# DATA SCIENCE COURSE TUTORIAL # 03

# 1.6 Lifecycle of a Data Science Project

A data science project usually follows a series of steps. These steps help in moving from understanding the problem to using the solution in the real world.

## Steps in the Lifecycle

### 1. Problem Understanding

Understand clearly what problem you are trying to solve. Identify the goal and expected outcome.

### 2. Data Collection

Gather the required data from different sources such as databases, files, or APIs.

### 3. Data Cleaning

Remove errors, correct inconsistencies, and handle missing values in the dataset.

### 4. Exploratory Data Analysis (EDA)

Study the data to understand its structure, spot patterns, and find relationships between variables.

### 5. Feature Engineering

Select or create important features that can improve the performance of the model.

### 6. Model Building

Train a machine learning model using the prepared dataset.

### 7. Model Evaluation

Check how well the model performs using evaluation metrics and testing data.

### 8. Deployment

Integrate the model into a real-world system so it can be used for predictions or analysis.

### 9. Monitoring

Keep track of the model's performance over time and update it if necessary.

## Note

This process is often repeated multiple times to improve the results and achieve the best performance.