============================
What is Build & Deployment
============================

=> Take latest code from Git Hub Repo.

=> Build Source code using Maven.

=> Perform Code Review Using Sonar.

=> Upload Project Artifact into Nexus.

=> Create Docker Image for the application

=> Push Docker image to docker hub registry.

=> Deploy app in k8s cluster.

=> In single day multipe times code will be committed to git hub repository from Development team so multiple times we have to perform project build and deployment process.

Note: If we do build and deployment process manually then it is time taking process and error prone.

=> To overcome above problems, we need to automate Project Build and Deployment process.

=> To automate project build and deployment process we will use JENKINS.

========
JENKINS
========

=> Open source Software & free of cost

=> Developed by using Java Language. To run jenkins server we need to install java s/w first.

=> It is called as CI CD Server

                CI : Continuous Integration

                CD : Continuos Delivery

=> CI CD is one appraoch to automate project Build & Deployment process.

=> Using Jenkins we can deploy any type of project
        (ex: java, python, dot net, react, angular).

===============
Jenkins Setup
===============

@@ Git Repo : https://github.com/ashokitschool/DevOps-Documents/blob/main/01-Jenkins-Server-Setup.md

===============================
what is job in jenkins ?
===============================

=> JOB means set of stages that we are giving to jenkins to perform the task

=> In Jenkins JOB we will configure stages like below

```
                    stage-1 : Clone my git repo

                    stage-2 : Perform maven build

                    stage-3 : Create Docker Image

                    stage-4 : Push Docker Image to Docker Hub

                    stage-5 : Deploy Docker Image in k8s cluster

                    stage-6 : Send Email Notification to team with status

=> Jenkins JOBS we can create in 2 ways

                    1) Free Style Project (GUI)

                    2) Pipeline (code)

=> Pipeline creation we can do in 2 ways

                    1) Declarative Pipeline

                    2) Scripted Pipeline (Groovy Scripting)

===============================
Declarative Pipeline syntax
===============================

pipeline {

    agent any

    stages {
        stage('git clone') {
            steps {
                // logic
            }
        }
        stage('mvn build') {
            steps {
                // logic
            }
        }
        stage('docker image') {
            steps {
                // logic
            }
        }
        stage('k8s deploy') {
            steps {
                // logic
            }
        }
    }
}


===============================
Jenkins with Docker Integration
===============================

Project setup Steps Provided in Git Repo :: https://github.com/ashokitschool/DevOps-
Documents/blob/main/04-Jenkins-Docker-Project.md
```

```
================================================
Jenkins with Docker + Kubernets Integration
================================================
```

Project Setup Video : https://www.youtube.com/watch?v=llBvl_iSLDw

Project Setup Document : https://github.com/ashokitschool/DevOps-Documents/blob/main/10-Jenkins-Docker-K8S.md