

SQL + Python + AI Agent Career Accelerator Program Training Curriculum



What will the training cover?

The **12-week SQL, Python & AI Agent Career Accelerator Program** is designed to help participants move beyond writing SQL queries and begin developing automated reporting solutions and AI-powered analytics applications used in modern business environments.

Participants will work with a **live company database**, writing advanced multi-table and multi-step SQL queries to extract and analyze business data. Throughout the program, they will apply their SQL knowledge using Python by writing scripts that execute SQL queries, retrieve data from the client's database, automate recurring reports, and generate report files without manual intervention. Students will learn how to transform a traditional manual SQL reporting process into a fully automated reporting solution using Python.

Building upon this automated reporting solution, participants will then develop a custom AI application using **Node.js, OpenAI, and Snowflake**. They will learn how AI agents communicate with SQL databases to answer business questions, generate SQL queries from natural language requests, retrieve live business data, and provide meaningful business analysis. Throughout the program, students will gain hands-on experience with Python programming, SQL automation, AI application development, prompt engineering, database connectivity, error handling, and presenting analytical results in a user-friendly format.

At the conclusion of the program, participants will present their completed AI-powered analytics application, demonstrating how business users can ask questions in plain English, automatically generate SQL queries, retrieve live business data, and receive both query results and AI-generated business insights to support executive decision-making.

Participants will leave the program with **real-world automation and AI project experience**, a **portfolio-ready AI-powered SQL analytics application**, a **certificate of completion**, and practical guidance on how to showcase this experience on their **résumé, LinkedIn profile, GitHub portfolio, and during technical interviews**.

Beginner SQL Prerequisites Skills

Participants are **required** to have basic SQL skills prior to the start of our first day of class. If you do not have current basic-level SQL skills or need a refresher, you can enroll in our Beginner SQL Boot Camp at no additional costs.

Required Skills:

- Basic data extraction using SELECT and FROM
- Sorting data (Order By)
- Filtering data (Where)
- Creating alias column names
- Creating calculated fields

Microsoft Excel Prerequisites Skills

Participants are **required** to have basic Microsoft Excel navigation and workbook management skills before starting the program. These foundational abilities ensure learners can move efficiently through exercises, manage files, and focus on applying analytical concepts rather than learning introductory Excel mechanics.

Required Skills:

- Office 365 familiarity
- Creating new worksheets
- Hiding worksheets
- Deleting worksheets
- Locating a specific cell
- Data entry (inputting data into a cell)
- Understanding the difference between columns and rows
- Copying and pasting data
- Opening a workbook
- Understanding the difference between a workbook vs. worksheet
- Saving a workbook
- Inserting and deleting rows and columns
- Formatting (fonts, borders, alignments, data types)

Software Requirements

All students will be required to have all software listed below. Program Managers will assist with software installments.

Windows 10 or Windows 11 computer (PC laptops)

Snowflake (Free, Client's database will be utilized at no charge)

Node.js (Free, installation instructions will be provided)

Visual Code (Free, installation instructions will be provided)

Google Chrome (Free)

Part 1: Intermediate SQL Training Topics

During this portion of the training, participants complete **20 hours** of live, instructor-led training focused on intermediate SQL for data analytics. Students learn how to extract, combine, and analyze data from multiple database tables by writing advanced SQL queries utilizing JOINS, UNIONS, subqueries, GROUP BY, calculated fields, filtering, sorting, and aggregate functions. Upon completing the training, participants apply these skills in a real-world business environment by writing and executing weekly SQL reports using the client's live database, producing operational reports and business analysis delivered to the organization's Chief Operating Officer (COO).

Intermediate SQL Topics

Joins

Unions

Dates

Group By

Part 2: Beginner Python Automation Training Topics

During this portion of the training, participants complete **20 hours** of live, instructor-led training focused on beginner-level Python for data analytics. Rather than learning Python from a traditional programming perspective, students build upon the SQL knowledge they've already developed throughout the program. For each concept introduced, the instructor first demonstrates how to solve the problem using SQL and then shows students how to accomplish the same task using Python. This approach allows participants to recognize the similarities between the two languages while gradually developing the ability to write Python scripts for common data analysis tasks.

Introduction to Python for Data Analytics

Setting up Python Environment

Variables

Data Types

Loops

Conditional Operators

Libraries

Data Management with Python

Intro to Pandas

Reading/Writing CSV, Excel, TXT Files

Data Cleaning and Transformation

Part 3: Intermediate Python Automation Training Topics

During this portion of the training, you will complete **16 hours** of intermediate Python instruction focused on business process automation and SQL integration. You'll learn how to use Python to automatically execute SQL queries on a scheduled basis, retrieve data from a SQL database, and export query results directly to shared Google Drive folders without manual intervention.

By the end of this module, you'll be able to build automated reporting solutions that streamline recurring data extraction and delivery processes commonly used by business analysts and data professionals.

Write and execute automated SQL queries with Python

Schedule automated SQL query execution

Upload query reports to shared Google Drive folders

Troubleshoot and monitor automated scripts

Part 4: AI Agent Build

During this portion of the training, you will complete **10 hours** of AI instruction focused on building an AI-powered SQL Analyst Agent capable of answering business questions using natural language. You'll learn how to build an AI application using Node.js, OpenAI, and Snowflake, configure prompts that translate plain English business questions into SQL queries, connect your AI application to a live SQL database, retrieve data, and generate meaningful business analysis based on the query results.

By the end of this module, you'll have built a fully functional SQL AI Agent capable of interpreting business questions, generating SQL queries, retrieving data from a live SQL database, and providing clear, business-focused analysis and insights from the returned results—giving you hands-on experience with one of the fastest-growing applications of artificial intelligence in data analytics.

Software That Will Be Used



OPENAI API



NODE.JS



SHAREPOINT



SNOWFLAKE



MICROSOFT EXCEL



VISUAL CODE

Program Flow

Weeks 1 – 5

Intermediate SQL, Excel & Reporting Workflow Setup

Participants review key SQL and Excel concepts, including writing advanced multi-table and multi-step SQL queries to extract and structure data for reporting. They will also work with an existing Excel report template used by the organization's largest department, where they will update, maintain, and enhance the report throughout the program.

Weeks 6 – 7

Python Foundations & SQL Integration

Participants will begin by running the Food & Beverage Bar Reports to reacquaint themselves with the existing reporting process. While doing so, they will learn the fundamentals of Python and how to apply familiar SQL concepts by writing SQL queries within Python scripts.

Weeks 8 – 10

SQL Query Automation with Python

Participants will build upon the Python skills developed in the previous module by learning how to automate SQL reporting processes using Python. Throughout this module, they will develop Python scripts that automatically connect to a SQL database, execute SQL queries, retrieve data, export query results as CSV files, and upload the reports to a shared Google Drive environment. By the end of the module, participants will understand how Python can be used to streamline recurring SQL reporting processes while reducing the need for manual report generation.

Program Flow (Cont.)

Weeks 11 - 12

Building a SQL Analyst AI Agent

Participants will build an AI-powered SQL Analyst using Node.js, OpenAI, and Snowflake that connects to a client's SQL database, interprets business questions written in plain English, generates SQL queries, retrieves data, and provides meaningful business analysis based on the results. By the end of the module, participants will have developed a portfolio-ready AI application that demonstrates how artificial intelligence can enhance SQL reporting and support business decision-making.



DATA TELLS A STORY. BE THE STORYTELLER