



Data Science Module

A desk setup featuring a laptop, a pair of glasses, and a cup of coffee. The laptop is silver and has a black keyboard. The glasses are black and are placed to the left of the laptop. The coffee cup is white with a yellow handle and is filled with dark coffee. The desk is made of dark wood.

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Course Introduction

A properly refined set of data can provide actionable information that companies can use to make informed decisions. A well-designed and refined data warehouse can quickly transform usable information into a decision-making tool that allows companies to make informed decisions.

This is why organizations are in search of data scientists who can handle the analytics processes at a prescriptive, descriptive, diagnostic, and predictive level.

Course Objectives 3

This program is designed to take individuals with either fundamental or no knowledge of analytics to becoming data science experts. You will learn how to create management-level reports, visualization, build machine learning models and make business-relevant forecasts.



Course Prerequisites

This course is designed to take you from zero to hero in data science, therefore, basic skills are only required. Specific tasks the students should be able to perform include: opening and closing applications, navigating basic file structures, and managing files and folders. You should have baseline skills using Microsoft Excel worksheets.

Course Structure

There are three major levels to this course:

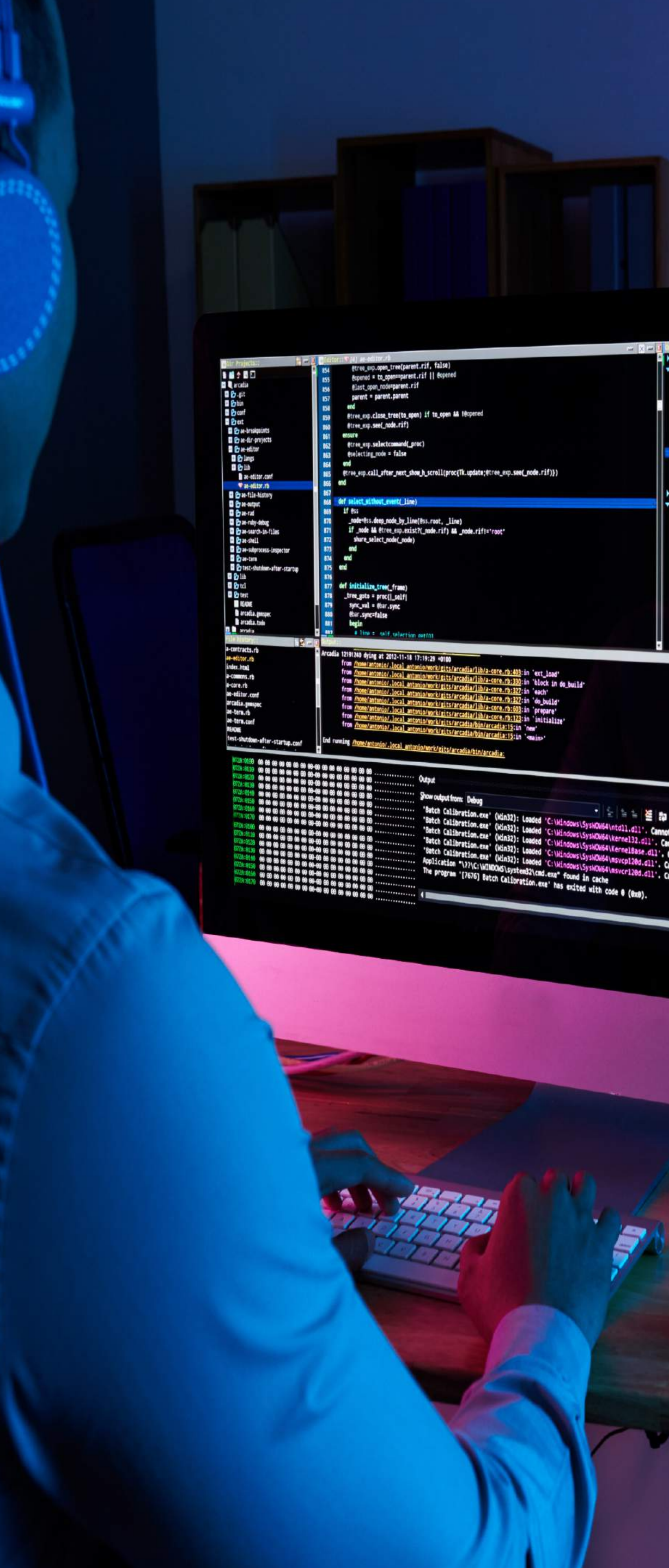
- Power BI for Data Modeling and Reporting
- SQL for Data Analytics and Reporting
- Python for Predictive Analytics



Level 1: Power BI For Data Modeling & Reporting

Chapter 1: Getting Started with Power BI

- Downloading the Power BI Desktop
- A walkthrough of the Power BI user interface
- Importing Data into Power BI
- Power Query user interface walk-through
- ETL on Power query - Data transformation.
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Chapter 2: Data Modeling and DAX

- Introduction to DAX
- Connecting the Calendar table to the Fact table
- Writing simple aggregation measures with DAX
- Creating automatic measures with Quick measures
- Creating Data Models
- Resolving issues with relationships within the model
- Testing the relationships in the Report view
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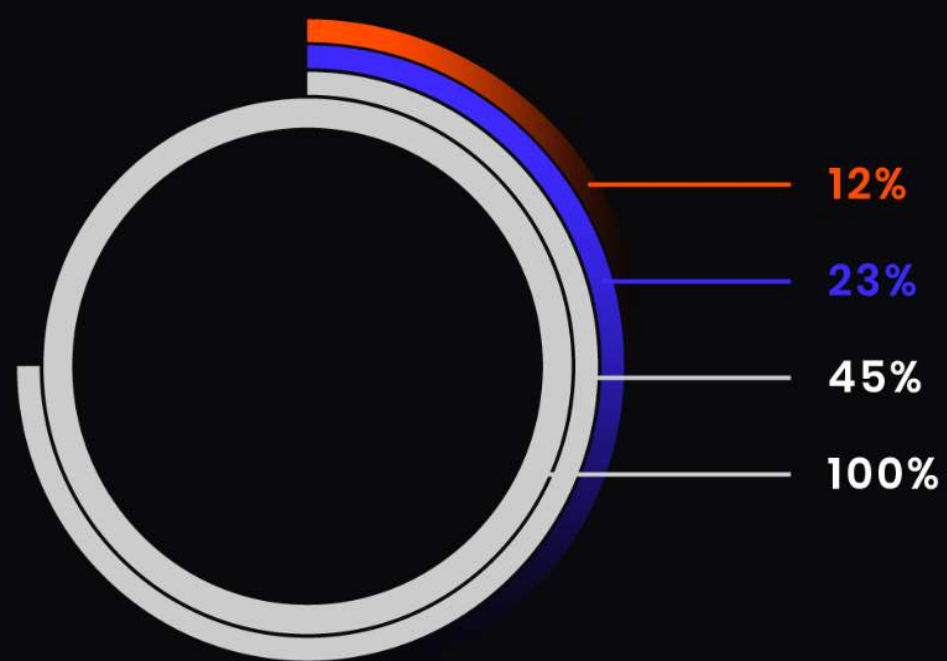
John Smith



Activity



Payment Method



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Chapter 3: Data Visualization and Reporting

- Visualizing a timeline report with line chart
- How to format charts in Power BI
- Adding more than one chart to the report
- Top N report using a Bar Chart
- Use of filters pane and slicers
- Controlling visual interactions on the Canvass
- Optimizing report for mobile view and publishing reports to the Power BI service
- Right visuals selection - Best practices
- Using a report page as template for future report

Level 2: SQL For Data Analytics And Reporting

Chapter 1: Introduction to SQL and Basic SQL Queries

- Introduction to relational databases
- Basic SQL Commands
 - SELECT**
 - DISTINCT**
 - TOP N**
- Filtering results with WHERE
 - The WHERE clause**
 - BOOLEAN Operators**
 - The AND keyword**
 - The OR Keyword**
 - BETWEEN, LIKE, IN and IS**
 - IS and ISNOT**
 - LIKE and other BOOLEAN Operators**

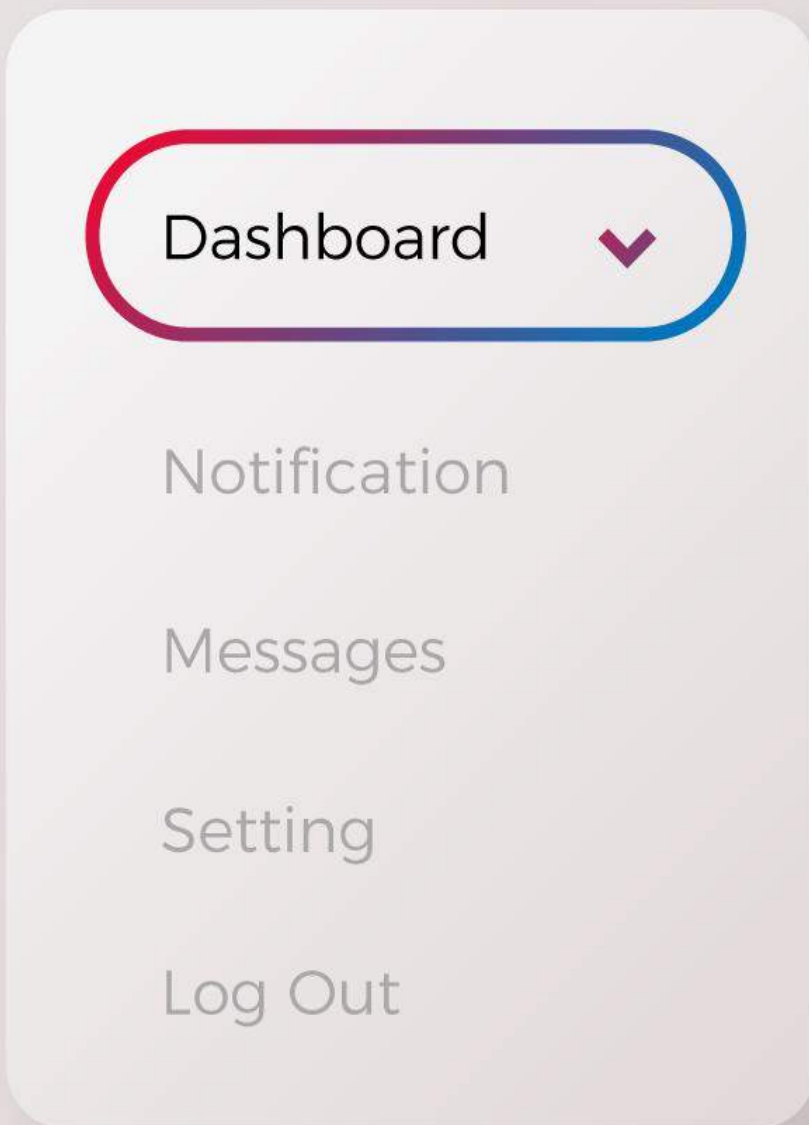
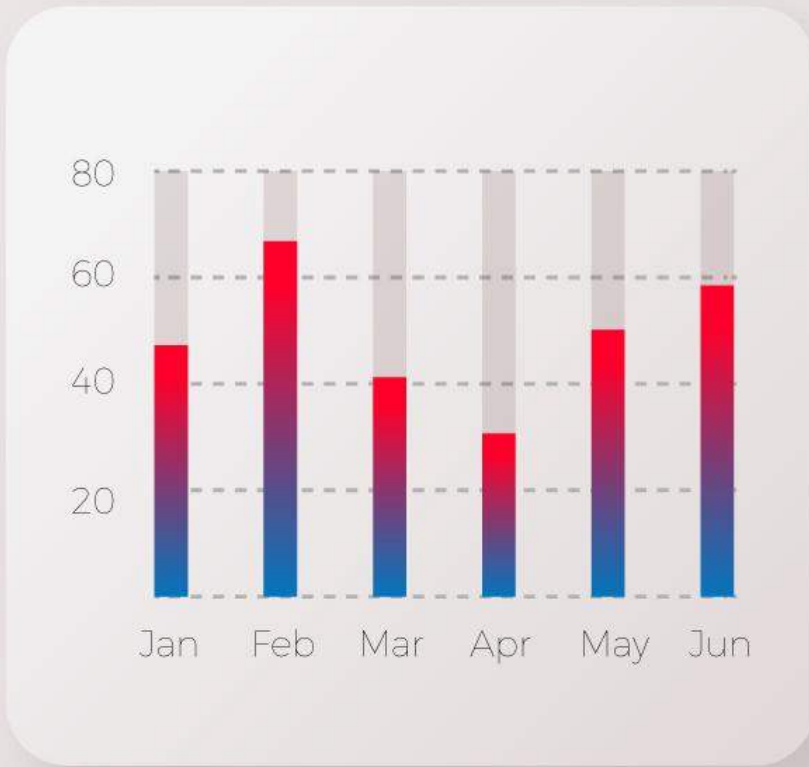


Chapter 2: Aggregating and Shaping Results

- Aggregation Functions
- SUM, COUNT, MIN, MAX, AVG
- GROUP BY and HAVING
- Sorting your results with ORDER BY

Chapter 3: Matching Different Data Tables with JOINS

- CROSS JOIN
- INNER JOIN
- OUTER JOIN
- LEFT OUTER JOIN
- RIGHT OUTER JOIN
- FULL OUTER JOIN
- SELF JOIN



Level 3: Predictive Modelling With Python

Chapter 1: Basic Python Syntax

- Hello World
- Executing Python Codes
- Data Types

Lists

Tuples

Dictionaries

- Conditionals and Loops

IF/ELSE Statements

For Loops

While Loops

- Python Functions



```
);  
    }  
    }  
};  
$sort_order = array();  
foreach ($quotes as $key => $value) {  
    $sort_order[$key] = $value['sort_order'];  
}  
array_multisort($sort_order, SORT_ASC, $quotes);  
$this->session->data['lpa']['shipping_methods'] =  
$this->session->data['lpa']['address'] = $address;  
if (empty($quotes)) {  
    $json['error'] = $this->language->get('error_no_shipping_methods');  
} else {  
    $json['quotes'] = $quotes;  
}  
if (isset($this->session->data['lpa']['shipping_method']) &&  
empty($this->session->data['lpa']['shipping_method'])) {  
    $json['selected'] = $this->session->data['lpa']['shipping_method']['code'];  
} else {  
    $json['selected'] = '';  
}  
else {  
    $json['error'] = $this->language->get('error_shipping_method');  
}  
this->response->addHeader('Content-Type: application/json');
```

Chapter 2: Data Exploration and Cleaning with Pandas

- Reading files with Pandas (CSV, Excel, Txt)
- Descriptive Statistics on a Pandas Object
- Data Exploration
- Group by and Aggregations
- Handling Missing Values
- Correlation

Chapter 3: Data Visualization

- Introduction to Seaborn
- Bubble charts
- Heatmaps
- Box Plots
- Histograms
- Customizing Visualizations

Chapter 4: Supervised Machine Learning with Python

- Data Transformation

Scaling

Normalization

Outlier detection

- Regression

Linear Regression

Non-linear Regression

Model evaluation methods

Decision Tree Algorithms

Performance Evaluation

- Classification

K-Nearest Neighbour

Decision Trees

Logistic Regression

Support Vector Machines

Model Evaluation





Chapter 5: Unsupervised Machine Learning with Python

- Introduction to Unsupervised Learning
- K-Means Clustering
- Hierarchical Clustering

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