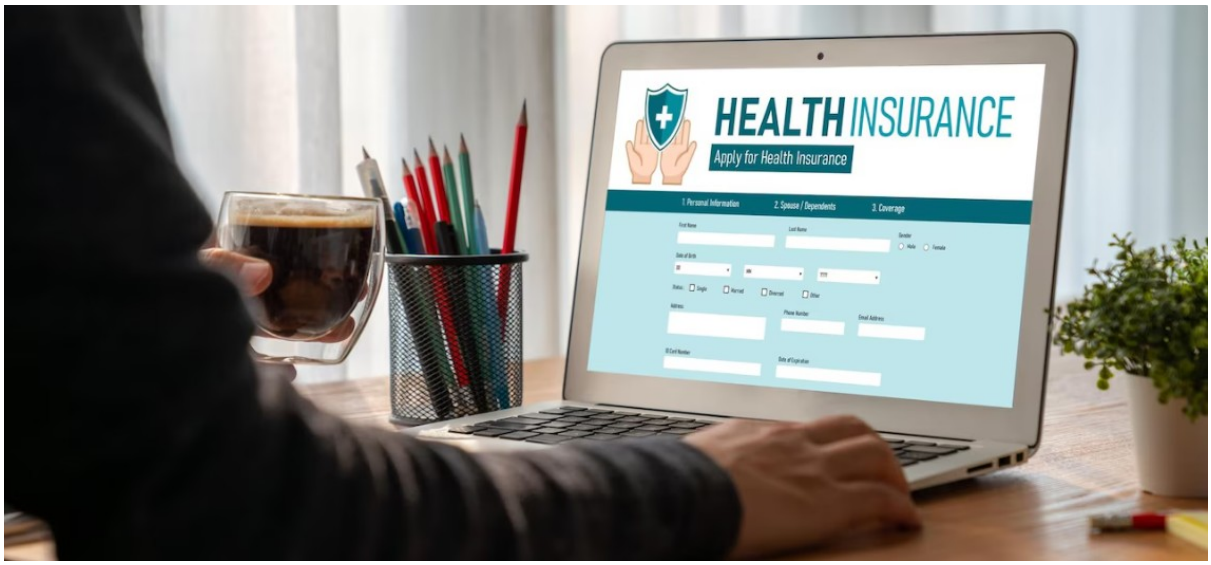

DATA ANALYTICS FOR INSURANCE

(Creating Best of Minds)

Certificate in Data Analytics for Insurance

Course Code: BF_IP_I_0013/25

Duration: 40 Hours

Delivery Format: Hybrid

Target Audience:

- Fresher: Ideal for those new to data analytics or the insurance industry, looking to start a career or gain insights into how data is used in insurance.
- Professionals: Perfect for insurance professionals, data analysts, and business analysts seeking to enhance their expertise in predictive modeling, risk management, and data visualization for better business outcomes.

Program Objectives:

- Understand key data analytics concepts and how they are applied within the insurance industry.
- Gain proficiency in data visualization techniques to represent insurance data effectively.
- Learn to build and evaluate predictive models to forecast insurance claims, pricing, and risks.
- Develop the skills to analyze and assess risk factors in various types of insurance products.
- Equip participants with the tools and knowledge to perform risk analysis and optimize business strategies using data.

- Introduce participants to industry-standard tools and software for insurance data analytics.

Detailed Syllabus

Module 1: Introduction to Data Analytics in Insurance

Objective: Introduce the fundamentals of data analytics and its specific applications within the insurance sector.

Topics:

- Overview of data analytics and its importance in the insurance industry.
- The role of data analytics in decision-making.
- Types of data used in insurance (Claims, Underwriting, Policy, etc.)

Activities:

- Discussions on the role of data analytics in transforming the insurance industry.
- Case studies illustrating the use of data analytics to solve insurance-related problems.

Assessments:

- Quiz on basic data analytics and insurance concepts.
- Short report on the importance of data in the insurance sector.

Module 2: Data Preparation and Cleaning

Objective: Learn how to prepare and clean insurance data for analysis.

Topics:

- Importing and cleaning insurance datasets.
- Handling missing data and outliers.
- Feature engineering for insurance-related data.

Activities:

- Hands-on exercises on cleaning and preprocessing insurance datasets using tools like Excel or Python.
- Group activity: Identifying and rectifying data quality issues in sample datasets.

Assessments:

- Assignment on data cleaning and preprocessing.
- Report on data quality assessment and improvement strategies.

Module 3: Data Visualization for Insurance

Objective: Develop skills in visualizing insurance data to gain insights and communicate findings effectively.

Topics:

- Introduction to visualization tools (Tableau, Power BI, etc.).
- Visualizing claims data and customer information.
- Creating actionable insights through visual analytics.

Activities:

- Hands-on sessions on creating charts, graphs, and dashboards using insurance datasets.
- Workshop: Designing interactive dashboards to explore key performance indicators (KPIs) in insurance.

Assessments:

- Assignment on creating data visualizations for insurance reports.
- Presentation of a data visualization project with insights and recommendations.

Module 4: Predictive Modeling Techniques

Objective: Introduce predictive modeling techniques relevant to insurance applications.

Topics:

- Introduction to predictive analytics in insurance.
- Regression models (Linear, Logistic) for claims prediction.
- Decision trees, Random Forest, and other machine learning techniques.
- Model validation and performance evaluation.

Activities:

- Building predictive models using software tools or programming languages.
- Case studies: Applying predictive modeling to forecast insurance claims and customer behavior.

Assessments:

- Assignment on building and evaluating a predictive model.
- Project report on a predictive modeling case study.

Module 5: Risk Analysis and Management

Objective: Learn how to analyze and manage risks in the insurance industry using data analytics.

Topics:

- Types of risks in the insurance industry.
- Techniques for risk quantification and modeling.
- Building and evaluating risk models.

Activities:

- Analyzing real-world risk scenarios in insurance.
- Developing risk management strategies using data-driven insights.

Assessments:

- Assignment on risk assessment and modeling.
- Case study analysis on risk management in insurance.

Module 6: Optimizing Underwriting and Pricing Models

Objective: Apply data analytics to optimize underwriting and pricing models in insurance.

Topics:

- Using data to improve underwriting decisions.
- Pricing models and risk-adjusted pricing.
- Simulating insurance scenarios and pricing strategies.

Activities:

- Designing and evaluating underwriting models using historical data.
- Developing pricing strategies based on risk analysis and market trends.

Assessments:

- Assignment on optimizing underwriting and pricing models.
- Project report on a pricing strategy for a specific insurance product.

Module 7: Case Studies and Real-World Applications

Objective: Apply learned data analytics techniques to real-world insurance problems.

Topics:

- Case studies on predictive modeling and risk analysis in insurance.
- Hands-on application of learned techniques on real insurance datasets.

Activities:

- Analyzing and discussing case studies of successful data analytics implementations in insurance.
- Group projects: Applying data analytics to solve a specific insurance challenge using real datasets.

Assessments:

- Case study presentation.
- Group project report and presentation.

Module 8: Capstone Project and Assessment

Objective: Complete a final project to demonstrate the application of data analytics skills in insurance.

Topics:

- Final project where participants apply the skills learned in the course.
- Presentation of analysis, models, and insights based on real insurance data.

Activities:

- Working on a capstone project that involves analyzing a comprehensive insurance dataset.
- Preparing and delivering a final presentation of the project findings.

Assessments:

- Final capstone project report.
- Final project presentation.