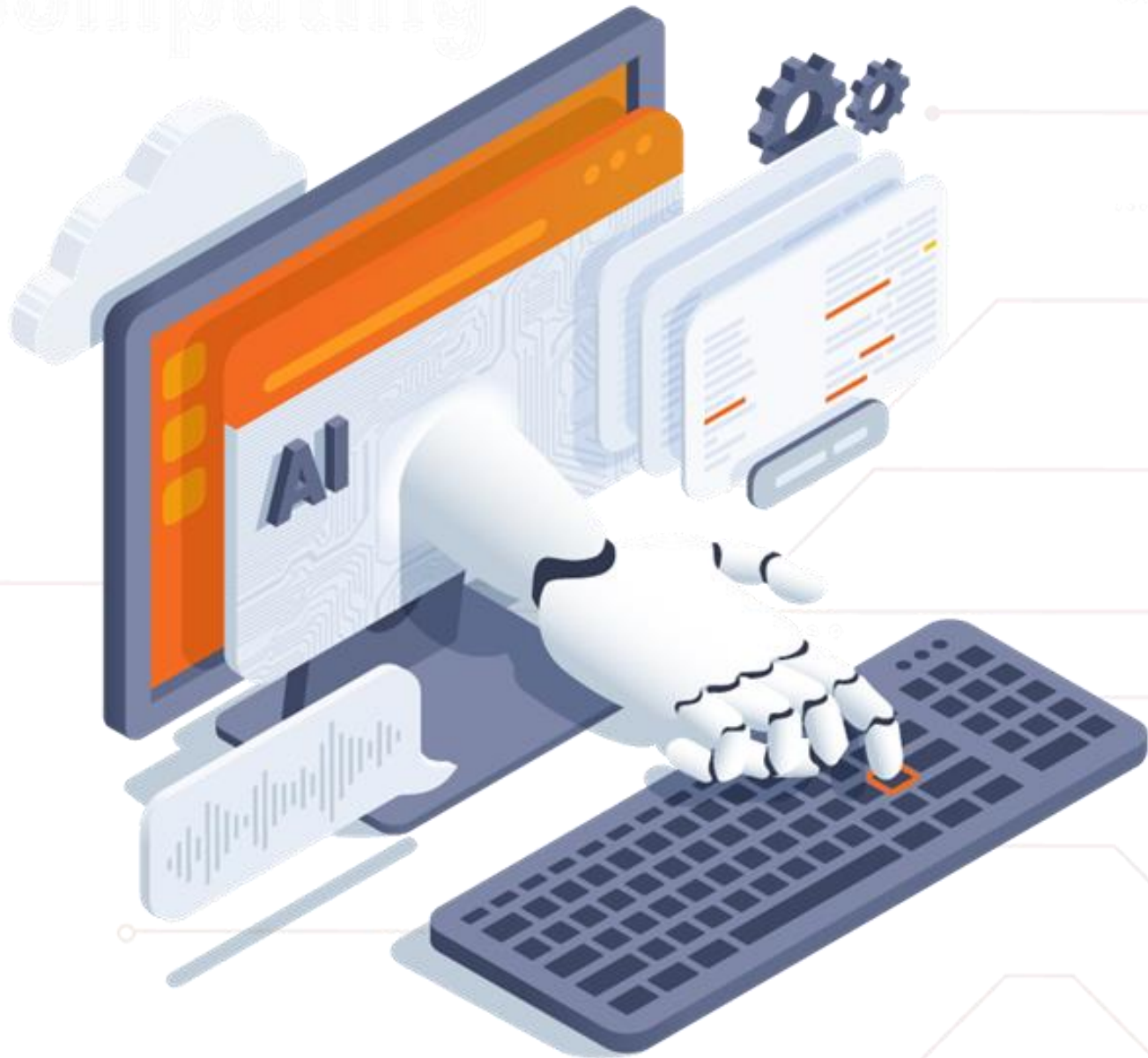


Cloud  
Computing

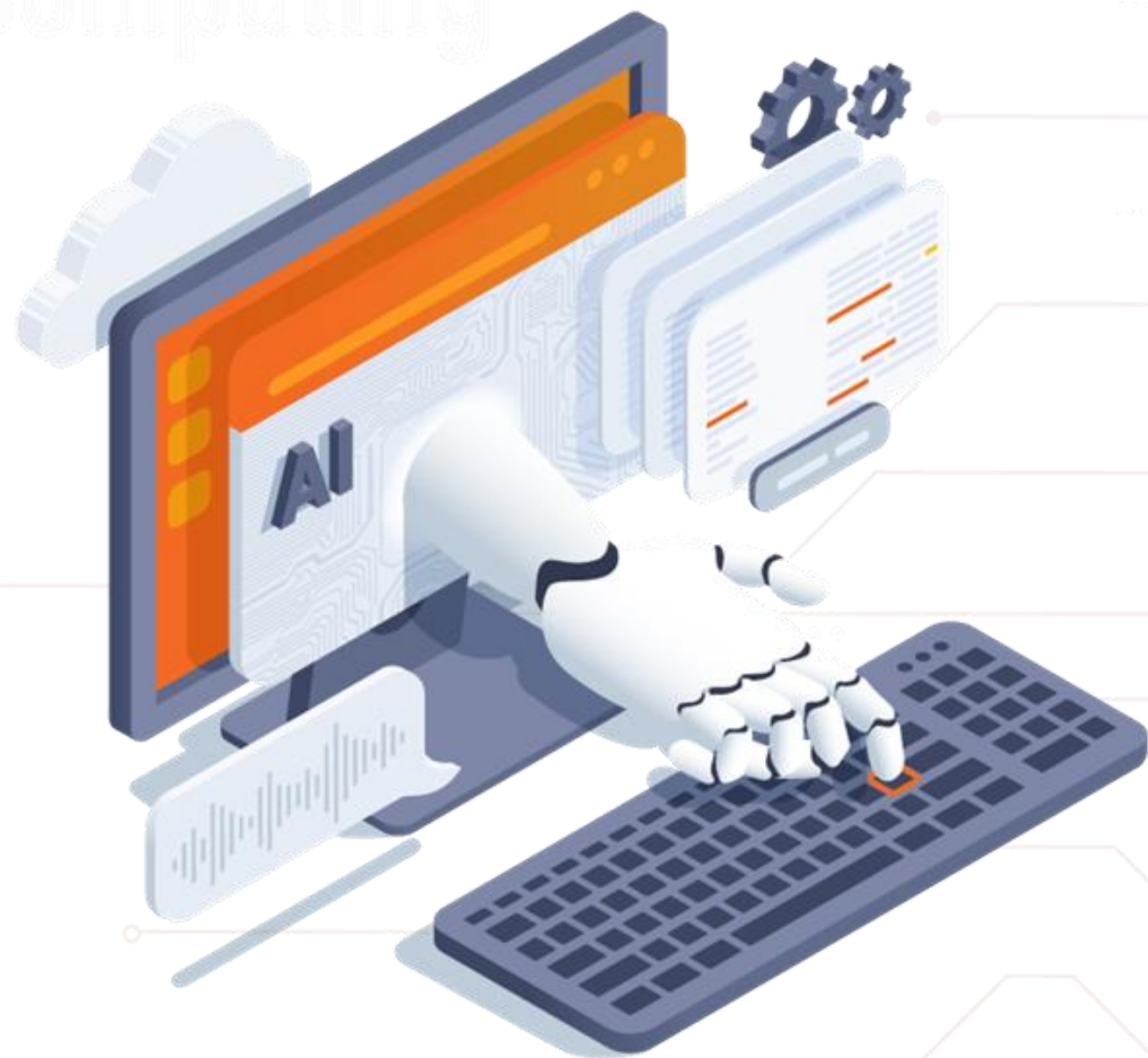


**Caltech**

**Center for Technology &  
Management Education**

## **Applied Data Science with Python**

DATA AND  
ARTIFICIAL INTELLIGENCE  
Computing



**Caltech**

**Center for Technology &  
Management Education**

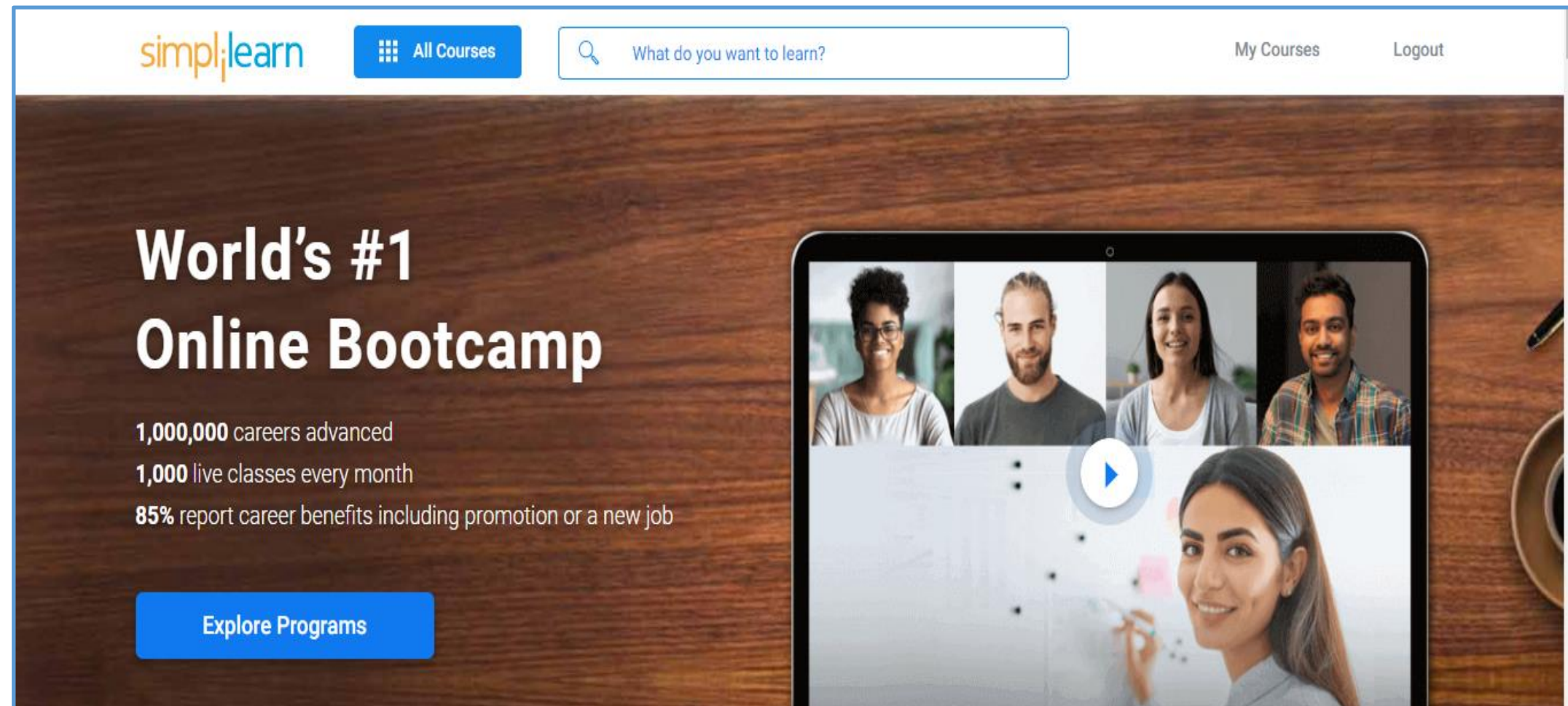
## Program Introduction

## About Simplilearn



# Simplilearn

Simplilearn has focused on its digital economy skills for over a decade. It is now the world's most popular online bootcamp.



# Simplilearn

Simplilearn  
provides:



Live virtual classes (LVCs)



Self-paced  
learning content



Interactive labs

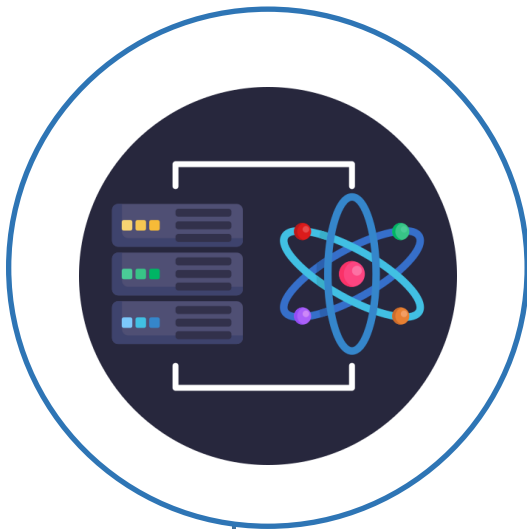


Real-time,  
scenario-based projects



# Introduction to Applied Data Science with Python

# Applied Data Science with Python



- Data science with Python is a blend of scientific methods, processes, algorithms, and systems to discover the hidden patterns in raw data.
- It uses techniques and theories from mathematics, statistics, computer science, domain knowledge, and information science to build a model.
- Data science with Python practitioners use machine learning and artificial intelligence algorithms to draw inferences from data that support businesses, build products to assist humans in various fields, such as healthcare, finance, security, and entertainment, and automate tasks that require human intelligence.

# Benefits of Applied Data Science with Python

## **Automates tasks:**

Data science uses historical data to automate repetitive tasks.

## **Is versatile:**

Data science can be used in numerous applications. It provides an opportunity to work in various fields.



## **Handles data:**

It allows users to handle large amounts of data.

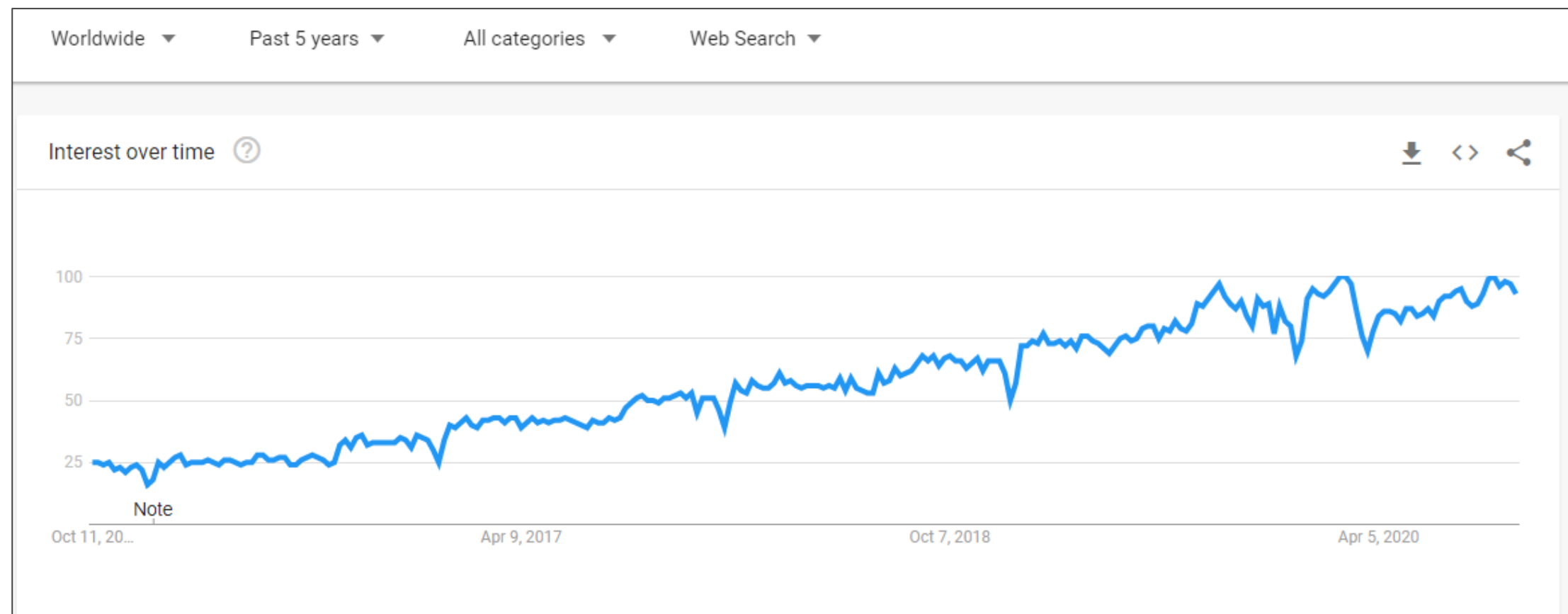
## **Improves data:**

It prepares and examines the data and converts it into a better format.



# Demand for Data Scientists

The demand for data scientists is rapidly increasing. Data science is expected to continue to grow significantly in the future.

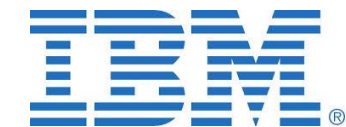
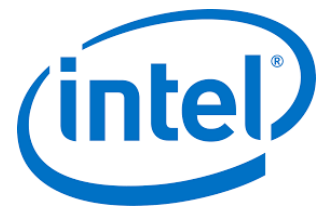


Search trend for data scientists in the last five years

Source: <https://trends.google.com/trends/?geo=US>

# Companies Hiring Data Scientists

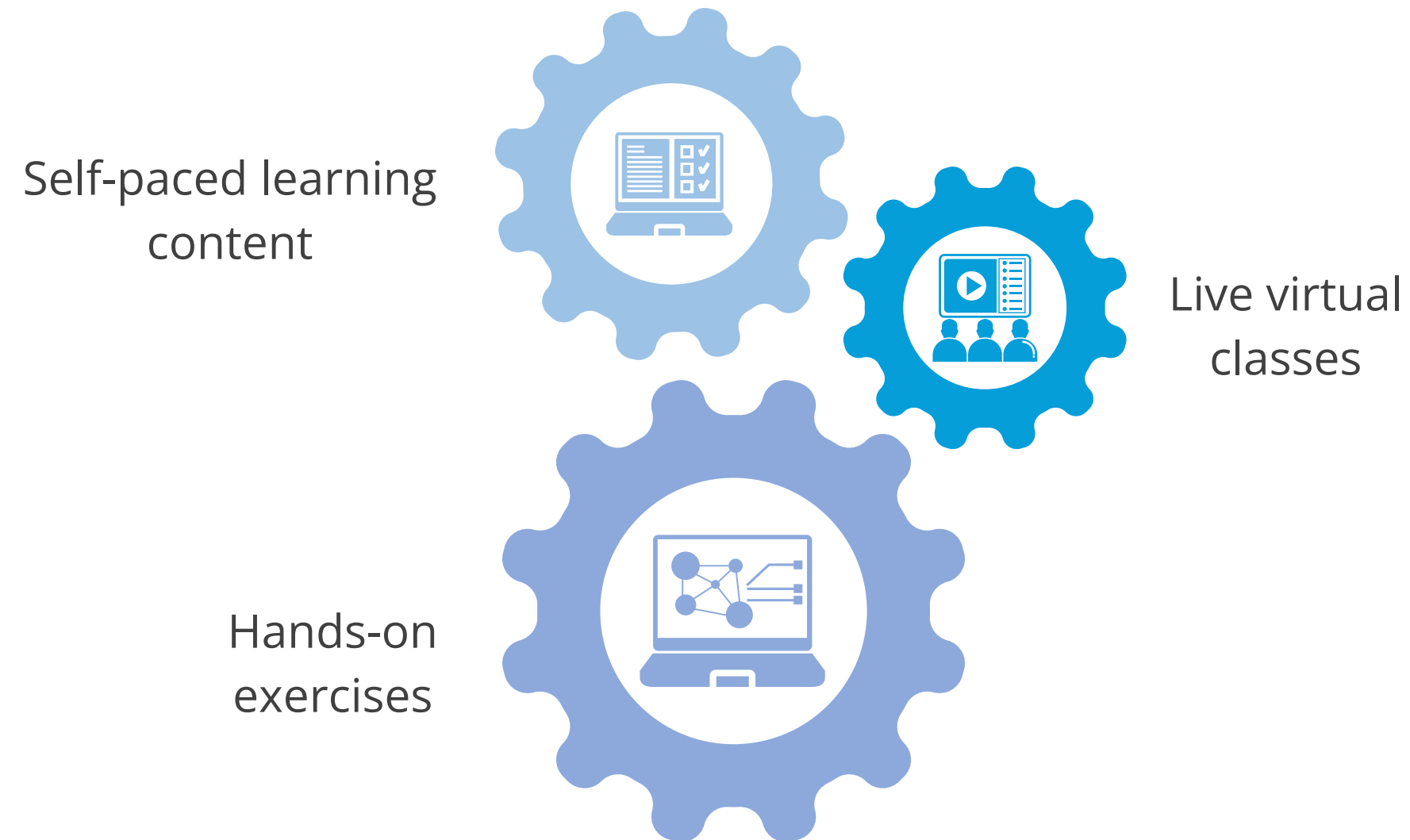
There are many companies around the globe that hire data scientists by the dozen. These include:



## Simplilearn Program Features

# Program Features

The blended learning program is a combination of:



# Program Features

The program contains:



**Theoretical concepts**



**Case studies**



**Integrated labs**



**Projects**



# Program Features

Class sizes are limited to foster maximum interactions.



## Learning Path

# Target Audience

Anyone who aspires to be a data scientist must have an understanding of programming in any of the popular languages. The target audience includes:



- Programmers
- Software developers
- Analysts
- Learning enthusiasts

# Data Scientist

For example, an associate programmer who recently graduated as an engineer can become a data scientist after completing this program.



Associate programmer



NumPy

matplotlib



TensorFlow

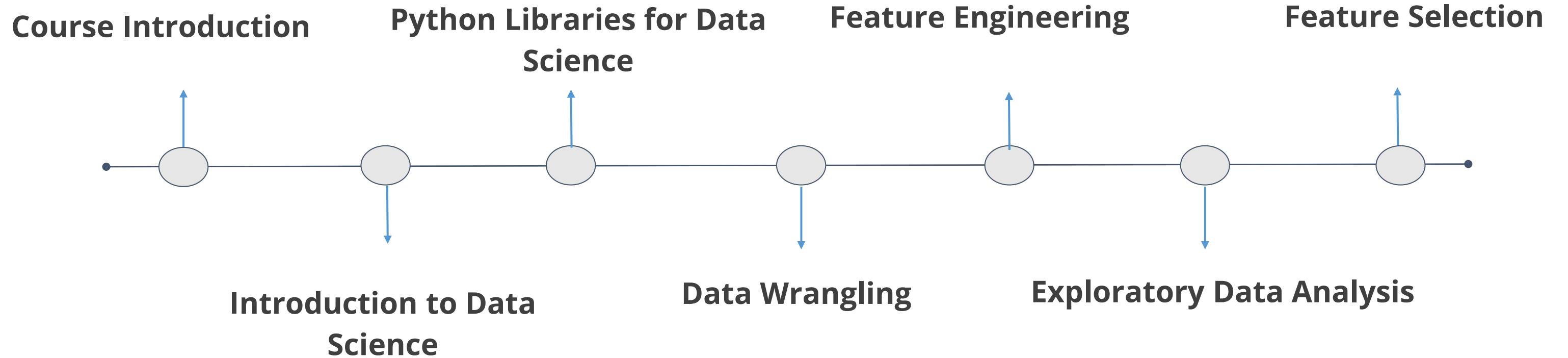


Data scientist



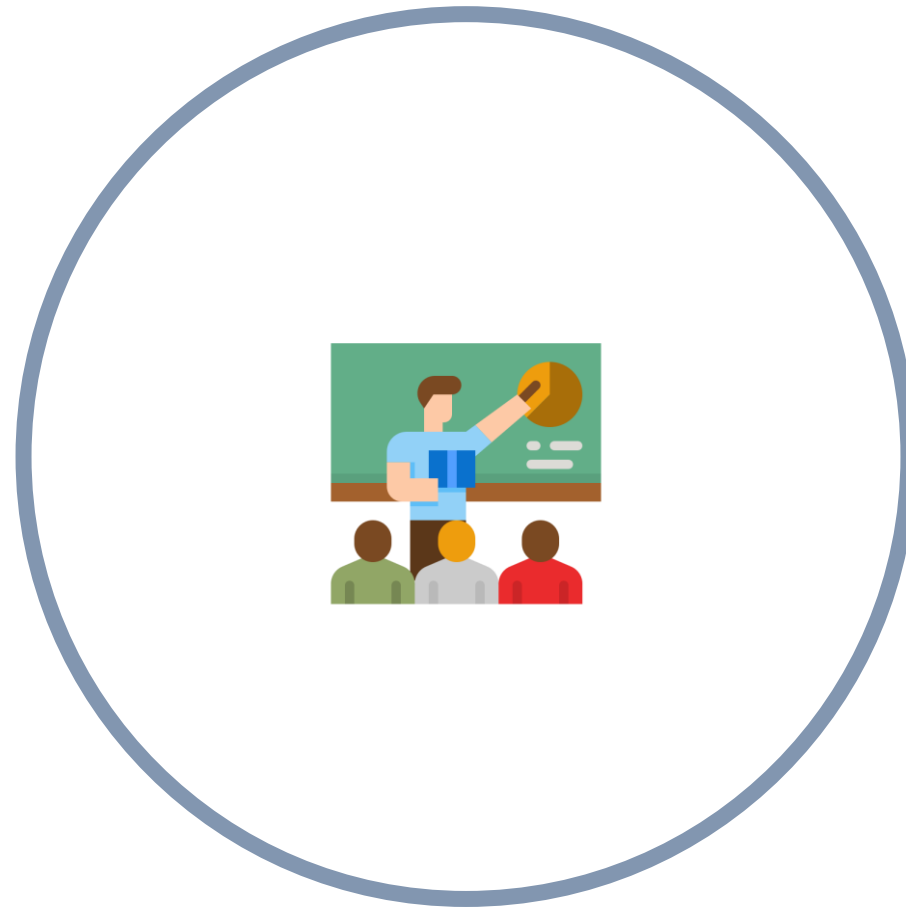
Seaborn

# Learning Path





# Learning Path: Lesson 1



## Course Introduction

- Gives an overview of this program's features
- Explains the learning path
- Outlines the program components

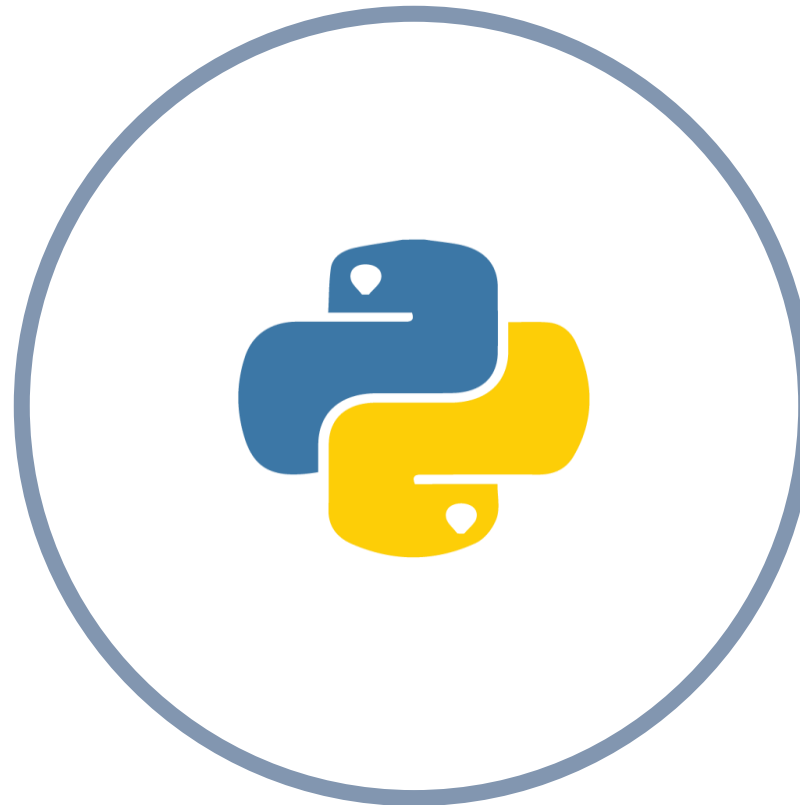
# Learning Path: Lesson 2



## Introduction to Data Science

- Helps understand:
  - Basics of data science
  - Responsibilities of a data scientist
  - Applications of data science

# Learning Path: Lesson 3



## Python Libraries for Data Science

- Provides the use of Python library
- Lists various Python libraries such as:
  - Pandas
  - NumPy
  - Matplotlib
  - SciPy

## Learning Path: Lesson 4



### Data Wrangling

- Implements data extraction and data wrangling
- Performs feature engineering

## Learning Path: Lesson 5



### Feature Engineering

- Performs feature engineering techniques like:
  - Data imputation
  - Scaling
  - Binning
  - Grouping operations



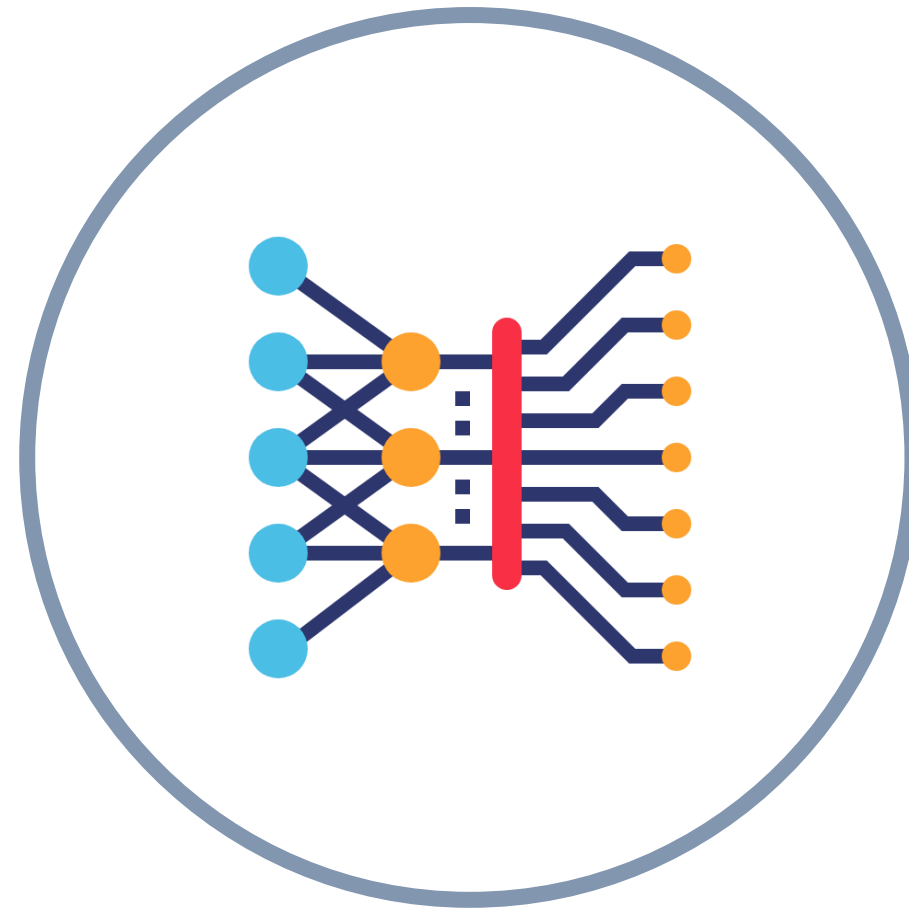
# Learning Path: Lesson 6



## Exploratory Data Analysis

- Learn about data exploration and various types of plots, such as:
  - Box and whisker plot
  - Bar chart
  - Column chart
  - Line chart
  - Scatter chart
  - KDE plot

## Learning Path: Lesson 7



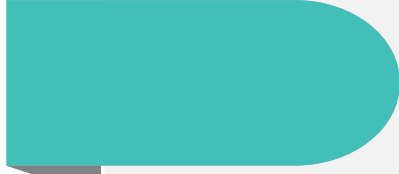
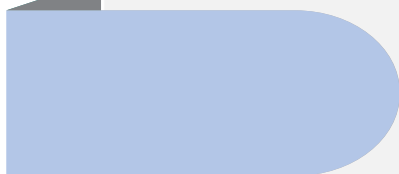


### Feature Selection

- Techniques for dimensionality reduction
- Need for factor analysis, PCA, eigenvalues, eigenvectors, and LDA

## Program Components

# Program Components

-  **E-books:** All lessons are available as PDF files to download and use as quick reference guides
-  **Assisted practices:** To help you develop abilities that will make you an asset to any business
-  **Assessments:** There are over 100 questions to test your knowledge of the concepts covered
-  **Projects:** Lesson-end and course-end projects to develop your data science skills by solving real-life, industry-based projects

