and libraries for data visualization.
- Designing interactive and dynamic visualizations.
- Communicating insights through storytelling.

Unit 5.

Real-World Applications:

- Applying data science techniques to real-world problems.
- Project scoping and problem framing.
- Data-driven decision-making in business contexts.
- Collaborative project work and team dynamics.
- Presenting project outcomes and recommendations.