DATA SCIENTIST MASTER'S PROGRAM

In collaboration with IBM

Masterclasses, Exclusive Mentoring Sessions and Hackathons by IBM

Contents

About the Course

This Data Scientist Master's Program, in collaboration with IBM, accelerates your career in Data Science and provides you with world-class training and skills required to become successful in this field. The program offers extensive training on the most in-demand Data Science and Machine Learning skills with hands-on exposure to key tools and technologies including Python, R, Tableau, and concepts of Machine Learning. Become an expert in Data Science by diving deep into the nuances of data interpretation, mastering technologies like Machine Learning, and mastering powerful programming skills to take your career in Data Science to the next level.

Key Features

Obtain industry-recognized IBM certificates for IBM courses

Exclusive Hackathons and Ask-Me-Anything sessions by IBM

Live-online Masterclasses delivered by IBM experts

Capstone and 25+ industry-relevant projects from the likes of Amazon, Walmart and Comcast

8X higher liveinteraction in live online classes by industry experts

Top-notch curriculum with integrated labs

About IBM and Fortray collaboration

Headquartered in New York, IBM is a leading cognitive solution and cloud platform company, offering a plethora of technology and consulting services. Each year, IBM invests approximately $6 billion in research and development and has achieved five Nobel Laureates, nine US National Medals of Technology and Innovation, five US National Medals of Science, six Turing Awards, and 10 inductees in the US Inventors Hall of Fame.

A partnership between IBM and Fortray introduces students to the best-in-class applied learning experience, making them experts in the field of Data Science. This program, in collaboration with IBM, delivers a top-notch, industry-relevant curriculum and prepares students for any Data Science related job role.

About Fortray

Fortray is the world's #1 online bootcamp provider that enables learners through rigorous and highly specialized training. We focus on emerging technologies and processes that are transforming the digital world, at a fraction of the cost and time as traditional approaches. Over one million professionals and 2000 corporate training organizations have harnessed our award-winning programs to achieve their career and business goals.

Learning Path - Data Scientist

1. **Python for Data Science**
2. **Data Science with Python**
3. **Machine Learning**
4. **Tableau Training**
5. **Data Science Capstone**
6. **Completion Certificate**

Electives

- **SQL Training**
- **Data Science with R Programming**
- **Deep Learning with Keras and TensorFlow**
- **Industry Masterclass delivered by IBM**

Data Scientist Master's Program Outcomes

Gain an in-depth understanding of data structure and data manipulation

Understand and use linear and non-linear regression models and classification techniques for data analysis

Obtain an in-depth understanding of supervised and unsupervised learning models such as linear regression, logistic regression, clustering, dimensionality reduction, K-NN, and pipelines

Perform scientific and technical computing using the SciPy package and its sub-packages such as Integrate, Optimize, Statistics, IO, and Weave

Gain expertise in mathematical computing using the NumPy and scikit-learn packages

Master the concepts of recommendation engines and time series modeling and gain practical mastery over principles, algorithms, and applications of Machine Learning

Learn to analyze data using Tableau and become proficient in building interactive dashboards

Who Should Enroll in this Program?

The Data Science role requires an amalgam of experience, Data Science knowledge, and using the correct tools and technologies. It is a solid career choice for both new and experienced professionals. Aspiring professionals of any educational background with an analytical frame of mind are most suited to pursue the Data Scientist Master's Program, including:

- IT Professionals
- Analytics Managers
- Business Analysts
- Banking and Finance Professionals
- Marketing Managers
- Supply Chain Network Managers
- Beginners or Recent Graduates in Bachelors or Masters Degree

Python for Data Science

Kickstart your learning of Python for Data Science with this introductory course and familiarize yourself with programming. Carefully crafted by IBM, upon completion of this course you will be able to write your Python scripts, perform fundamental hands-on data analysis using the Jupyter-based lab environment, and create your own Data Science projects using IBM Watson.

Key Learning Objectives

- Write your first Python program by implementing concepts of variables, strings, functions, loops, and conditions
- Understand the nuances of lists, sets, dictionaries, conditions and branching, and objects and classes
- Work with data in Python such as reading and writing files, loading, working, and saving data with Pandas

Course curriculum

- Lesson 01 - Python Basics
- Lesson 02 - Python Data Structures
- Lesson 03 - Python Programming Fundamentals
- Lesson 04 - Working with Data in Python
- Lesson 05 - Working with NumPy Arrays

Data Science with Python

This Data Science with Python course will establish your mastery of Data Science and analytics techniques using Python. With this Python for Data Science Course, you'll learn the essential concepts of Python programming and gain in-depth knowledge in data analytics, Machine Learning, data visualization, web scraping, and natural language processing. Python is a required skill for many Data Science positions, so jump start your career with this interactive, hands-on course.

Key Learning Objectives

- Gain an in-depth understanding of Data Science processes, data wrangling, data exploration, data visualization, hypothesis building, and testing. You will also learn the basics of statistics
- Install the required Python environment and other auxiliary tools and libraries
- Understand the essential concepts of Python programming such as data types, tuples, lists, dicts, basic operators and functions
- Perform high-level mathematical computing using the NumPy package and its vast library of mathematical functions
- Perform scientific and technical computing using the SciPy package and its sub-packages such as Integrate, Optimize, Statistics, IO, and Weave
- Perform data analysis and manipulation using data structures and tools provided in the Pandas package
- Gain expertise in Machine Learning using the Scikit-Learn package
- Gain an in-depth understanding of supervised learning and unsupervised learning models such as linear regression, logistic regression, clustering, dimensionality reduction, K-NN and pipeline

- Use the Scikit-Learn package for natural language processing
- Use the matplotlib library of Python for data visualization
- Extract useful data from websites by performing web scraping using Python
- Integrate Python with Hadoop, Spark, and MapReduce

Course curriculum

- Lesson 01 - Data Science Overview
- Lesson 02: Data Analytics Overview
- Lesson 03: Statistical Analysis and Business Applications
- Lesson 04: Python Environment Setup and Essentials
- Lesson 05: Mathematical Computing with Python (NumPy)
- Lesson 06 - Scientific computing with Python (Scipy)
- Lesson 07 - Data Manipulation with Pandas
- Lesson 08 - Machine Learning with Scikit–Learn
- Lesson 09 - Natural Language Processing with Scikit Learn
- Lesson 10 - Data Visualization in Python using matplotlib
- This lesson teaches you to visualize data in python using matplotlib and plot them.
- Lesson 11 - Web Scraping with BeautifulSoup
- Lesson 12 - Python integration with Hadoop MapReduce and Spark

Machine Learning

Fortray's Machine Learning course will make you an expert in Machine Learning, a form of Artificial Intelligence that automates data analysis to enable computers to learn and adapt through experience to do specific tasks without explicit programming. You will master Machine Learning concepts and techniques, including supervised and unsupervised learning, mathematical and heuristic aspects, and hands-on modeling to develop algorithms and prepare you for your role with advanced Machine Learning knowledge.

Key Learning Objectives

- Master the concepts of supervised and unsupervised learning, recommendation engine, and time series modeling
- Gain practical mastery over principles, algorithms, and applications of Machine Learning through a hands-on approach that includes working on four major end-to-end projects and 25+ hands-on exercises
- Acquire thorough knowledge of the statistical and heuristic aspects of Machine Learning
- Implement models such as support vector machines, kernel SVM, naive Bayes, decision tree classifier, random forest classifier, logistic regression, K-means clustering and more in Python
- Validate Machine Learning models and decode various accuracy metrics. Improve the final models using another set of optimization algorithms, which include Boosting & Bagging techniques
- Comprehend the theoretical concepts and how they relate to the practical aspects of Machine Learning

Course curriculum

- Lesson 01 - Introduction to Artificial Intelligence and Machine Learning
- Lesson 02: Data Wrangling and Manipulation
- Lesson 03: Supervised Learning
- Lesson 04: Feature Engineering
- Lesson 05: Supervised Learning-Classification
- Lesson 06: Unsupervised learning
- Lesson 07: Time Series Modelling
- Lesson 08: Ensemble Learning
- Lesson 09: Recommender Systems
- Lesson 10: Text Mining

Tableau

This Tableau course helps you understand how to build visualizations, organize data, and design charts and dashboards to empower more meaningful business decisions. You'll be exposed to the concepts of Data Visualization, different combo charts, and stories, working with filters, parameters, and sets, and building interactive dashboards.

Key Learning Objectives

- Become an expert on visualization techniques such as heat map, treemap, waterfall, Pareto
- Understand metadata and its usage
- Work with Filter, Parameters, and Sets
- Master special field types and Tableau-generated fields and the process of creating and using parameters
- Learn how to build charts, interactive dashboards, story interfaces, and how to share yourwork
- Master the concepts of data blending, create data extracts and organize and format data
- Master arithmetic, logical, table, and LOD calculations

Course curriculum

- Lesson 01 - Getting Started with Tableau
- Lesson 02 - Core Tableau in Topics
- Lesson 03 - Creating Charts in Tableau
- Lesson 04 - Working with Metadata
- Lesson 05 - Filters in Tableau
- Lesson 06 - Applying Analytics to the worksheet
- Lesson 07 - Dashboard in Tableau
- Lesson 08 - Modifications to Data Connections
- Lesson 09 - Introduction to Level of Details in Tableau (LODS)

Data Science Capstone

This Data Science Capstone project will give you an opportunity to implement the skills you learned throughout this Program. Through dedicated mentoring sessions, you'll learn how to solve a real-world, industry-aligned Data Science problem, from data processing and model building to reporting your business results and insights. The project is the final step in the learning path and will enable you to showcase your expertise in Data Science to future employers.

Key Learning Objectives

Fortray's online Data Science Capstone course will bring you through the Data Science decision cycle, including data processing, building a model and representing results. The project milestones are as follows:

- Data Processing - In this step, you will apply various data processing techniques to make raw data meaningful.
- Model Building - You will leverage techniques such as regression and decision trees to build Machine Learning models that enable accurate and intelligent predictions. You may explore Python, R to build your model. You will follow the complete model-building exercise from data split to test and training and validating data using the k-fold cross-validation process.
- Model Fine-tuning - You will apply various techniques to improve the accuracy of your model and select the champion model that provides the best accuracy.
- Dashboarding and Representing Results - As the last step, you will be required to export your results into a dashboard with meaningful insights using Tableau

SQL Training

This course gives you the information you need to successfully start working with SQL databases and make use of the database in your applications. Learn the concepts of fundamental SQL statements, conditional statements, commands, joins, subqueries, and various functions to manage your SQL database for scalable growth.

Key Learning Objectives

- Understand databases and relationships
- Use common query tools and work with SQL commands
- Understand transactions, creating tables and views
- Comprehend and execute stored procedures

Course curriculum

- Lesson 1- Fundamental SQL Statements
- Lesson 2-Restore and Back-up
- Lesson 3-Selection Commands: Filtering
- Lesson 4-Selection Commands: Ordering
- Lesson 5-Alias
- Lesson 6-Aggregate Commands
- Lesson 7-Group By Commands
- Lesson 8-Conditional Statement
- Lesson 9-Joins
- Lesson 10-Subqueries
- Lesson 11-Views and Index
- Lesson 12-String Functions
- Lesson 13-Mathematical Functions
- Lesson 14-Date - Time Functions
- Lesson 15-Pattern (String) Matching
- Lesson 16-User Access Control Functions

Data Science with R

The next step to becoming a data scientist is learning R—the most indemand open source technology. R is a powerful Data Science and analytics language, which has a steep learning curve and a very vibrant community. This is why it is quickly becoming the technology of choice for organizations who are adopting the power of analytics for competitive advantage.

Key Learning Objectives

- Gain a foundational understanding of business analytics
- Install R, R-studio, and workspace setup, and learn about the various R packages
- Master R programming and understand how various statements are executed in R
- Gain an in-depth understanding of data structure used in R and learn to import/export data in R
- Define, understand and use the various apply functions and DPYR functions
- Understand and use the various graphics in R for data visualization
- Gain a basic understanding of various statistical concepts
- Understand and use hypothesis testing method to drive business decisions
- Understand and use linear, non-linear regression models, and classification techniques for data analysis
- Learn and use the various association rules and Apriori algorithm
- Learn and use clustering methods including K-means, DBSCAN, and hierarchical clustering

Course curriculum

- Lesson 01 - Introduction to Business Analytics
- Lesson 02 - Introduction to R Programming
- Lesson 03 - Data Structures
- Lesson 04 - Data Visualization
- Lesson 05 - Statistics for Data Science I
- Lesson 06 - Statistics for Data Science II
- Lesson 07 - Regression Analysis
- Lesson 08 - Classification
- Lesson 09 - Clustering
- Lesson 10 - Association

Deep Learning with Keras and TensorFlow

This Deep Learning with TensorFlow course by IBM will refine your Machine Learning knowledge and make you an expert in deep learning using TensorFlow. Master the concepts of deep learning and TensorFlow to build artificial neural networks and traverse layers of data abstraction. This course will help you learn to unlock the power of data and prepare you for new horizons in AIDeep Learning with TensorFlow and Keras This course will take you from machine learning to the next level, providing you with a solid understanding of deep learning using TensorFlow and Keras. Master the concepts of deep learning to build artificial neural networks and traverse layers of data abstraction. This course will help you learn how to unlock the power of data and prepare you for new horizons in artificial intelligence.

Key Learning Objectives

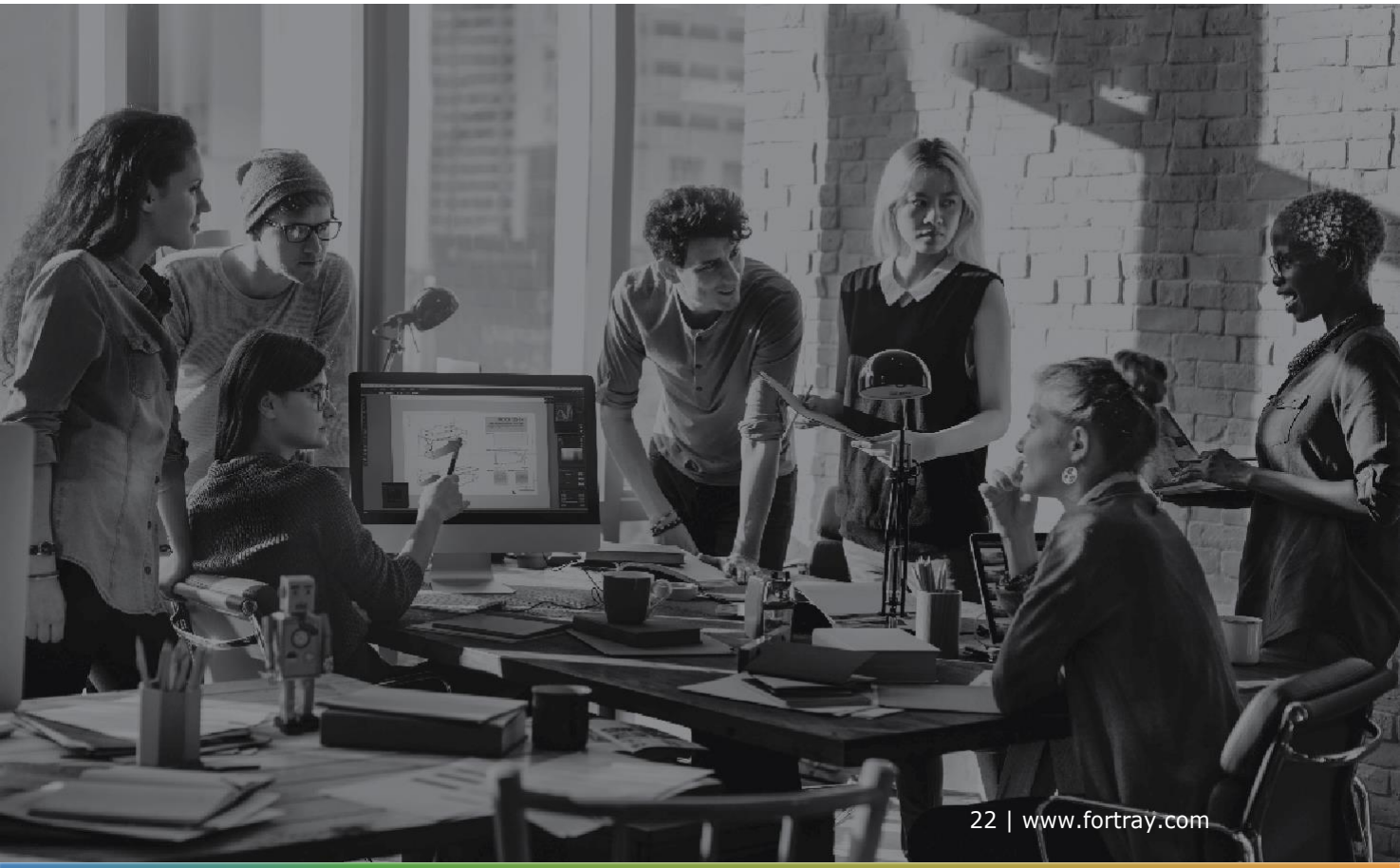
- Understand deep learning leveraging neural networks
- Gain a fair understanding of Tensorflow and Keras
- Comprehend convolutional neural networks (CNNs) and their applications
- Gain familiarity with recurrent neural networks (RNNs) and autoencoders
- Optimize the performance of your neural network using L2 regularization and dropout layers
- Create autoencoder models to detect anomalies

Course curriculum

- Lesson 1 - AI and Deep Learning Introduction
- Lesson 2 - Artificial Neural Network
- Lesson 3 - Deep Neural Network and Tools
- Lesson 4 - Deep Neural Net Optimization, Tuning, and Interpretability
- Lesson 5 - Convolutional Neural Net (CNN)
- Lesson 6 - Recurrent Neural Networks
- Lesson 7 - Autoencoders

Industry Masterclass – Data Science

Attend this online interactive industry masterclass to gain insights about Data Science advancements and AI techniques



Tools Covered

tableau

learn

TensorFlow

matplotlib

BeautifulSoup

NumPy

seaborn

pgthon

SciPy

pandas

Projects

BUILDING A USER BASED RECOMMENDATION MODEL FOR AMAZON

The data set provided contains movie reviews given by Amazon customers. Perform data analysis on the Amazon customer movie reviews data set and build a Machine Learning recommendation algorithm which provides the ratings for each of the users.

Domain: E-commerce

COMCAST TELECOM CUSTOMER COMPLAINTS

Comcast is an American global telecommunication company. The firm has been providing terrible customer service. They continue to fall short despite repeated promises to improve.Utilize the existing database of customer complaints as a repository to improve customer satisfaction.

Domain: Telecommunications

MERCEDES-BENZ GREENER MANUFACTURING

Reduce the time a Mercedes-Benz spends on the test bench. Work with a data set representing different permutations of the features in a Mercedes-Benz car to predict the time it takes to pass testing. Optimal algorithms will contribute to faster testing, resulting in lower carbon dioxide emissions without reducing Mercedes-Benz's standards.

Domain: Automobile Manufacturing

RETAIL ANALYSIS WITH WALMART

One of the leading retail stores in the US, Walmart, would like to predict sales and demand accurately. The business is facing a challenge due to unforeseen demands and runs out of stock occasionally. It's discovered that a Machine Learning algorithm is at the core of this issue. Build an ideal ML algorithm that will predict demand accurately and incorporate factors like economic conditions including CPI, unemployment index, etc.

Domain: Retail

MOVIE LENS CASE STUDY

Perform analysis using the exploratory data analysis technique. You need to find features affecting the ratings of any particular movie and build a model to predict the movie ratings.

Domain: Entertainment

CUSTOMER SERVICE REQUESTS ANALYSIS

Perform data analysis on New York City 311 service request calls. You will focus on data wrangling techniques to understand data patterns and also create visualizations to categorize and prioritize complaint types, like economic conditions including CPI, Unemployment Index, etc.

Domain: Customer Service

COMPARATIVE STUDY OF COUNTRIES

Create a dashboard to do a comparative study on various parameters of different countries using the sample insurance data set as well as the world development indicators data set.

Domain: Geo-Political

SALES PERFORMANCE ANALYSIS

Build a dashboard that will present monthly sales performance by product segment and product category to help clients identify the segments and categories that have met or exceeded their sales targets, as well as those that have not met their sales targets.

Domain: Retail

PREDICT THE DEMAND OF LOAN BASED ON REGION

This project provides learners with insights into the banking sector. Learners are required to build a statistical model to predict the demand for loans in a particular region. To show the results, learners are required to provide an online dashboard that shows the plan and its progress to all stakeholders.

Domain: Banking

BUILD MODEL TO PREDICT DIABETIC PATIENTS

The project is aligned with NIDDK (National Institute of Diabetes and Digestive and Kidney Diseases) data sets representing one of the most chronic and consequential diseases. The goal of this project is to build a model to predict the patients with diabetes by utilizing the given data set.

Domain: Healthcare

CUSTOMER SEGMENTATION ON RETAILS CUSTOMERS

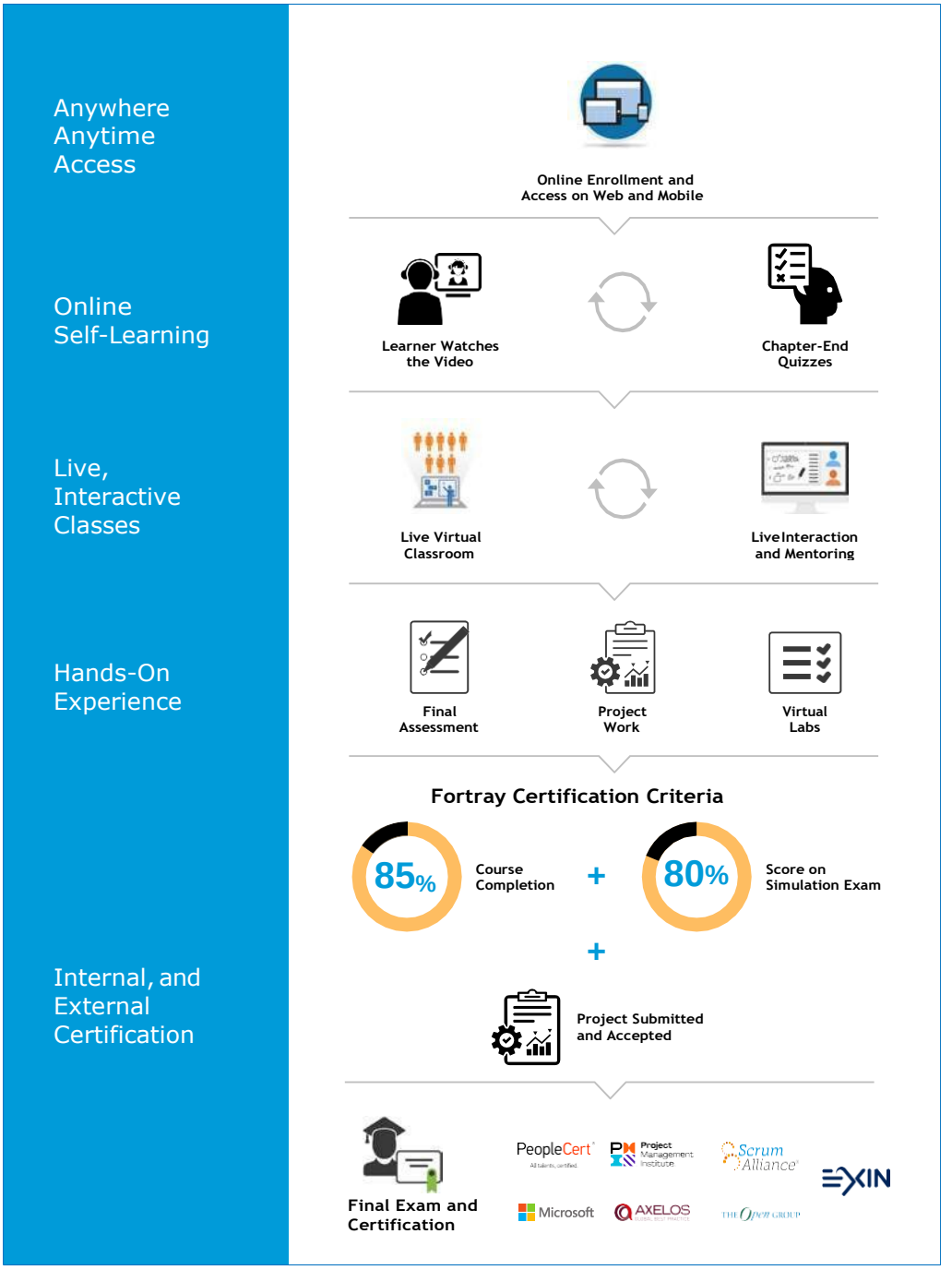
Perform customer segmentation using RFM analysis. The resulting segments can be ordered from most valuable (highest recency, frequency, and value) to least valuable (lowest recency, frequency, and value).

Domain: Retail

Certificates

Upon completion of this Master's Program, you will receive the certificates from IBM and Fortray in the Data Science courses in the learning path. These certificates will testify to your skills as an expert in Data Science. Upon program completion, you will also receive an industry recognized Master's Certificate from Fortray.

Classroom-Level Immersion: Delivered Digitally



Customer Reviews

Utkarsh Gupta

Associate Analyst
JCPenney

My experience of learning with Fortray was great and I was able to achieve my goal of getting a job as well.

Aniket Kulkarni

Data Analyst
WhiteHat Jr

Sometime last year, when we were in lockdown, I realized that my career had reached a plateau and to accelerate growth, I needed to upskill. So, I took advantage of the time I had in hand and took the Data Science course from Fortray.
And, just three months after completing the course, I was able to get a job as a Data Analyst at White Hat Jr.

Sanjog Davi

Associate Analyst
JCPenney

With the help of Fortray, I was able to get my first job in a well-reputed company with a great starting package.

Anand Jha

Business Consultant
EXL

Completing the course has really helped me to fast-track my career in my field of interest and has also upped my confidence.

Ekta Saraogi

Technical Account Manager
Odetta.ai

I had 11-12 years of experience in Business Analysis & Project Management but after the course, I moved to Data Science. This is a great switch for me and I found my niche.

Jayapal Sadasivan

Data Science Engineer
VuNet Systems

Upskilling with Fortray was a great experience that also resulted in a new job opportunity for me with a good salary hike.

Top Clients We Work With:

Features of Corporate Training:

- Tailored learning solutions
- Flexible pricing options
- Enterprise-grade learning management system (LMS)
- Enterprise dashboards for individuals and teams
- 24X7 learner assistance and support

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