



DataNOW Masterclass:

Data Analytics with Python

Instructor

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Content



Course Title:

DataNOW Masterclass Data Analytics with Python

Duration:

7 sessions (3 hours per each)

Target Audience:

Aspiring data analysts, business intelligence professionals, software developers, and individuals interested in leveraging Python for data analysis and visualization.



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Mission Alignment:

This course aims to empower participants by providing hands-on, practical experience in Python for data analytics, ensuring they acquire the skills to extract, clean, analyze, and visualize data efficiently.

Vision Alignment:

Through this masterclass, we aspire to create a community of data-driven professionals capable of making informed decisions that drive business success.



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Course Values Integration:

- **Dedication:** Sessions are designed to provide maximum value and practical exposure.
- **Accessibility:** The masterclass is structured to be affordable and accessible to all skill levels.
- **Transparency:** Clear explanations and real-world applications ensure practical learning.
- **Adaptability:** The syllabus integrates current industry trends and emerging technologies.
- **Nurturing:** A collaborative learning environment promotes knowledge sharing and mentorship.
- **Optimization:** The curriculum is continuously refined for better learning outcomes.
- **Workmanship:** Emphasizing best practices and effective methodologies in data analytics.



Course Overview

DataNOW Masterclass: Data Analytics with Python





Week 0: Course Introduction

Duration: 45 minutes



1. Welcome and Introduction

2. Overview of the Course Structure and Objectives

3. Participant Introductions



Week 1: Foundations of Python for Data Analytics



Session 1:

Course Overview & What is Python?

Session 3:

Input, Output, and Basic Debugging

Session 2:

Variables, Data Types, and Operations

Weekly Activity:

Create a basic calculator program and a flowchart for its logic using Python.



Week 2: Control Flow and Iterative Processes



Session 1:

Conditional Statements

Session 2:

Loops and Iteration

Session 3:

Combining Conditions and Loops

Weekly Activity:

Develop a menu-driven calculator using loops and conditions that allows the user to perform multiple operations (add, subtract, multiply, divide) until they choose to exit.



Week 3: Functions and Data Structures



Session 1:
Functions

Session 2:
Lists and Tuples

Session 3:
Dictionaries and Sets

Weekly Activity:

Create a program using lists to generate and manage a simple task list where users can add, remove, or mark tasks as completed.



Week 4: File Handling and Managing Real Data



Session 1:

Reading and Writing Files

Session 2:

Error and Exception Handling

Session 3:

Working with CSV Files

Weekly Activity:

Create a script that reads a text file and counts the frequency of each word in it, handling exceptions for invalid files or missing data gracefully.



Week 5: Data Wrangling and Preprocessing



Session 1:

Introduction to Pandas for Data Analysis

Session 2:

Data Cleaning Techniques, Data Manipulation and Aggregation

Session 3:

Working with APIs and Web Scraping

Weekly Activity:

Fetch data from an open API and process it using Pandas. Scrape data from a simple webpage and save it to a csv file



Week 6: Exploratory Data Analysis (EDA) and Visualization



Session 1:

Fundamentals of EDA

Session 2:

Visualization with Matplotlib

Session 3:

Advanced Visualization with Seaborn

Weekly Activity:

Using the cleaned dataset from Week 5: Generate visualizations such as histograms, bar plots, and scatter plots to explore data trends and relationships.



Week 7: Capstone Project and Beyond



Session 1:

Project Implementation

Session 2:

Visualization and Storytelling

Session 3:

Final Project
Presentation

Weekly Activity:

Prepare and present a final capstone project.

Assessment and Certification

- Participants must complete hands-on exercises and submit a final project.
- A certificate of completion will be awarded upon successful completion of the course.





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