CI/CD - An improved method of building and shipping products to market

Merits of using CI/CD to automate builds and deployment of the company product

Continuous Integration (CI)

- Continuous Integration is the process of merging different copies of the product's source code at different stage of development from different developers
- Merge process occurs multiples times a day
- High quality version of the source code is represented in a form of artifact
- Popular CI-related phases might Include:
  - Compile
  - Unit testing
  - Analyzing static files
  - Vulnerability testing
  - Storing of artifacts

Continuous Delivery (CD)

- Continuous delivery is a software engineering approach whereby new features or fixes which adds value to the product are frequently delivered through automated deployments
- This process deploys artifacts saved from the CI stage. Basically it is the process of transferring the artifacts into the hands of the user with zero human intervention
- Popular CD-related phases includes:
  - Creation and configuration of infrastructure
  - Shipping to production
  - Smoke testing
  - ROllbacks in cases of failures

Merits of CI/CD

- The underlying reason behind CI/CD is the popular phrase "a penny saved is a penny earned ". Below is a quick summary of the advantages of implementing a CI/CD pipeline:

    - Automate Infrastructure creation
        - This helps in reducing expenses by reducing errors introduced by humans and also means deployments are faster
    - Faster and more frequent production deployments
        - This helps in increasing revenue by adding more value to the product
    - Automate smoke tests
        - This helps in reducing expenses by reducing downtime due to errors in the deployment process or major bugs since they would be caught earlier and fixed earlier

Merits of CI/CD contd

- Security vulnerabilities detection
  - This helps in reducing expenses by reducing and/or preventing security leaks

- Automating deploys to production
  - This helps in increasing revenue by reducing the time taken for features to get to market

- Automate unit testing
  - This helps in reducing expenses by discovering bugs in the source code early

……… and many more