

DATA ANALYST

I. Data Analytics 101 & Structured Query Language

Week 1 - Foundations of Data Analytics and Excel Proficiency

The first week of your Data Analytics program provided a comprehensive introduction to data analysis, data warehouse design, and data visualization principles, catering to both newcomers and those already in the field. The course emphasized modular learning with modules addressing key questions of what, why, how, and where, allowing for flexible exploration. Simultaneously, you began the Excel 2021 Essentials course, focusing on foundational Excel skills such as navigation, worksheet and cell management, formatting, and file saving, setting the stage for creating professional spreadsheets and preparing for Microsoft Office exams.

Week 2 - Introduction to SQL

Structured Query Language (SQL) is a special purpose language for interacting with relational databases. During this week, you will learn the basics of Structured Query Language. First, you will learn how to query data and shape results. Next, you will focus on creating and modifying data in your tables. Finally, you will touch on how to actually modify the tables themselves. By the end of this week, you'll understand the basics of how to create and use a relational database.

Week 3 - Advanced SQL Queries

In this course you will learn about Analytic Functions, extensions to GROUP BY, the WITH Clause (Oracle's Subquery Factoring Clause/SQL Server's Common Table Expressions), the PIVOT and UNPIVOT Features, the MERGE Statement and, finally, the PARTITION BY/RIGHT OUTER JOIN syntax.

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Week 4 - Relational Database Design

In this course, you will learn all the skills required to design good databases. This starts with information gathering how to find all required information, and how to ask questions without miscommunications. You will learn how to abstract the information gathered into a data model, how to normalize the data model so that your database will be free of anomalies, and how to transform the final, normalized data model into a relational database design - ready to be implemented.

Note: LAB 1 with TA - Students are required to run SQL queries.

Week 5 - Assignment on SQL

This assignment will be shared via Slack.

II. Python

Week 6 - Python Fundamentals

Python is a great programming language for beginners and experts alike because it's easy to learn and use and also has libraries that allow you to build pretty much anything. During this week, you'll learn to create Python applications to solve a wide variety of problems.

First, you'll explore data types, input, and output. Next, you'll discover lists, loops, and dictionaries. Finally, you'll learn how to incorporate what you've learned to read weather and space data from different web APIs. When you're finished with this course, you'll have the skills and knowledge of Python needed to build Python command-line applications.

Week 7 - Data Wrangling

In this course you'll learn about various functions and procedures that will help you get your data in order, providing a clean and well-constructed dataset for further data analysis and machine learning.

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Week 8 - Data Visualisation

At the core of data science and data analytics is a thorough knowledge of data visualization. In this course, Introduction to Data Visualization with Python, you will learn how to use several essential data visualization techniques to answer real-world questions. First, you'll explore techniques including scatter plots. Next, you'll discover line charts and time series. Finally, you'll learn what to do when your data is too big. When you're finished with this course, you'll have a foundational knowledge of data visualization that will help you as you move forward to analyze your data.

Week 9 - Exploratory Data Analysis

Exploratory Data Analysis (EDA) is a set of techniques that help you to understand data, and every Data Analyst and Data Scientist should know it in depth. In this course, Exploratory Data Analysis with Python, you'll learn how to create and implement an EDA pipeline. You'll explore the available techniques, and learn why, when, and how to apply them. Finally, you'll discover how to communicate your findings to your audience. When you're finished with this course, you will have the skills and knowledge to face any complex EDA problem.

Week 10 - Data Science

This course shows you how to work on an end-to-end data science project including processing data, building & evaluating a machine learning model, and exposing the model as an API in a standardized approach using various Python libraries.

Week 11 - Natural Language Processing

Text data is available in abundance on the Internet, whether it be reviews, tweets, surveys, web pages, or emails. Natural language processing is a powerful skill that helps you derive immense value from that data. During this week you'll first learn about using the Natural Language Toolkit to pre-process raw text. Next, you'll learn how to scrape websites for text using BeautifulSoup, as well as how to auto-summarize text using machine learning. You'll wrap up the course by exploring how to classify text using machine learning. By the end of this course, you'll be able to confidently process raw text data and apply machine learning algorithms to it.

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Week 12 - LAB 2 with TA

Perform and apply your skills learned in Data Analytics/Science.

Week 13 - Assignment on Python

This assignment will be shared via Slack

III. Amazon Web Services Fundamentals

Week 14 - Cloud Fundamentals and Cloud Computing Essentials

Delve into the fundamentals of cloud computing, covering essential concepts, "as a service" models (PaaS, IaaS, FaaS, SaaS), server and "serverless" architectures, and various cloud job opportunities. The course emphasized a beginner-friendly approach, requiring no prior prerequisites and encouraging a passion for cloud exploration. Practical labs and additional resources were provided to help students apply their knowledge and gain confidence in navigating cloud platforms.

Week 15 - Cloud Fundamentals and Core Services

Focus on essential cloud concepts and core services applicable to various cloud providers in today's digital landscape. The course covered fundamental cloud concepts, including cloud computing benefits, global infrastructure organization, cloud economics, and provider-specific tools and services. Additionally, it delved into understanding core services, including compute, networking, storage, databases, app integration, and management and governance, providing students with a solid foundation for navigating cloud environments, whether for certification preparation or broader cloud service comprehension.

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Week 16 - Security and Architecture in the Cloud

Focused on fundamental cloud security and architectural principles applicable to various cloud platforms, offering valuable insights for AWS or similar cloud services. The curriculum covered core concepts like the Well-Architected Framework, shared responsibility models, and acceptable use policies, establishing a strong foundation for secure and scalable cloud solutions. Students learned about security and user management on the cloud, key architectural concepts such as fault tolerance, high availability, and disaster recovery, and gained insights into building scalable and secure applications. Whether preparing for a certification exam or looking to implement cloud applications, this course provided essential knowledge and skills for success in the cloud.

Week 17 - Assignment on Cloud Fundamentals

This assignment will be shared via Slack.

IV. Data Analytics Tools

Week 18 - Data Preparation and Visualization Basics

In this course, you'll delve into fundamental aspects of data preparation and visualization using popular data analytics tools. You will learn about connecting to different data sources, including live connections, data extracts, and saved data sources. Additionally, you'll explore techniques for combining and blending disparate data sources, enabling you to prepare your data effectively. The course covers creating basic charts, helping you choose the right visualization for your data and build them using drag-and-drop techniques.

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Week 19 - Organizing Data and Advanced Visualization

This course focuses on organizing data for improved usability and advanced visualization techniques. You will discover how to add filters to your views to focus on relevant data, understand the order of operations affecting results, and create groups, hierarchies, and sets to enhance your views and calculations. Additionally, you'll explore the art of data visualization, including creating effective dashboards for various devices.

Week 20 - Data Dimensions, Measures, and Aggregations

In this week's courses, you'll gain a deep understanding of data organization and aggregation techniques using popular data analytics tools. You'll learn about dimensions vs. measures and discrete vs. continuous fields, gaining insights into how these tools organize data. Furthermore, you'll explore the impact of granularity and level of detail on your views and discover techniques for aggregating dimensions and measures. The course also covers using level-of-detail expressions and table calculations to aggregate data effectively, enabling you to represent your data accurately on dashboards.