KOENIG SOLUTIONS · COURSE OUTLINE

Finance Analytics: SQL, Pandas & Scikit-learn ML

Learn to query, clean and analyse financial data using SQL and Pandas, then build machine learning models with Scikit-learn.

2 Days	8	20	8
DURATION	MODULES	TOPICS	HANDS-ON ACTIVITIES

COURSE OVERVIEW

This course covers SQL from basic queries through joins, aggregations, subqueries and data cleaning techniques applied to finance data. It then introduces Python for data manipulation with Pandas, visualisation with Matplotlib, Seaborn, Plotly and Dash, and advanced techniques for transforming data and handling missing values. Later modules cover machine learning with Scikit-learn, including introductory models such as linear and logistic regression, before applying these techniques to real-world risk consulting scenarios such as anomaly detection, fraud detection and case studies from BFSI and insurance.

WHO THIS COURSE IS FOR

Data Analysts | **Risk Consultants** | **Financial Analysts** | **BFSI Professionals** | **Data Scientists**

LEARNING OBJECTIVES

- Write basic and intermediate SQL queries against finance data
- Apply joins, aggregations and subqueries to combine data
- Clean data using SQL and Pandas techniques
- Manipulate data using Python and Pandas libraries
- Create visualisations with Matplotlib, Seaborn, Plotly and Dash
- Build introductory machine learning models with Scikit-learn
- Apply machine learning to anomaly and fraud detection
- Discuss ethical considerations such as data security and privacy

COURSE SYLLABUS

8 Modules, 20 Topics

01 · 1 hour 15 minutes · Hands-on Exercise

SQL Basics

TOPICS

Introduction to SQL · Database Structure & Schema · Writing Basic Queries

02 · 1 hour 45 minutes · Hands-on Exercise · Case Study

Intermediate SQL

TOPICS

Joins, Aggregations, and Subqueries · Data Cleaning Techniques in SQL

03 · 1 hour 30 minutes · Hands-on Exercise

Introduction to Python

TOPICS

- Introduction to Python for Data Manipulation
- Basic Data Types and Structures
- Using Libraries like Pandas for Data Manipulation

04 · 45 minutes · Hands-on Exercise

Data Visualization with Python

TOPICS

Introduction to Matplotlib & Seaborn · Creating Basic Plots and Customizing Visuals

05 · 1 hour 15 minutes · Hands-on Exercise

Advanced Data Manipulation with Python

TOPICS

Data Transformation & Aggregation with Pandas · Handling Missing Data

06 · 1 hour 45 minutes · Hands-on Project

Advanced Data Visualization

TOPICS

Interactive Visualization with Plotly · Dashboard creation with Dash

07

1 hour 30 minutes | Hands-on Exercise

Introduction to Machine Learning

TOPICS

- What is Machine Learning & Why It Matters?
- Introduction to Scikit learn
- Introductory Machine Learning Models (e.g., Linear Regression, Logistic Regression)

08

1 hour 15 minutes

Real-world Applications & Case Studies

TOPICS

- Applying Machine Learning in Risk Consulting - Anomaly Detection, Fraud detection
- Discussion on Ethical Considerations - Data Security, Data Privacy
- Case Study Discussions - BFSI, Insurance

HANDS-ON ACTIVITIES

Practise What You Learn

#	MODULE	ACTIVITY
01	**SQL Basics**	**Hands-on Exercise:** Querying a Database - Finance Data
02	**Intermediate SQL**	**Hands-on Exercise:** Creating Complex Queries **Case Study:** Using SQL in Risk Consulting - Finance Data
03	**Introduction to Python**	**Hands-on Exercise:** Loading & Inspecting Data - Insurance/BFSI - Finance Data
04	**Data Visualization with Python**	**Hands-on Exercise:** Visualizing Data with Python - Insurance/BFSI - Finance Data
05	**Advanced Data Manipulation with Python**	**Hands-on Exercise:** Cleaning and Transforming a Real Dataset - Insurance/BFSI - Finance Data
06	**Advanced Data Visualization**	**Hands-on Project:** Building a Data Dashboard - Insurance/BFSI - Finance Data
07	**Introduction to Machine Learning**	**Hands-on Exercise:** Building a Simple Predictive Model - House Price Prediction, Loan Approval Prediction

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.

FLEXIBLE DELIVERY

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Classroom Training | Live Online Classes (ILO) | Fly-Me-A-Trainer (FMAT) | Flexi (Self-Paced) | 1-on-1 Training

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