€TRAINING

Data Science Foundations

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Introduction:

This training program is designed to provide participants with a solid foundation in data science, covering key concepts, tools, and techniques. It equips learners with the skills needed to analyze, interpret, and visualize data to make informed decisions and drive business insights.

Program Objectives:

By the end of this program, participants will be able to:

- Understand the core principles and methodologies of data science.

- Utilize data analysis and visualization tools to explore and present data.

- Apply statistical techniques and machine learning algorithms to solve real-world problems.

- Develop and implement data-driven solutions for business challenges.

- Communicate data insights effectively to stakeholders.

Target Audience:

- Aspiring Data Scientists.

- Data Analysts.

- Business Analysts.

- IT Professionals.

Program Outline:

Unit 1:

Introduction to Data Science:

- Overview of data science and its significance in various industries.

- Understanding the data science lifecycle and workflow.

- Introduction to key tools and technologies used in data science Python, R, SQL.

- Exploring data sources and data collection methods.

- Case studies on successful data science applications.

Unit 2:

Data Analysis and Visualization:

- Techniques for cleaning and preparing data for analysis.

- Exploratory data analysis EDA using statistical methods.

- Data visualization principles and best practices.

- Tools for data visualization Matplotlib, Seaborn, Tableau.

- Hands-on exercises in creating interactive data visualizations.

Unit 3:

Statistical Methods and Data Modeling:

- Introduction to probability and statistical inference.

- Hypothesis testing and confidence intervals.

- Regression analysis and predictive modeling.

- Classification techniques logistic regression, decision trees.

- Practical applications of statistical methods in data science projects.

Unit 4:

Machine Learning and Advanced Analytics:

- Fundamentals of machine learning and its types supervised, unsupervised, reinforcement learning.

- Key machine learning algorithms k-nearest neighbors, support vector machines, neural networks.

- Model evaluation and validation techniques.

- Implementing machine learning models using popular libraries Scikit-learn, TensorFlow.

- Case studies of machine learning applications.

Unit 5:

Data Science in Practice:

- Steps for Developing end-to-end data science projects.

- Integrating data science solutions into business processes.

- Ethical considerations and best practices in data science.

- Communicating data insights and storytelling with data.

- Future trends and career opportunities in data science.