

## 1. What is DevOps?

DevOps is a combination of cultural philosophies, practices, and tools that allow organizations to deliver applications and services faster. It encourages collaboration between development and operations teams, and often merges the two into one team. It also brings quality assurance and security teams into the fold and uses automation to speed up processes. These tools help engineers independently accomplish tasks that normally would have required help from other teams, and this increases a team's velocity.

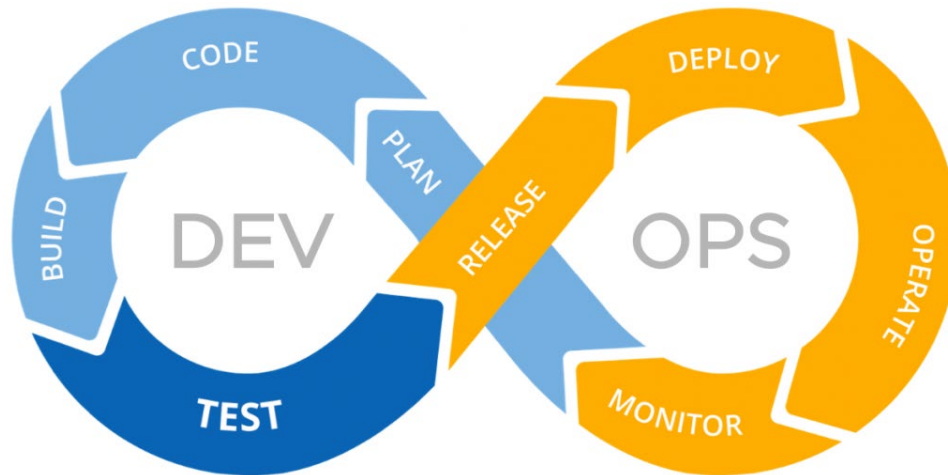


Figure 1: DevOps Cycle

## 2. What is MLOps?

MLOps is a practice that combines machine learning engineering, DevOps engineering, and IT to streamline the process of taking machine learning models to production and then maintaining and monitoring them. It helps data scientists and machine learning engineers work together to develop models faster, by using continuous integration and deployment (CI/CD) practices with monitoring, validation, and governance. This ensures that models are properly tested, monitored, and updated to meet the needs of the organization.

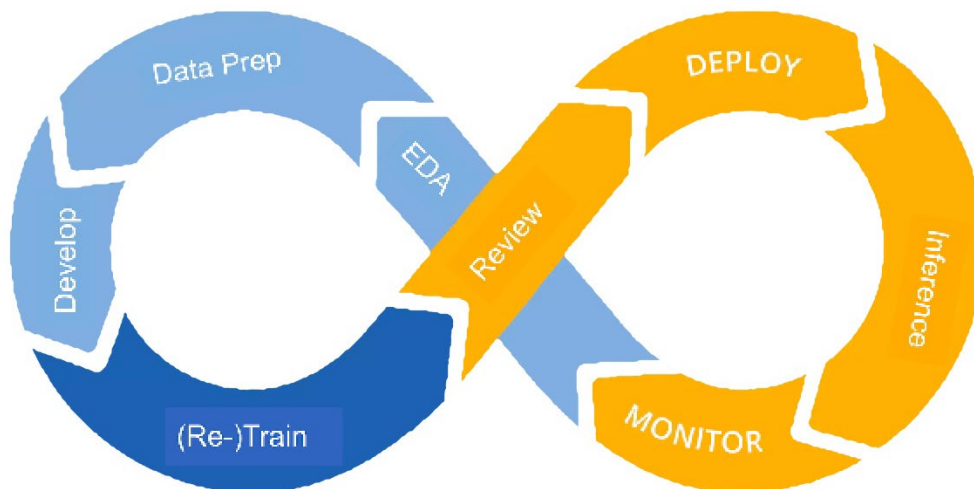


Figure 2: MLOps Cycle

### 3. What is Data Science Ops?

DataOps is an agile, process-oriented methodology that brings together DevOps teams, data engineers, and data scientists to provide the tools, processes, and organizational structures needed to support a data-focused enterprise. It focuses on improving communication, integration, and automation of data flows between data managers and consumers.

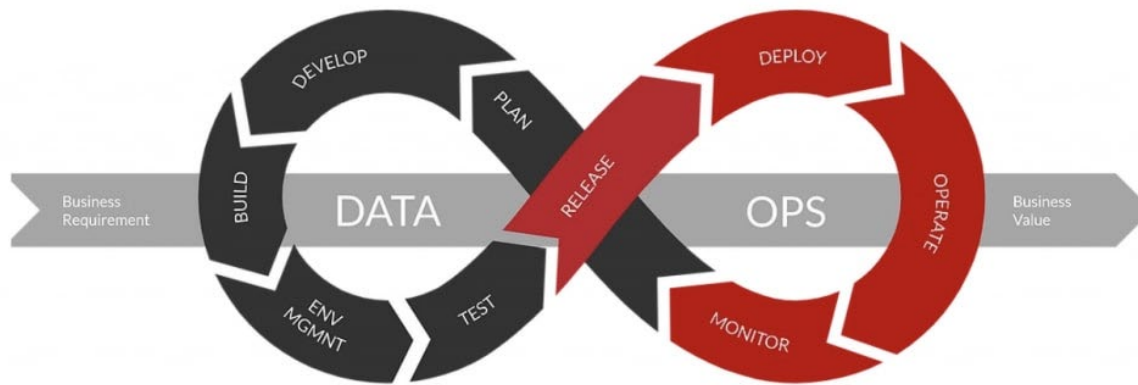


Figure 3: DataOps Cycle

### 4. How do we use central tendency in data analysis to extract information from data?

Central tendency is a measure of the center of a dataset. It is used to summarize large amounts of data and extract useful information from it. Common measures of central tendency include the mean, median, and mode.

- The mean is the arithmetic average of a dataset.
- The median is the middle value of a dataset.
- The mode is the most frequently occurring value in a dataset.

By calculating these measures, we can gain insight into the data and make more informed decisions.

### 5. What is a linear equation in linear algebra?

A linear equation is an equation of the form  $y = mx + b$ , where  $m$  is the slope and  $b$  is the y-intercept. It involves only a constant and a first-order term.

### 6. Does ML Algorithms use Linear equations?

Yes, many machine learning algorithms use linear equations as part of their mathematical formulations. Examples include linear regression, Support Vector Machines (SVMs), Principal Component Analysis (PCA), and Logistic Regression. Linear algebra is a fundamental concept that underpins many machine learning models, and linear equations are a key tool in this area.