KOENIG SOLUTIONS · COURSE OUTLINE

Data Analysis: Probability & Linear Regression

Learn to analyse data using probability, distributions and linear regression to describe and predict outcomes.

8
MODULES

49
TOPICS

COURSE OVERVIEW

This course covers the nature of data and information, and how data analysis is defined and approached, including descriptive and inferential statistics. It examines types of variables, measures of central tendency, and the basics of probability, including conditional probability and frequency distributions. It then covers discrete and continuous distributions, variance, standard deviation and other distribution types, before moving into fitting data through covariance, correlation and simple linear regression. It closes with an overview of predictive analytics using the Monte Carlo method.

WHO THIS COURSE IS FOR

- **Data Analysts**
- **Business Analysts**
- **Statisticians**
- **Financial Analysts**
- **Research Analysts**

LEARNING OBJECTIVES

- Explain the difference between data and information
- Describe the steps involved in data analysis
- Identify types of variables including nominal and ordinal
- Calculate central tendency using mean, median and mode
- Apply probability concepts including conditional probability
- Analyse distributions using variance and standard deviation
- Interpret bivariate data through covariance and correlation
- Apply simple linear regression to fit data

COURSE SYLLABUS

8 Modules, 49 Topics

01

Data and Information

TOPICS

Data in the Real World · Data vs. Information · The Many “Vs” of Data · Structured Data and Unstructured Data · Types of Data

02

Data Analysis Defined

TOPICS

- Why do we analyze data?
- Data Analysis Mindset
- Data Analysis Steps
- Data Analysis Defined
- Descriptive Statistics vs Inferential Statistics

03

Types of Variables

TOPICS

Categorical vs Numerical · Nominal Variables · Ordinal Variables · Interval Variables · Ratio Variables

04

Central Tendency of Data

TOPICS

(Arithmetic) Mean · Median · Mode

05

Basic Probability

TOPICS

- Probability Uses In Business
- Ways We Can Calculate Probability
- Probability Terms
- Calculating Probability
- Calculating Probability from a Contingency Table
- Conditional Probability
- Frequency Distribution

06

Distributions, Variance, and Standard Deviation

TOPICS

- Discrete Distributions
- Continuous Distributions
- Range
- Quartiles
- Variance
- Standard Deviation
- Population vs. Sample

APPLICATION OF THE STANDARD DEVIATION

- Standard Deviation and the Normal Distribution
- Sigma (σ) Values (Standard Deviations)
- Bimodal Distribution
- Skew and Summary

OTHER DISTRIBUTIONS

- Poisson Distribution
- Exponential Distribution
- Pareto Distribution (“80/20”)
- Log Normal Distribution
- Distributions in Excel

07

Fitting Data

TOPICS

Bivariate Data (Two Variables) · Covariance and Correlation · Simple Linear Regression · Linear Regression

FITTING FUNCTIONS

Linear Fit · Polynomial Fit · Power-Law Fit

08

Predictive Analytics Overview

TOPICS

Monte Carlo Method

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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