

LAPT

LONDON ACADEMY OF PROFESSIONAL TRAINING

CERTIFICATE

Certificate in Data Analysis & Visualization

Foundation Level



LAPT — London Academy of Professional Training

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Reference IT-DSA-F • IT Centres

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AT A GLANCE

REFERENCE	IT-DSA-F
AWARD	Certificate
ASSESSMENT	450 marks — 270 to pass (60%)
PREREQUISITES	None
VALIDITY	Lifetime
AWARDING BODY	LAPT — London Academy of Professional Training

CURRICULUM

1 Basic Statistics for Data Analysis 4 chapters · 20 classes 90 marks	• 1 Chapter 1 — Fundamentals of Descriptive Statistics — 5 classes › 1.1 Understanding the Basics of Descriptive Statistics › 1.2 Exploring Measures of Central Tendency: Mean, Median, and Mode › 1.3 Analyzing Data Spread with Range, Variance, and Standard Deviation › 1.4 Visualizing Data: Creating and Interpreting Histograms and Box Plots › 1.5 Applying Descriptive Statistics to Real-World Data Sets • 2 Chapter 2 — Exploring Probability Distributions — 5 classes › 2.1 Understanding Probability Distributions: An Introduction › 2.2 Analyzing Uniform Distribution Patterns › 2.3 Exploring Normal Distribution Characteristics › 2.4 Investigating Binomial Distributions in Practical Scenarios › 2.5 Applying Probability Distributions to Real-World Data • 3 Chapter 3 — Inferential Statistics and Hypothesis Testing — 5 classes › 3.1 Understanding Inferential Statistics: From Sample to Population › 3.2 Exploring Sampling Distributions: The Central Limit Theorem › 3.3 Formulating Hypotheses: Null and Alternative Hypotheses › 3.4 Conducting Hypothesis Tests: P-Values and Significance Levels › 3.5 Applying Inferential Techniques: Confidence Intervals in Practice • 4 Chapter 4 — Correlation and Regression Analysis — 5 classes › 4.1 Understanding Correlation Coefficients › 4.2 Exploring Types of Correlation › 4.3 Calculating Linear Regression Parameters › 4.4 Interpreting Regression Output › 4.5 Applying Regression Analysis in Real-world Scenarios
2 Data Reporting and Communication 4 chapters · 15 classes 90 marks	• 1 Chapter 1 — Fundamentals of Data Reporting — 5 classes › 1.1 Understanding the Basics of Data Reporting › 1.2 Identifying Key Components of Effective Data Reports › 1.3 Exploring Different Formats and Structures for Data Reporting › 1.4 Recognizing the Role of Audience in Data Communication › 1.5 Crafting Clear and Concise Data Narratives • 2 Chapter 2 — Designing Effective Data Visualizations — 5 classes › 2.1 Understanding the Principles of Effective Data Visualizations › 2.2 Identifying Appropriate Chart Types for Your Data › 2.3 Applying Design Best Practices to Enhance Clarity › 2.4 Utilizing Color and Fonts to Improve Readability › 2.5 Creating Interactive Visualizations for Enhanced Engagement • 3 Chapter 3 — Storytelling with Data — 5 classes › 3.1 Understanding the Elements of Data Storytelling › 3.2 Crafting Narratives for Data Insights › 3.3 Visualizing Data to Support Your Story › 3.4 Engaging Your Audience with Compelling Data Narratives › 3.5 Applying Storytelling Techniques to Real Data Scenarios • 4 Chapter 4 — Tools and Technologies for Data Communication

3

Data Visualisation Techniques

4 chapters · 20 classes **90 marks**

• 1 Understanding Data Visualization Fundamentals — 5 classes

- › 1.1 Exploring the Purpose and Power of Data Visualization
- › 1.2 Recognizing Key Components of Effective Visualizations
- › 1.3 Identifying Different Types of Data Charts and Graphs
- › 1.4 Interpreting Data through Basic Graphical Representations
- › 1.5 Developing Skills to Choose Appropriate Visual Formats

• 2 Data Visualization Tools and Techniques — 5 classes

- › 2.1 Understanding the Basics of Data Visualization
- › 2.2 Exploring Key Tools for Visualization
- › 2.3 Creating Simple Charts with Spreadsheets
- › 2.4 Utilizing Software for Advanced Visualizations
- › 2.5 Applying Visualization Techniques to Tell a Story

• 3 Design Principles for Effective Visual Communication — 5 classes

- › 3.1 Understanding Key Design Principles in Visualization
- › 3.2 Identifying the Role of Colour and Contrast in Visual Communication
- › 3.3 Utilizing Space and Layout for Clarity and Impact
- › 3.4 Applying Typography for Enhanced Readability
- › 3.5 Evaluating and Refining Visualizations for Effective Communication

• 4 Advanced Visualization Strategies and Case Studies — 5 classes

- › 4.1 Exploring Complex Data Through Advanced Charts
- › 4.2 Utilizing Interactive Visualizations for Dynamic Data Representation
- › 4.3 Integrating Multivariate Visual Techniques for In-Depth Analysis
- › 4.4 Analyzing Case Studies: Effective Strategies in Real-world Scenarios
- › 4.5 Crafting Storytelling with Data to Enhance Impact

4

Interpreting Data Visualisations

4 chapters · 20 classes **90 marks**

• 1 Understanding Basic Data Visualization Concepts — 5 classes

- › 1.1 Exploring the Purpose of Data Visualizations
- › 1.2 Identifying Key Components of a Data Visualization
- › 1.3 Analyzing Common Types of Data Visualizations
- › 1.4 Interpreting Data Trends and Patterns
- › 1.5 Evaluating the Effectiveness of Visual Representations

• 2 Analyzing Common Data Visualizations — 5 classes

- › 2.1 Understanding Bar and Column Charts: Comparing Categories
- › 2.2 Interpreting Line Charts: Analyzing Trends Over Time
- › 2.3 Exploring Pie Charts: Evaluating Proportional Relationships
- › 2.4 Decoding Scatter Plots: Identifying Correlations
- › 2.5 Examining Histograms: Understanding Distribution Patterns

• 3 Evaluating the Effectiveness of Data Visualizations — 5 classes

- › 3.1 Understanding Key Elements of Data Visualizations
- › 3.2 Identifying Misleading Visual Techniques
- › 3.3 Comparing Visualizations for Accuracy and Clarity
- › 3.4 Evaluating Audience Interpretation of Visual Data
- › 3.5 Applying Best Practices for Effective Data Visuals

• 4 Advanced Techniques in Data Interpretation — 5 classes

- › 4.1 Recognizing Patterns in Complex Data
- › 4.2 Analyzing Multidimensional Data Visualizations
- › 4.3 Evaluating the Effectiveness of Visualization Techniques
- › 4.4 Identifying Bias and Misinterpretation in Data Visualizations
- › 4.5 Applying Insights from Data to Real-World Scenarios

5

Introduction to Data Science

4 chapters · 20 classes **45 marks**

• 1 Understanding the Basics of Data Science — 5 classes

- › 1.1 Exploring the Role of Data Science
- › 1.2 Identifying Key Data Science Concepts
- › 1.3 Distinguishing Between Structured and Unstructured Data
- › 1.4 Understanding Data Collection and Cleaning
- › 1.5 Applying Basic Statistical Techniques to Data

• 2 Data Acquisition and Management Principles — 5 classes

- › 2.1 Understanding Data Sources and Types
- › 2.2 Collecting Data: Methods and Techniques
- › 2.3 Exploring Data Collection Tools and Technologies
- › 2.4 Managing Data: Storage and Organization
- › 2.5 Ensuring Data Quality and Integrity

• 3 Introduction to Data Analysis Techniques — 5 classes

- › 3.1 Understanding Data Types and Structures
- › 3.2 Exploring Statistical Measures for Data Analysis
- › 3.3 Visualizing Data Patterns with Graphs and Charts
- › 3.4 Applying Descriptive Analytics Techniques
- › 3.5 Interpreting Data Insights for Decision Making

• 4 Fundamentals of Data Visualization — 5 classes

- › 4.1 Understanding Data Visualization Concepts
- › 4.2 Exploring Types of Data Visualizations
- › 4.3 Analyzing Data with Graphical Tools
- › 4.4 Applying Principles of Effective Data Visualization
- › 4.5 Creating Interactive Data Visualizations

• 1 Chapter 1 — Introduction to Data Analysis Tools — 5 classes

- › 1.1 Exploring Key Data Analysis Tools
- › 1.2 Understanding Data Analysis Frameworks
- › 1.3 Navigating Data Analysis Software Interfaces
- › 1.4 Comparing Popular Data Analysis Tools
- › 1.5 Selecting the Right Tool for Analysis Tasks

• 2 Chapter 2 — Spreadsheets for Data Manipulation — 5 classes

- › 2.1 Understanding Spreadsheet Interfaces and Functionality
- › 2.2 Importing and Organizing Data in Spreadsheets
- › 2.3 Applying Basic Formulas and Functions
- › 2.4 Visualizing Data with Charts and Graphs
- › 2.5 Automating Tasks with Macros and Scripts

• 3 Chapter 3 — Statistical Software: R and Python — 5 classes

- › 3.1 Exploring the Basics of R for Statistical Analysis
- › 3.2 Navigating Python Libraries for Data Manipulation
- › 3.3 Implementing Data Visualization Techniques in R
- › 3.4 Conducting Statistical Tests in Python
- › 3.5 Integrating R and Python for Enhanced Data Insights

• 4 Chapter 4 — Data Visualization Tools: Tableau and Power BI — 5 classes

- › 4.1 Understanding the Basics of Tableau for Beginners
- › 4.2 Navigating the Power BI Interface
- › 4.3 Creating Simple Visualizations in Tableau
- › 4.4 Building Dynamic Dashboards in Power BI
- › 4.5 Comparing and Selecting Between Tableau and Power BI