CI/CD and the various software development environments function:

1.The aim of CI/CD is to decrease the amount of manual labor and time spent explaining or correcting bugs, improve the software's overall quality, and facilitate user adoption of new features.

This approach is primarily focused on:

2.Continuous Integration (CI)

Continuous Integration involves the regular transfer of developers' code to a shared location.

When new code is included, it builds, tests, and fixes any issues without manual intervention. Identifying issues early on in development is made possible by this method.

Key steps in CI include:

Modifications in a version management system. However,

Connecting the code with a central file system.

- Automatically creating a build.

Conducting unit tests and integration test instances without human intervention.

- Packaging the application.

1. Continuous Deployment/Delivery (CD)

Upon completion of the Continuous Deployment (or Delivery) process, the application is automatically transferred to testing or live environments.

Releases are now faster and safer due to the reduction of manual steps.

Steps in CD include:

Delivering to a delivery service.

Moving the program to its servers.

- Running automated smoke tests.

Benefits:

Allowing end-users or QA tester to conduct system tests.

4.CI/CD Environments.

CI/CD software is subjected to extensive testing in different environments before it can be implemented.

Every environment serves a distinct purpose as the software progresses from development to the live version.

Software development and testing are carried out by developers on their personal computers.

Testers in the QA department conduct functional testing of software, identify bugs, and verify that changes are being implemented.

Why is this important?

Tasks like ordering or paying are carried out within a testing environment that is similar to the production environment.

UAT (User Acceptance Testing) environment for real world software acceptance.

Testing the functionality of software is conducted using real-world traffic through the Pre-Production Environment (PPE). Hence,Real users are the ones who access and utilize the software in the production environment.

5.Benefits of CI/CD.

A number of CI/CD methods are applicable to organizations, such as:

- Rapidly updating and adding new features.

Helps Identifying early bugs to prevent more significant issues in the future.

Importanace:

Boosting the software's reliability and efficiency.

Cutting down on paperwork and minimizing errors for numerous individuals.

Better communication between developers, testers, and IT experts.