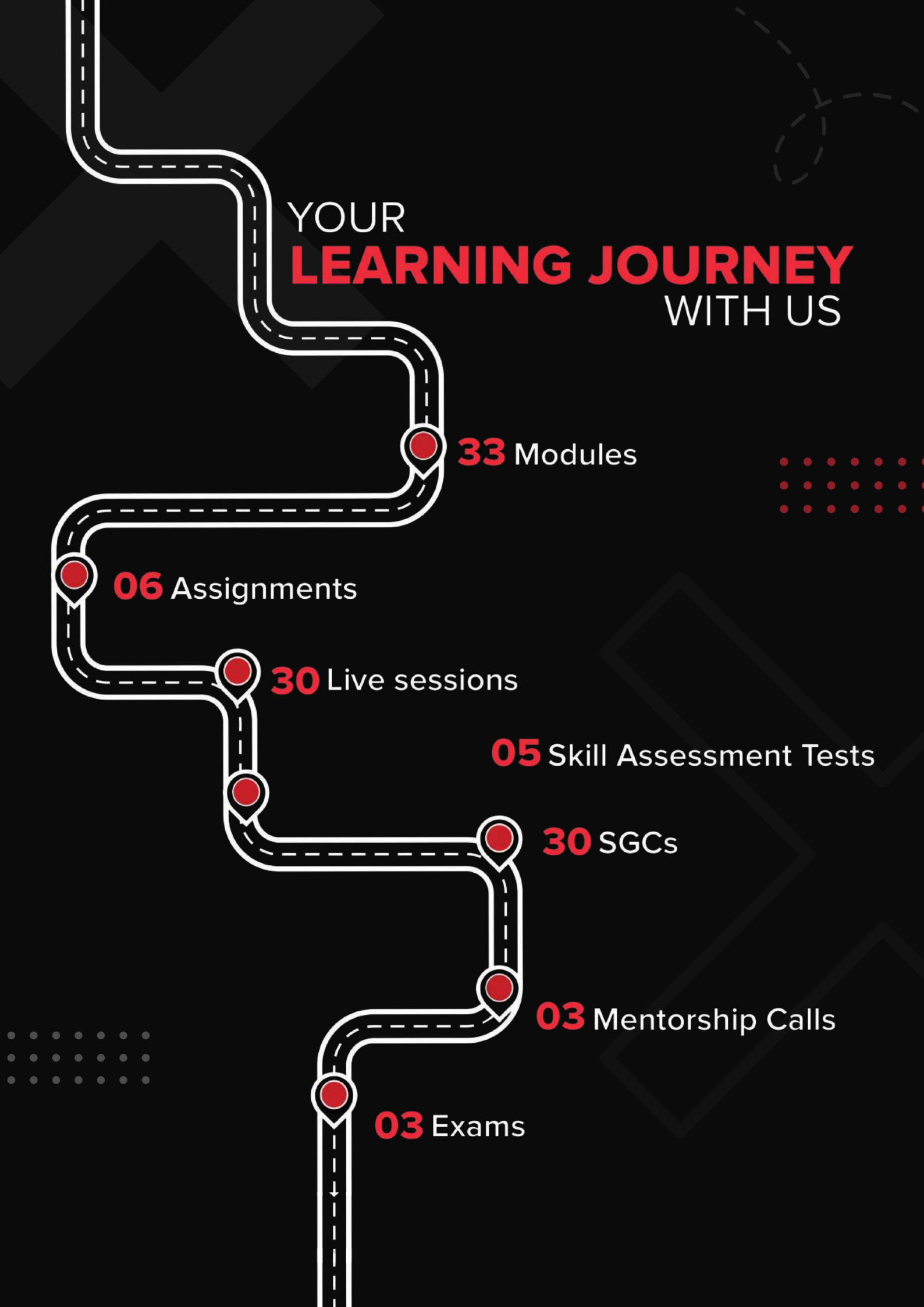
upGrad

The PLAN BOOK


YOUR
LEARNING JOURNEY
WITH US
33 Modules
06 Assignments
30 Live sessions
05 Skill Assessment Tests
30 SGCs
03 Mentorship Calls
03 Exams

Week 1-4

BASIC PYTHON AND SQL

4 MODULES | **4** LIVE SESSIONS | **1** SMALL GROUP COACHING

WHY THIS MATTERS

Python & SQL are go-to languages for data science. Learn the basics in order to lay a strong foundation for your data journey.

THE LEARNING

- **Python:**
Understand the basics, practice the language and solve problems using Python.

- **MySQL:**
Learn to interact with databases, run multiple queries and create and manipulate datasets.

THE APPLICATION AND ASSESSMENT

Write and execute basic programmes using the two most important and widely used languages in the data industry - Python and SQL.

ENGAGE FURTHER

- **Live Sessions:**
  - Understand industry applications of your learnings.
  - Learn advanced concepts and solve hands-on coding questions.
  - Q&A session to clear doubts.

- **Small Group Coaching (SGC) Sessions:**
  - Connect with a dedicated industry coach in a group of 8-10 peers; all matched based on similar work experience and expected outcomes.
  - Engage in peer-to-peer learning.

Week 5-8

PYTHON FOR DATA SCIENCE AND EXPLORATORY DATA ANALYSIS (EDA)

**3 MODULES | 1 ASSIGNMENT | 4 LIVE SESSIONS |
1 SMALL GROUP COACHING SESSION | 1 SKILL ASSESSMENT TEST**

WHY THIS MATTERS

- Use Python as a data science tool rather than a general-purpose programming language. Focus on Python-based libraries specially used for data science.

- Exploratory Data Analysis (EDA) is essential before you start modelling and making inferences. Data professionals use EDA to analyse and investigate datasets.

THE APPLICATION AND ASSESSMENT

- Assignment 1:
Apply your Python knowledge to process text and data and get useful insights for movies from the past 100 years using an IMDb dataset.

- Preliminary Test 1:
Test your skills on basic Python and SQL concepts. This test is not graded and won't have any bearing on your diploma CGPA.

THE LEARNING

- 80% of a data scientist's time goes in cleaning data. Learn how to clean, manipulate and visualise data using Python libraries like NumPy, pandas, seaborn, and more.

- EDA: Determine how best to manipulate, visualise and analyse data to get actionable data-driven insights.

ENGAGE FURTHER

- Live sessions continue.
- Technical SGC sessions.

Week 9-12

STATISTICS, ADVANCED SQL

4 MODULES | **3** LIVE SESSIONS |
2 SMALL GROUP COACHING SESSIONS | **1** MENTORSHIP CALL

WHY THIS MATTERS

- Statistical methods are needed to understand data used to train machine learning (ML) models and interpret their results.

- Knowledge of advanced SQL concepts and queries is a must for data professionals, given its prevailance in the DS industry.

THE LEARNING

- Descriptive statistics, fundamentals of probability and probability distributions, sampling, and inferring results about a population.

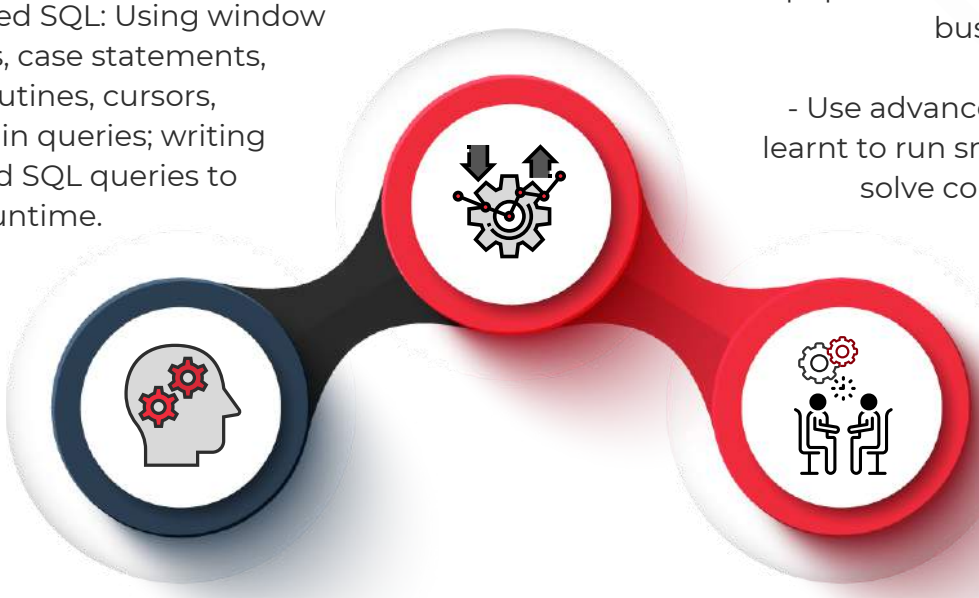
- Details of hypothesis testing

- Advanced SQL: Using window functions, case statements, stored routines, cursors, indexing in queries; writing optimised SQL queries to reduce runtime.

THE APPLICATION AND ASSESSMENT

- Derive insights from a huge population using a small sample by leveraging statistics. Formulate and validate hypotheses for a population to solve real-world business problems.

- Use advanced SQL concepts learnt to run smarter queries to solve complex problems.



ENGAGE FURTHER

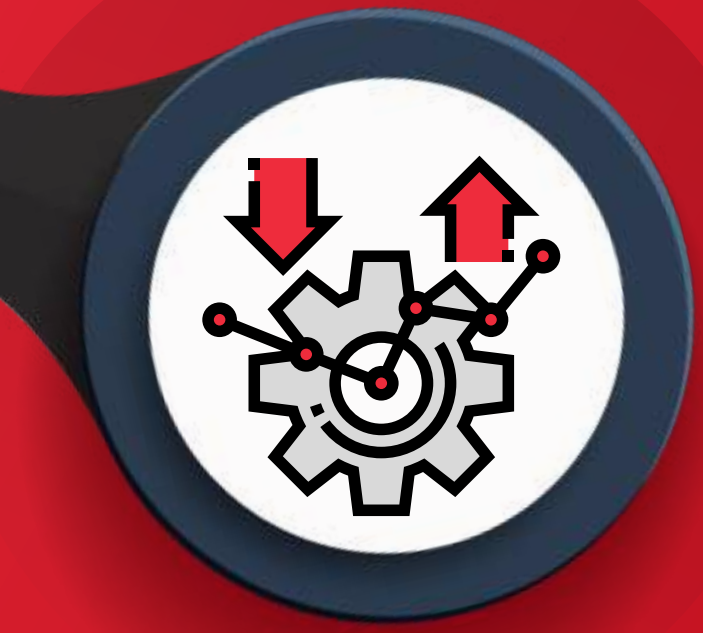
Mentorship Call:

- Interact with an Industry Mentor to understand in-demand skills and to chart your career path over a call.
- Mentors are carefully chosen and some of them are even hiring managers at tech/product companies.

Week 13-15

COURSE CASE STUDY AND EXAM

2 MODULES | **1** ASSIGNMENT | **2** LIVE SESSIONS |
1 SMALL GROUP COACHING SESSION | **1** EXAM



THE APPLICATION AND ASSESSMENT

- **Assignment 2:**
Use EDA to identify potential credit card defaulters and help financial institutions issue credit cards efficiently.

- **Exam 1:**
Test your skills through a 90-minute proctored exam comprising of MCQs and coding questions.

- **Employability Test 1:**
Test your skills through this proctored employability test conducted on InterviewMocha. This test will not be graded and won't have any bearing on your CGPA.

Week 16-20

INTRODUCTION TO ML AND BASIC REGRESSION ALGORITHMS

3 MODULES | **1** ASSIGNMENT | **4** LIVE SESSIONS | **2** SMALL GROUP COACHING SESSIONS

WHY THIS MATTERS

Understanding data and training it to make predictions on unseen data points is at the heart of DS. While several advanced algorithms have evolved, a fundamental understanding of the basic concepts and algorithms is necessary.

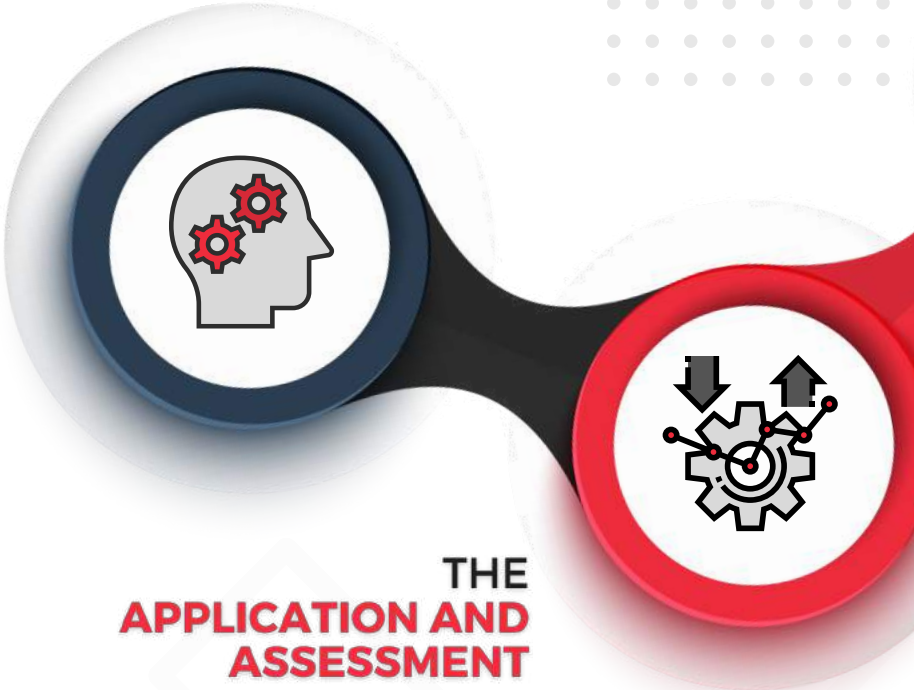
THE LEARNING

- Understand the nuances of machine learning and the need for it.

- The fundamentals of linear regression.

- Logistic regression.

- Model Building and evaluation.



THE APPLICATION AND ASSESSMENT

- Use regression to predict housing prices based on various factors.

- Assignment 3: Implement linear regression concepts to build a linear model to predict bike sharing demand.

- Use logistic regression to predict customer churn for a telecom operator and help retention.

- Skill Assessment Test:

- Gauge your understanding of concepts and skills learned in the program
- Understand the areas you need to improve on
- Non-graded component offered free to all our learners

Week 21-24

UNSUPERVISED LEARNING, BUSINESS PROBLEM SOLVING AND TRACK SELECTION

2 MODULES | **1** ASSIGNMENT | **2** LIVE SESSIONS |
2 SMALL GROUP COACHING SESSIONS

WHY THIS MATTERS

- Supervised machine learning algorithms are used where the target variable is known. But unsupervised ML helps in identifying patterns where the target variable is not known.

- To effectively apply any DS and analytics concept to a problem, you must have business knowledge and know how to approach a problem from a business perspective.

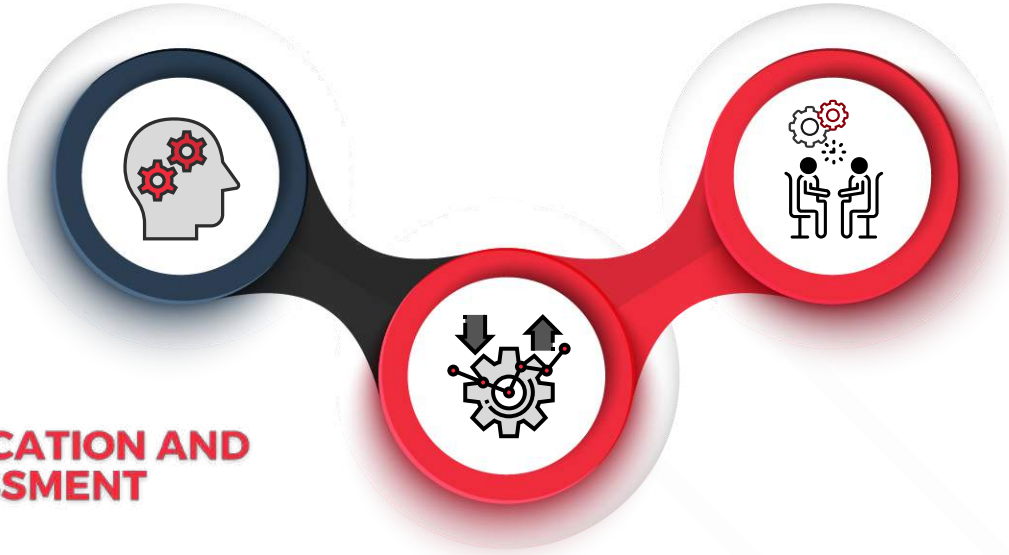
THE LEARNING

- Unsupervised machine learning using a few clustering algorithms like K-Means clustering, hierarchical clustering, etc.

- Business understanding and developing hypothesis, data project pipeline using frameworks.

ENGAGE FURTHER

Support & guidance on the different roles in the data industry to help you select the most suitable specialization track as per your profile and expected outcomes.



THE APPLICATION AND ASSESSMENT

- Learn how to apply clustering on real datasets to solve end-to-end business problems.

- Solve real-world business problems using data as a lever to draw actionable insights.

- Assignment 4: Using logistic regression, solve a lead scoring case study.

- Employability Test 2: Test your skills through this proctored employability test conducted on InterviewMocha. This test will not be graded and won't have any bearing on your CGPA.

Week 25-47

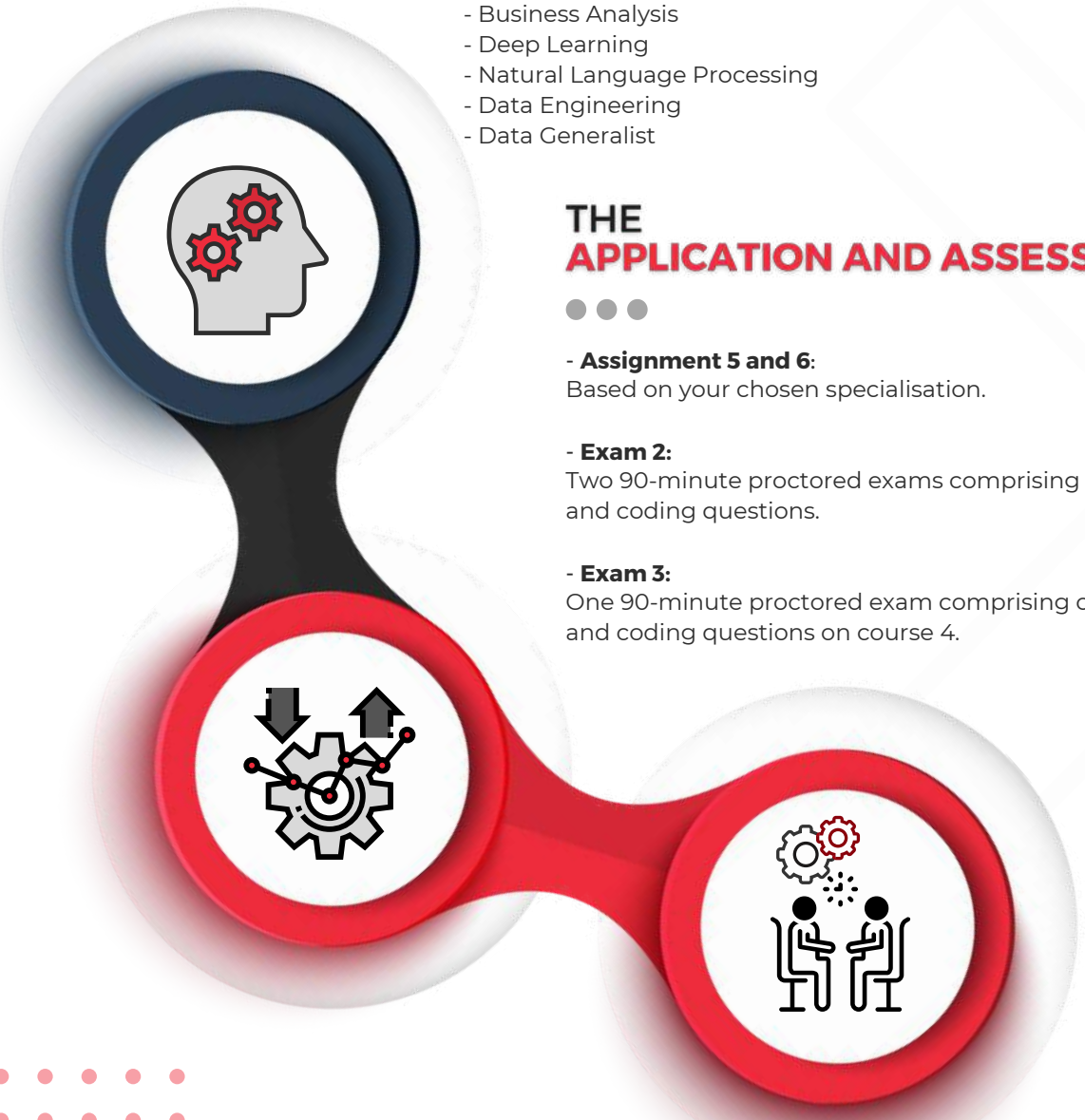
SPECIALISATION

WHY THIS MATTERS

Carve out a niche for yourself by specialising in a data based role of your choice.

THE LEARNING

Learn as per your chosen track from the six specialisations available:
- Business Intelligence
- Business Analysis
- Deep Learning
- Natural Language Processing
- Data Engineering
- Data Generalist



THE APPLICATION AND ASSESSMENT

- **Assignment 5 and 6**:
Based on your chosen specialisation.

- **Exam 2:**
Two 90-minute proctored exams comprising of MCQs and coding questions.

- **Exam 3:**
One 90-minute proctored exam comprising of MCQs and coding questions on course 4.

ENGAGE FURTHER

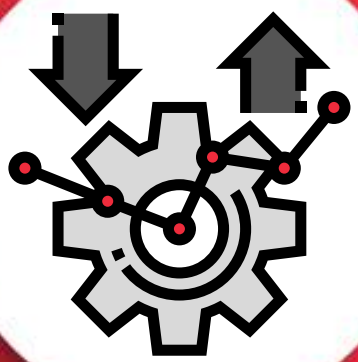
Based on your track, you have two mentorship calls and three skill assessment tests.

Week 48-53

CAPSTONE PROJECT

THE APPLICATION AND ASSESSMENT

Put all your learning to use by working on a real-world business problem from start to finish.



Week 53 onwards

CAREER PHASE

ENGAGE FURTHER

Once you successfully complete the program, a dedicated career coach will work with you for six months. The coach will guide you on building your resume, LinkedIn profile, and provide a detailed career plan to achieve your desired outcome.

READY TO GO THE DISTANCE?

Kickstart your journey on the road of learning!