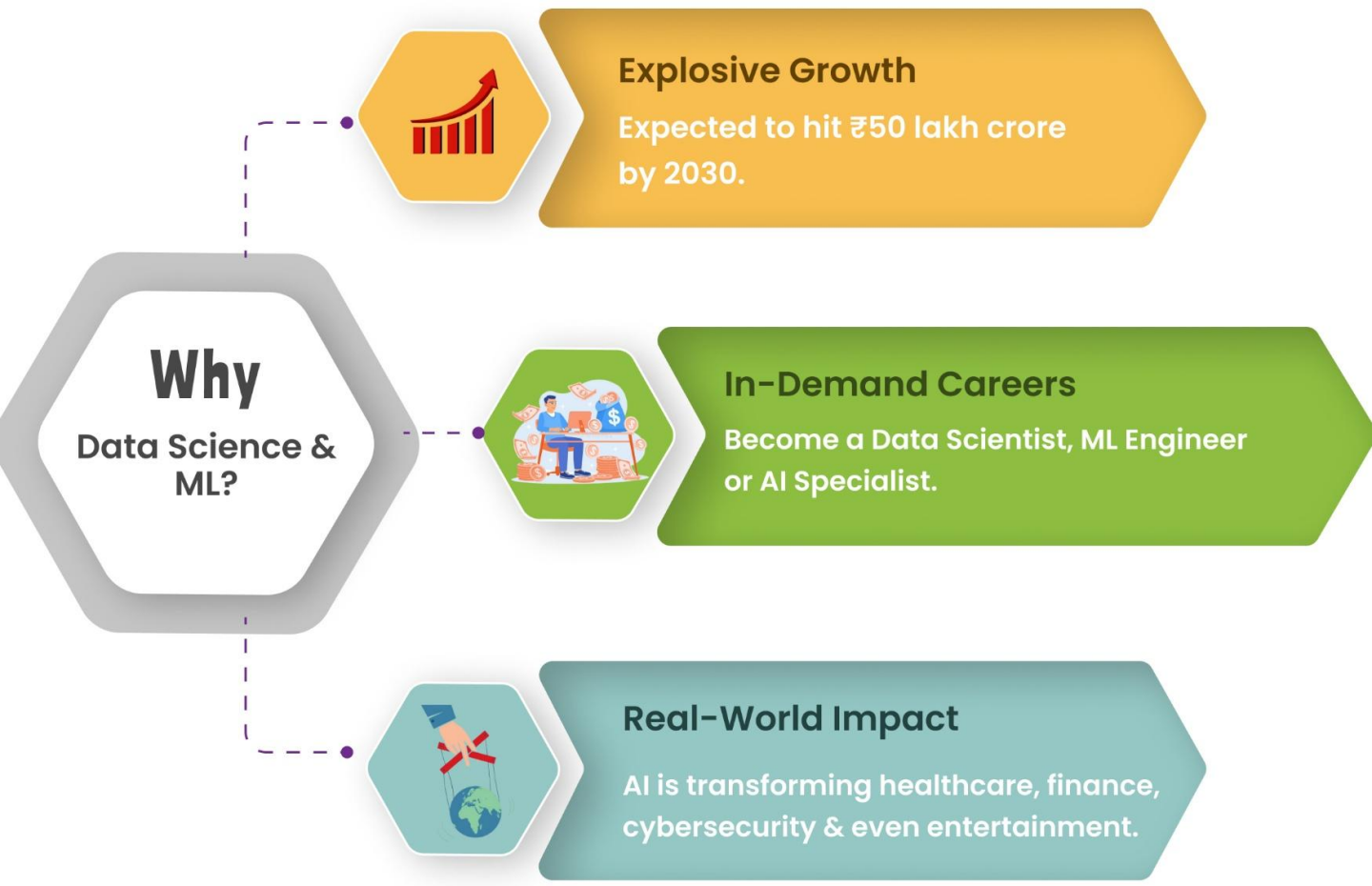
TeqCertify
Elevate Your Data Journey

DATA SCIENCE & MACHINE LEARNING

Why Data Science & ML?

How does **Google Translate understand languages,** or Spotify recommend songs you'll love? The answer is **Data Science and Machine Learning!** These fields power AI systems that predict trends, automate decisions, and generate creative content. From **self-driving cars to AI chatbots,** machine learning is shaping the future, and businesses are investing heavily in experts who can build these smart systems.



Career Opportunities

Years of Experience

Journey With TeqCertify

Capstone Project
Solving Real-World Problems with AI & ML

Big Data & Cloud
Managing Large-Scale Data Efficiently

Machine Learning
Teaching Machines to Learn & Predict

Data Processing & Visualization
Cleaning, Transforming & Exploring Data

Statistics & SQL
The Foundation of Data Mastery

Data Science
Unveiling Insights, Powering Decisions

Path to your Dream Job

Build a Standout Resume & Portfolio

01

Craft an ATS-friendly resume.
Highlight key skills & achievements.
Showcase your best projects & experience.

Master Interview Skills

02

Learn how to answer tricky questions.
Improve communication & confidence.
Practice with mock interviews.

Get Expert Feedback & Identify Gaps

03

Receive constructive feedback on interviews.
Understand areas that need improvement.
Make necessary revisions.

Improve & Upskill

04

Gain new skills based on feedback.
Strengthen technical & problem-solving abilities.
Enhance communication & presentation skills.

Land Your Dream Job

05

Negotiate salary & job offers smartly.
Secure the right job that fits your goals.
Get mentorship for long-term career growth.

Why should you invest in the track?

Predict the Future With Data Superpowers

Imagine a career where you decode hidden patterns, predict trends, and solve real-world problems—all using data! Data Science is your gateway to exciting opportunities in tech, finance, and healthcare. With great salaries, endless growth, and the power to shape the future, are you ready to explore this data-driven world?

Syllabus Breakdown

Master the art of making data-driven decisions! This training takes you from fundamentals to building smart AI-powered solutions.

01 **Data Science Foundations**
Learn how data fuels AI and business insights.

02 **Math & Stats for AI**
Discover the magic of probability, statistics & algebra in AI.

03 **Data Wrangling & EDA**
Clean, transform, and visualize data like a pro.

04 **Machine Learning Models**
Build predictive models using regression, trees & ensembles.

05 **Model Optimization**
Improve accuracy with tuning and validation techniques.

06 **Big Data & Cloud**
Work with massive datasets using Hadoop, Spark & Google Cloud.

07 **Capstone Project**
Solve real-world problems in finance, healthcare, and retail.

Track Curriculum

Phase 1: Python & SQL Foundations (21 Modules)

Python & SQL Foundations

Build strong coding and data query skills essential for a career in data science.

Unit 1: Python for Data Science

Master Python syntax, control flow, functions, data structures, file handling, regular expressions, and object-oriented programming.

Unit 2: Data Analysis with Python

Explore NumPy, Pandas, and Matplotlib for data manipulation, analysis, and visualization.

Unit 3: SQL for Data Projects

Write complex SQL queries with joins, aggregations, subqueries, CTEs, and learn to connect Python with databases using SQLite & SQLAlchemy.

Track Curriculum

Phase 2: Statistics & Mathematics for Data Science (9 Modules)

Statistics & Mathematics for Data Science

Develop the quantitative foundation needed for machine learning and analytics.

Unit 4: Descriptive & Inferential Statistics

Understand mean, median, mode, standard deviation, hypothesis testing, p-values, and confidence intervals.

Unit 5: Probability & Distributions

Grasp concepts like Bayes' theorem, probability distributions, and statistical significance.

Unit 6: Linear Algebra & Calculus for ML

Learn matrices, vectors, derivatives, gradients, and optimization for machine learning models.

Unit 7: Correlation & Covariance

Understand the relationship between variables using statistical measures.

Unit 8: Sampling & Central Limit Theorem

Learn how sample data relates to population data and model assumptions.

Unit 9: Statistical Testing Techniques

Apply t-tests, chi-square tests, ANOVA, and other statistical techniques in real datasets.

Unit 10: Matrix Operations for ML

Apply dot products, eigenvalues/eigenvectors, and SVD in model computations.

Unit 11: Differentiation & Cost Functions

Explore gradient descent and loss functions in supervised learning.

Unit 12: Probability in Machine Learning

Link probabilistic reasoning to machine learning decision-making.

Track Curriculum

Phase 3: Data Wrangling & Visualization (6 Modules)

Data Wrangling & Visualization

Transform raw data into meaningful insights using advanced data techniques.

Unit 13: Data Cleaning & Preprocessing

Handle missing data, outliers, and perform encoding, normalization, and transformation.

Unit 14: Feature Engineering

Create new features, extract datetime values, and engineer meaningful inputs for models.

Unit 15: Data Transformation Techniques

Log transforms, binning, and discretization techniques for model-friendly data.

Unit 16: Exploratory Data Analysis (EDA)

Discover insights, distributions, and correlations through structured EDA.

Unit 17: Data Visualization Techniques

Create stunning plots using Matplotlib, Seaborn, and Plotly to uncover hidden patterns.

Unit 18: Interactive Dashboards with Plotly & Streamlit

Turn visual insights into shareable dashboards for stakeholders.

Track Curriculum

Phase 4: Machine Learning & Predictive Modeling (12 Modules)

Machine Learning & Predictive Modeling

Master the art of building predictive models using supervised and unsupervised learning.

Unit 19: Supervised Learning Algorithms

Explore Linear Regression, Logistic Regression, Decision Trees, Random Forests & Gradient Boosting.

Unit 20: Unsupervised Learning & Clustering

Learn K-means, Hierarchical Clustering, PCA, and anomaly detection.

Unit 21: Model Evaluation & Tuning

Apply cross-validation, confusion matrix, ROC-AUC, precision-recall, and hyperparameter tuning.

Unit 22: Bias-Variance Tradeoff & Overfitting

Understand generalization error, underfitting, and model complexity.

Unit 23: Model Selection Strategies

Compare models using validation scores, ensemble methods, and A/B testing.

Unit 24: Decision Trees & Random Forests in Depth

Dive deeper into tree-based models with pruning, feature importance, and bagging.

Unit 25: Regularization Techniques

Apply Lasso, Ridge, and ElasticNet to avoid overfitting in linear models.

Unit 26: Gradient Boosting Frameworks

Work with XGBoost, LightGBM, and CatBoost for high-performing models.

Unit 27: Clustering Use Cases in Business

Apply clustering to segment customers, detect fraud, or personalize services.

Unit 28: Principal Component Analysis (PCA)

Reduce dimensionality for visualization and efficiency.

Unit 29: Model Deployment Basics

Export and test models using Pickle, Joblib, and API endpoints.

Unit 30: Ethics in ML & Data Privacy

Understand fairness, accountability, and transparency in machine learning systems.

Track Curriculum

Phase 5: Advanced Topics & Tools (6 Modules)

Advanced Topics & Tools

Deepen your knowledge with real-world tools and next-level techniques.

Unit 31: Time Series Analysis

Forecast trends using ARIMA, SARIMA, and time-based features.

Unit 32: Introduction to Deep Learning

Get hands-on with neural networks, activation functions, and TensorFlow basics.

Unit 33: Working with Big Data

Understand Hadoop, Spark, and handling large datasets in distributed systems.

Unit 34: Recommendation Systems

Build collaborative and content-based filtering systems.

Unit 35: Natural Language Processing Basics

Tokenization, vectorization (TF-IDF, BoW), and sentiment analysis.

Unit 36: Cloud Platforms for Data Science

Use AWS, GCP, and Azure for scalable data workflows.

Track Curriculum

Phase 5: Real-Time Processing & Streaming Analytics (5 Modules)

Real-Time Processing & Streaming Analytics

Design systems that handle real-time events and stream processing at scale.

Unit 25: Streaming vs Batch Processing

Compare architectures and use-cases for batch and real-time data.

Unit 26: Kafka for Real-Time Ingestion

Produce and consume high-throughput streaming data with Kafka.

Unit 27: Apache Flink Basics

Stream process events with Flink's powerful APIs.

Unit 28: Spark Structured Streaming

Process and analyze structured streams in real time.

Unit 29: Monitoring & Observability for Pipelines

Set up logging, metrics, and alerts for production pipelines.

Sample Projects

Fraud Detection using Machine Learning

Developed a classification model to detect credit card fraud using transaction patterns, helping reduce false positives.

Predictive Maintenance for Manufacturing

Used sensor data and ML models to predict machine failures, increasing operational uptime and reducing maintenance costs.

Churn Prediction for Telecom

Built a logistic regression model to identify customers likely to churn, allowing proactive retention strategies.

Sales Forecasting for Retail

Implemented time-series forecasting models to predict sales trends across categories, helping in demand planning.

Few of our hiring partners

TATA ELECTRONICS

Henkel

amazon

TOYOTA

J.P.Morgan

accenture

AVEVA

Sangeetha mobiles.com

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BANGALORE BIOINNOVATION CENTRE
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Student Testimonials

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Data Engineer

J.P.Morgan

Valli Raja Sekar

Sr. Data Scientist

TATA CONSULTANCY SERVICES

Rajashekaran

Sr. Data Analyst

accenture

Your Name

Your Role

You can be here

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