



IIT Madras



# ADVANCED CERTIFICATION IN DATA SCIENCE AND ARTIFICIAL INTELLIGENCE

Master Data Science and Artificial Intelligence skills and take your career to the next level!



1.2 Million  
Learners



1:1 Personalized  
Mentorship



55% Average  
Salary Hike

# Advanced Certification in Data Science and AI

Master the skills of Machine Learning and Artificial Intelligence with this certification in Data Science and Artificial Intelligence by CCE IIT Madras and Intellipaat. Learn from IIT Madras faculty and industry experts with 1:1 mentorship.



IIT Madras



## Hottest Job of 21st Century



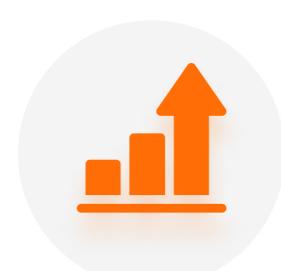
### 2.7 Million Job Postings

There is a global estimate of 2.7 million job postings for analytics and data science roles by 2022



### Skill Development

Data Scientists are equipped with various relevant skills, fetching lucrative job offers



### Growing Analytics Industry

28.8% CAGR in Indian Analytics Industry



### Future-oriented Career

Data Science and Artificial Intelligence is a budding field; a head start will prove to be beneficial



### Popular Degree

50% of the Data Scientists have a Master's Degree



### High Demand

By 2022, India & US will face a demand-supply gap of 200,000 Data Science professionals

## Our Credentials



**1.2 Million+**

Aspiring Active Students



**1,000+**

Industry-expert Instructors



**400+**

Hiring Partners



**200+**

Corporates Upskilled



**55%**

Average Salary Hike



**155+**

Countries' Learners

# About Program

This online Data Science and Artificial Intelligence course aims for you to master the basic and advanced skills in the various tools and technologies involved in the field of Data Science, Machine Learning, Deep Learning, and Artificial Intelligence.



## Learning Format

Online Boot Camp



## 7 Months

Live Classes



## Career Services

By Intellipaat



## IIT M CCE

Certification

## Key Highlights

- ✓ 400 Hrs of Applied Learning
- ✓ 218 Hrs of Self-paced Learning
- ✓ 50+ Industry Projects & Case Studies
- ✓ Career Services by Intellipaat
- ✓ 24\*7 Support
- ✓ 2-Day Campus Immersion at IIT Madras
- ✓ 50+ Live Sessions in 7 months
- ✓ Learn from IIT Madras Faculty
- ✓ 1:1 sessions with the Industry Mentors
- ✓ 3 Guaranteed Interviews by Intellipaat
- ✓ Designed for Working Professionals & Freshers
- ✓ No-cost EMI Option

## Program Pedagogy



### Instructor-led Training

Get trained by top industry experts



### Hackathons

Get a sense of how real projects are built



### Dedicated Learning Managers

To help you with your learning needs



### Peer Networking and Group Learning

Improve your professional network and learn from peers



### Self-paced videos

Learn at your own pace with world-class content



### Gamified Learning

Get involved in group activities to solve real-world problems



### Projects and Exercises

Get real-world experience through projects



### 1:1 Personalized Learning

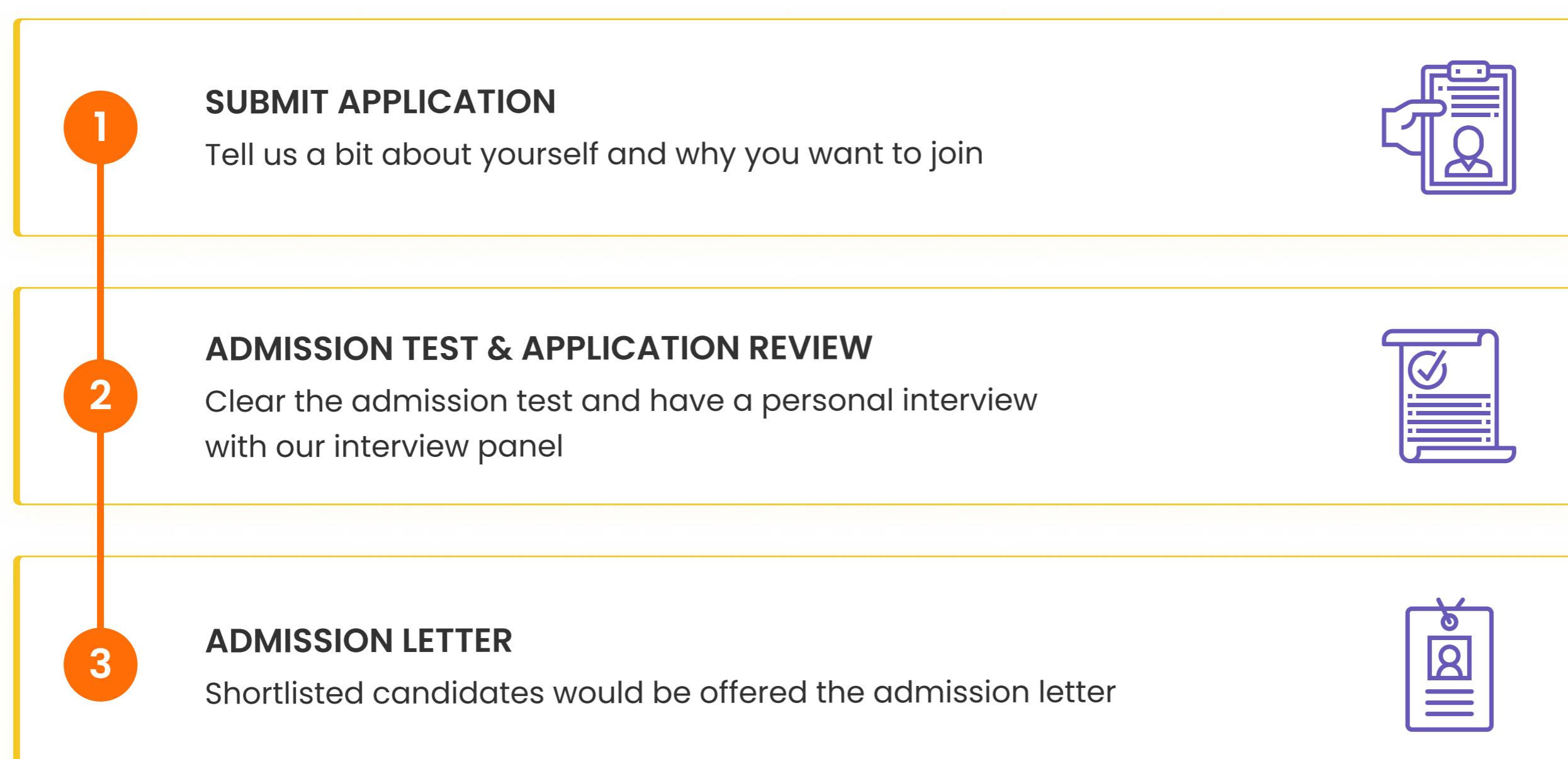
Hands-on exercises, project work, quizzes, and capstone projects

# Who Can **Apply for the Course?**

- ✓ Individuals with a bachelor's degree and a keen interest to learn AI and Data Science
- ✓ IT professionals looking for a career transition as Data Scientists and Artificial Intelligence Engineers
- ✓ Professionals aiming to move ahead in their IT career
- ✓ Artificial Intelligence and Business Intelligence professionals
- ✓ Developers and Project Managers
- ✓ Freshers who aspire to build their career in the field of Artificial Intelligence and Data Science

## Application **Process**

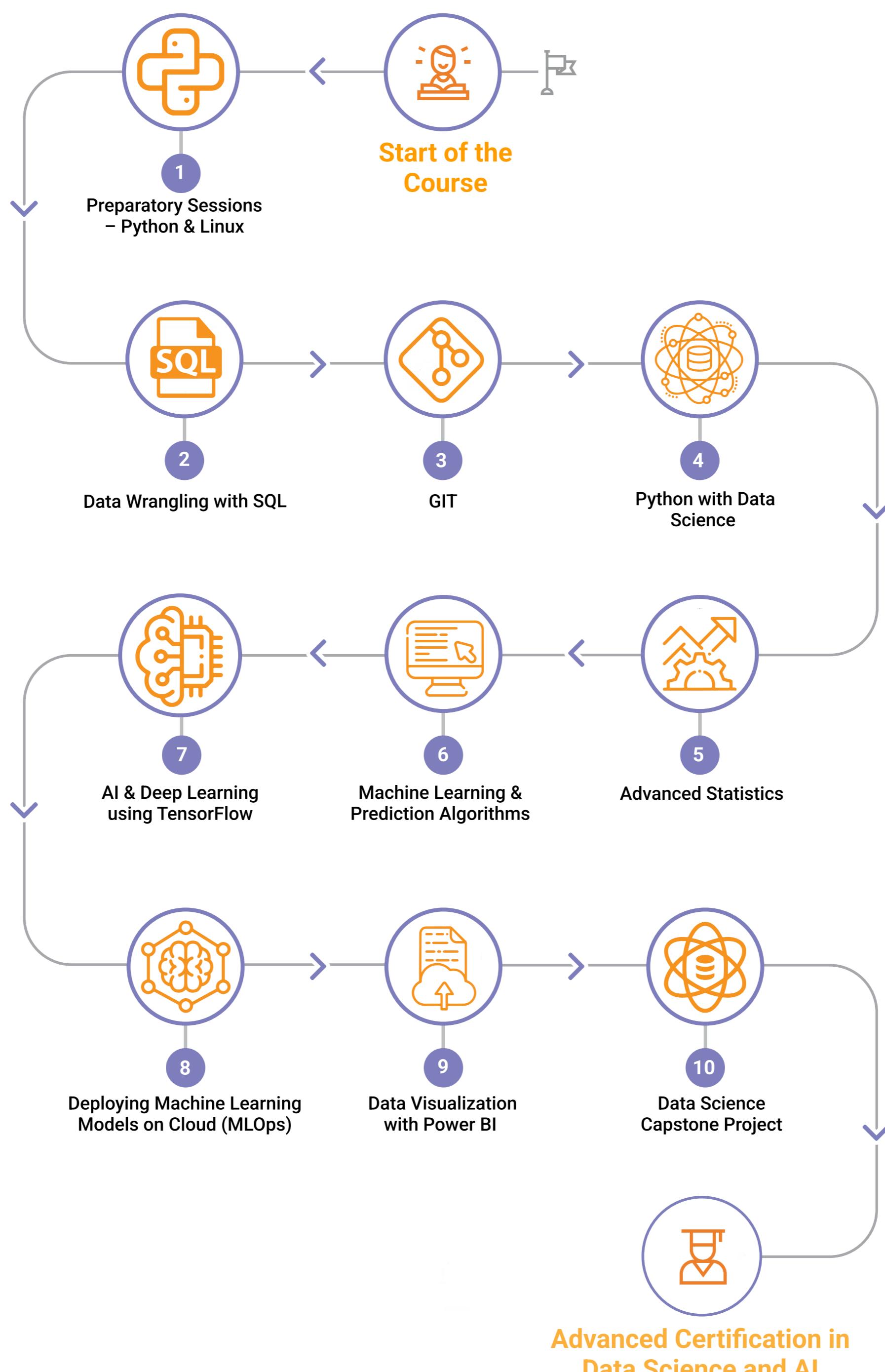
The application process consists of three simple steps. Candidates have to submit their application. An offer of admission will be made to the selected candidates, and their application will be accepted upon the payment of the admission fee.



# Learning Path

## Live Courses

- Live Courses
- Self-paced



## Self-paced Courses

- Data Analysis with MS Excel
- Data Science at Scale with PySpark

# Program Curriculum

## Module 1

### Preparatory Sessions – Python & Linux

Basic Python libraries and functions will be taught to you along with the fundamentals of Linux operating system.

## Module 2

### Data Wrangling with SQL

- Introduction to SQL
- Database normalization and entity-relationship model
- SQL operators
- Working with SQL: Join, tables, and variables
- Deep dive into SQL
- Functions
- Working with Subqueries
- SQL views, functions, and stored procedures

## Module 3

### GIT

- What is Version Control?
- Types of Version Control System
- Introduction to SVN
- Introduction to Git
- Git Lifecycle
- Common Git commands
- Working with branches in Git
- Merging branches
- Resolving merge conflicts
- Git workflow

## Module 4

### Python with Data Science

- Introduction to Data Science using Python
- Python basic constructs
- Maths for DS-Statistics & Probability
- OOPs in Python
- NumPy for mathematical computing
- SciPy for scientific computing
- Data manipulation
- Data visualization with Matplotlib

## Module 5

### Advanced Statistics

- Central tendency
- Variability
- Hypothesis testing
- Anova
- Correlation

```
modifier ob.select=1
bpy.context.scene.objects.active = modifier_ob
print("Selected" + str(modifier_ob)) # modifier ob is
# selected
# bmesh.ops.unselect(bm, faces=faces, mode=1)
```

- Regression
- Probability definitions and notation
- Joint probabilities
- The sum rule, conditional probability, and the product rule
- Bayes theorem

## Module 6

### Machine Learning & Prediction Algorithms

- Machine Learning using Python
- Supervised learning
- Unsupervised learning
- Dimensionality reduction
- Time-series forecasting

## Module 7

### AI & Deep Learning using TensorFlow

- Introduction to Deep Learning and Neural Networks
- Multi-layered Neural Networks
- Artificial Neural Networks and various methods
- Deep Learning libraries

## Module 8

### Deploying Machine Learning Models on Cloud (MLOps)

- Why and when we need MLOps
- AI pipelines
- Training, tuning, and serving on AI platform
- Kubeflow pipelines on AI platform
- CI/CD for Kubeflow pipelines

## Module 9

### Data Visualization with Power BI

- Introduction to Power BI
- Data Extraction
- Data Transformation – Shaping & Combining Data
- Data Modelling & DAX
- Data Visualisation with analytics
- Power BI Service (Cloud), Q&A, and Data Insights
- Power BI Settings, Administration & Direct Connectivity
- Embedded Power BI with API & Power BI
- Power BI Advance & Power BI Premium

## Module 10

### Data Science Capstone Project

In the Data Science Capstone project, you will use all the knowledge and skills you have acquired throughout this advanced certification program and gain industry experience in the domain.

# Program Curriculum

```
modifier_obj.select=1  
 bpy.context.scene.objects.active = modifier_obj  
 print("Selected" + str(modifier_obj)) # modifier obj is  
 # selected  
 modifier_obj.select = 0  
 bpy.ops.object.select_all(action='DESELECT')
```

## Skills to Master

- Python
- Data Science
- Data Analysis
- Artificial Intelligence
- GIT
- MLOps
- Data Wrangling
- SQL
- Story Telling
- Machine Learning
- Prediction Algorithms
- NLP
- PySpark
- Model
- Data Visualization

## Tools to Master



# Course Projects

Projects cover the following industries:



Retail



Social Media



Supply Chain



Entrepreneurship



E-commerce



Banking



Healthcare



Insurance

## Face Detection

Beginner

Use Python 3.5(64-bit) with OpenCV for face detection. As an important requirement, learners need to ensure that the system detect multiple faces in a single image while working with essential libraries like cv2 and glob.

## AI Chatbot

Beginner

In this interesting project, work with IBM Watson AI Chatbot. Create your own AI Chatbot and see how IBM Cloud platform helps you to create the chatbot on the backs of possibly the most advanced Machine Learning systems available.

## Restaurant Revenue Prediction

Beginner

Work with Ensemble Model for predicting annual restaurant sales using various features like opening data, type of city, type of restaurant. Work with packages like caret, Boruta, dplyr to analyze the dataset and predict the sales.

## Work with Pyspark & RDD

Intermediate

Work with PySpark which is a Python API for Spark and use the RDD using Py4J package. As an important part of the project, you will also work with SparkConf that provides the configurations for running a Spark Application.

## Book Recommender Application

Intermediate

Work with packages like a recommended lab, dplyr, tidyr, stringr, corrplot and many others to create your book recommender engine using the 'user-based collaborative filtering' model that recommends the books based on past ratings

## Census Project

Intermediate

Work with census income dataset from UCI Machine Learning repository that contains income information of more than 48k individuals. Use data handling techniques to handle missing values and also predict the annual income of people.

## Housing Price Prediction

Advance

In this project on housing price prediction, get practical exposure on how to work with house price dataset and predict the sale price for each house with 79 explanatory variables describing every aspect of the residential houses.

## HR Analytics

Advance

Learn to work with the HR Analytics dataset and understand how hacks can help you to re-imagine HR problem statements. Understand the features of the dataset and in the end, evaluate the model by metric identification process.

## Joke Rating Prediction

Advance

Work with the dataset taken from the famous jester online Joke Recommender system and successfully create a model to predict the ratings for jokes that will be given by the users (the same users who earlier rated another joke)

## Build Recommendation Engine

Advance

Create your own recommender engine using the SVD algorithm to predict movies on Netflix based on the past ratings of the movies. Work with various packages like NumPy, Pandas, matplotlib.pyplot to handle missing values from the dataset.

# Course Advisors / Faculty



## Dr. Arun K. Tangirala

Professor, IIT Madras

Dr. Tangirala is a professor at IIT Madras with expertise in Analytical Chemistry and a keen interest in the fields of Controller Performance Monitoring, Time-Frequency Analysis of Processes, and Fuel cells, etc.



## Dr. Nirav Bhatt

Assistant Professor, IIT Madras

He works as an assistant professor for the Biotech department at IIT Madras and holds a DSc from EPFL, Switzerland. His research interests span from modelling and optimization of biological networks to Machine Learning.



## Prof. Babji Srinivasan

Associate Professor, IIT Madras

Prof. Babji is with IIT Madras as an assistant professor in the dept. of Applied Mechanics. He holds a Ph.D from Texas Tech University and his research interests span from Behavioural Informatics to Cognitive Systems Engineering.



## Madhu Babu Cherukuri

Sr. Data Scientist at Intel Corporation

He carries over 15 years of expertise in handling various analytics projects, using several types of ML algorithms in multiple business domains. He also comes with extensive knowledge in SAS, SQL, R, Python and is proficient in Big Data Environment.



## Vinayak Panchaman

Business Intelligence Consultant at IKEA

Vinayak has over 13+ years of experience and specializes in Data Modeling preparing KPIs, SQL query, Functional Dashboards with Qlik, Power BI, Sentiment Analysis, etc along with holding a CSM (Certified Scrum Master) certification.



## Prof. Shankar Narasimhan

Professor, IITM

A fellow of the Indian National Academy of Engg, his research area includes data mining, process design & optimization, FDD etc. He has co-authored several reconciliation papers, a book and a course 'Data Science for Engineers' on the NPTEL platform.



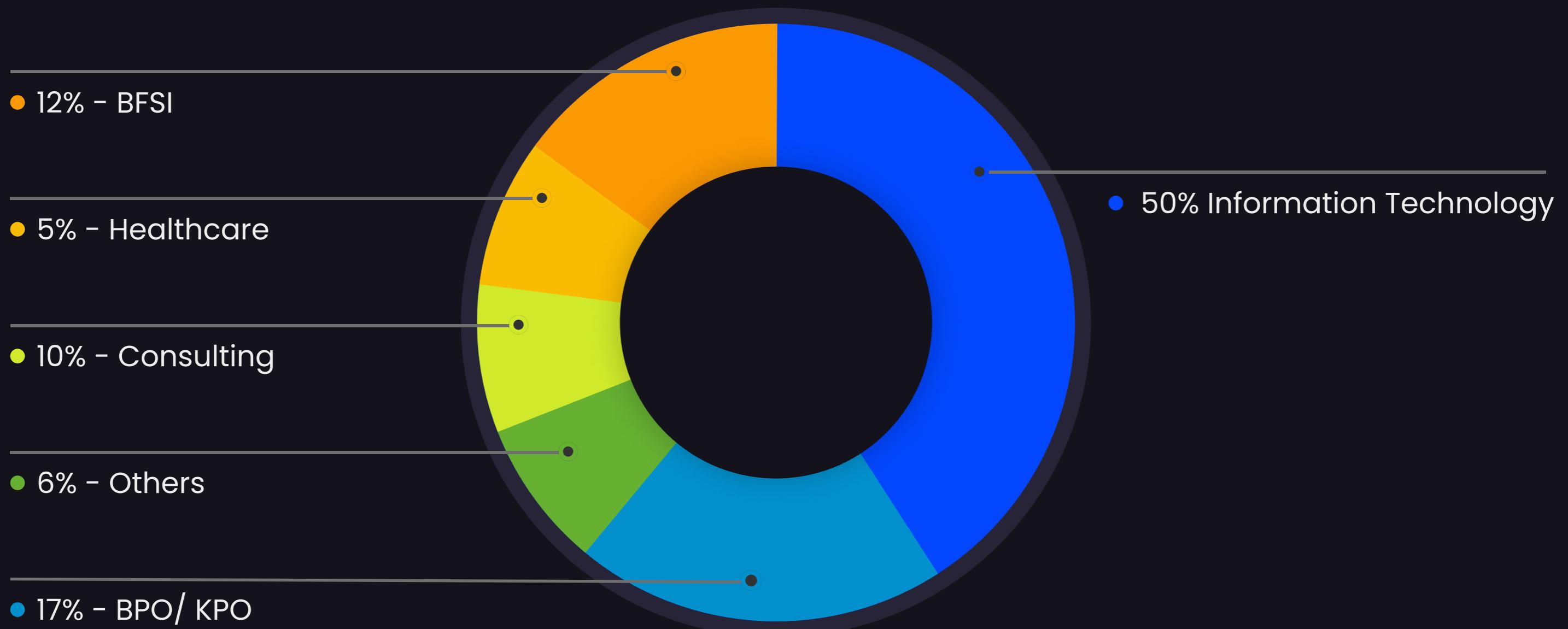
## Mr. Suresh Ramadurai

Data Science Consultant

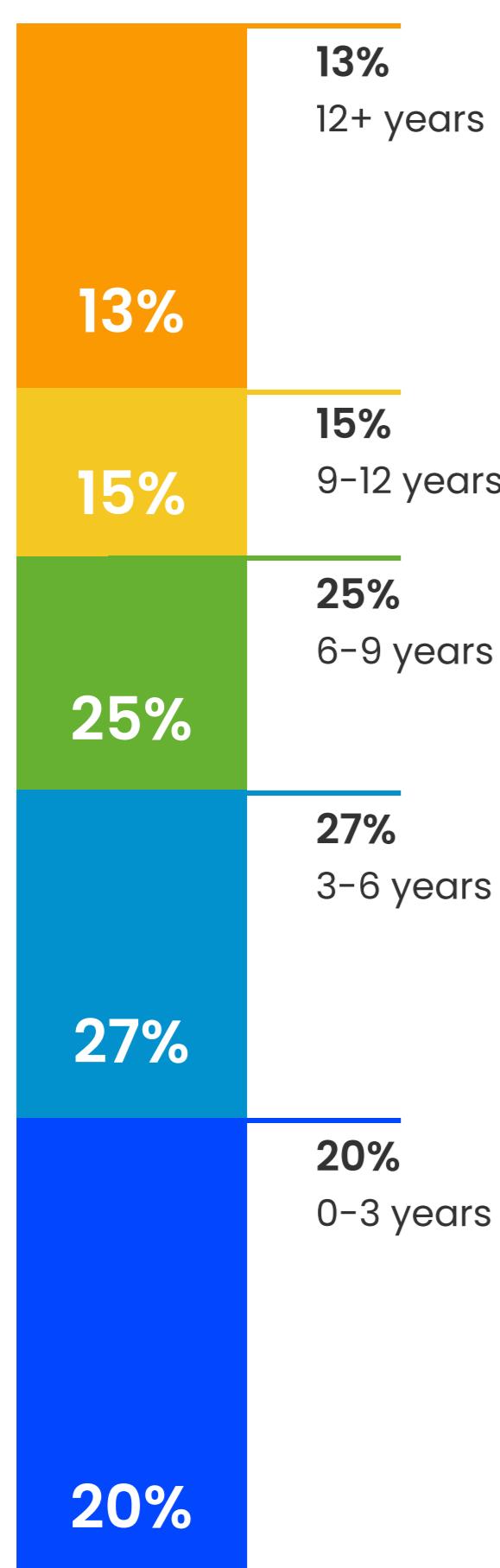
Having spent 25 years in the Data Science field, he has excelled in driving profitable brands using Research & Analytics in Advertising , Market Research for companies like JWT, IBM, etc. An alumnus of IIT Delhi & IIM Bangalore, he currently teaches Analytics

# Meet the **Batch**

## Industries Our Learners Come From



## Work **Experience**



Some of their current employers include

**amazon**

**citi**

**Capgemini**

**BOSCH**

**pwc**

**EY**

**accenture**

**Adobe**

**TATA CONSULTANCY SERVICES**

**vmware®**

**Abbott**

**DELL**

# Intellipaat Career Services



500+  
Webinars



600+  
Job Shares



400+  
Hiring Partners



55%  
Avg. Salary Hike

## What Makes Us **Tick**



### Career-oriented Sessions

Attend 25+ career-oriented sessions by industry mentors and prepare your career trajectory



### Profile Building

Craft a Data Science resume and LinkedIn profile to make an impression on top employers



### Mock Interview Preparation

Prepare with mock interviews including most asked questions by top employers



### 1:1 Mentoring Sessions

Get 1:1 guidance at every step in your career transition to Data Science



### Minimum 3 guaranteed interviews

Get job interviews with 400+ hiring partners including promising startups and top MNCs



### Dedicated Job Portal Access

Get exclusive access to 200 job postings per month on Intellipaat's job portal



### Job Fairs

Job fairs are conducted regularly to introduce learners to major organizations



### Hackathons

Work in teams and get exclusive access to hackathons

## Learner **Reviews**



**Badhri Narayanan**

Sr. Software Engg. at Bosch

After taking the course from Intellipaat, I got knowledge of AI in real-world applications. I also got some knowledge of statistics, which helped me to get a new job.

“



**Deeksha Shetty**

Software Engineer at Larsen & Toubro Infotech

Intellipaat has amazing trainers and a great quality of content. I enjoyed learning and the overall experience was very good. Also, the support provided by the team is 24\*7 and it is quick.

“



**Shaleen Srivastava**

Data Scientist at Deloitte

I have recently cracked an interview at Deloitte with 72% salary hike. A big thanks to Intellipaat's instructors who were super helpful in guiding me and resolving all issues in my learning journey.

“

# Glimpse of our Successful Transitions



4.6 ★★★★☆



4.5 ★★★★☆



4.38 ★★★★☆

## Career Transitions



**Gaurav Saboo**  
Senior Technical Associate

From  
**Technical Analyst**

To  
**Senior Technical Associate**



**Melwin Rodrigues**  
Data Scientist

From  
**Customer Service Agent**

To  
**Data Scientist**



**D Rajesh Sahoo**  
Machine Learning Engineer

From  
**B.Tech - Civil Engineering**

To  
**Machine Learning Engineer**



**Ankit Kumar**  
Data Scientist

From  
**B.com Graduate**

To  
**Data Scientist**



**Mahesh Chowdary**  
Data Scientist

From  
**Aircraft Maintenance Engineer**

To  
**Data Scientist**



**Jeanette Masso**  
Big Data Developer

From  
**Computer Technical Specialist**

To  
**Big Data Developer**



**Prosnejeet Saha**  
Data Scientist

From  
**Manager Analytics & Data Science**

To  
**Data Scientist**



**Nishchay Agrawal**  
Data Engineer

From  
**Fresher**

To  
**Data Engineer**



# Program Partners



## About Intellipaat

**Intellipaat** is one of the leading online training providers with more than 1.2 million learners in over 155 countries. We are on a mission to democratize education as we believe that everyone has the right to quality education.

We create courses in collaboration with top universities and MNCs for employability like IIT Madras, University of Essex, University of Liverpool, IIT Roorkee, IIT Guwahati, SPJIMR, IBM, Microsoft, etc.

Our courses are delivered by SMEs & our pedagogy enables quick learning of difficult topics. 24/7 technical support & career services help learners to jump-start their careers.



## About IIT Madras

**IIT Madras** Digital Skills Academy has initiated various programs in partnership with NASSCOM. The courses offered by them aim to upskill millions of students and professionals in trending technologies through a blend of theoretical and hands-on knowledge and are taught by leading academicians.

### Upon the completion of this program, you will:

- Receive an Advanced Certification in Data Science and AI from IIT Madras center for continuing education.
- Receive Live Lectures from IIT Madras Faculty and Industry Experts



**1.2 Million** Learners & 200+ Corporates across 155+ countries  
upskilling on Intellipaat Platform



## Contact Us

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