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**Class: TY- B**

**Batch: B2**

**ASSIGNMENT 8**

**Title:** Deploy a web app on Kubernetes.

**Theory:**

# What is Kubernetes?

Kubernetes is a portable, extensible, open-source platform for managing containerized workloads and services, that facilitates both declarative configuration and automation. It has a large, rapidly growing ecosystem. Kubernetes services, support, and tools are widely available.

The name Kubernetes originates from Greek, meaning helmsman or pilot. Google open-sourced the Kubernetes project in 2014. Kubernetes combines [over 15 years of Google's experience](https://kubernetes.io/blog/2015/04/borg-predecessor-to-kubernetes/) running production workloads at scale with best-of-breed ideas and practices from the community

## Why you need Kubernetes and what it can do

Containers are a good way to bundle and run your applications. In a production environment, you need to manage the containers that run the applications and ensure that there is no downtime. For example, if a container goes down, another container needs to start. Wouldn't it be easier if this behavior was handled by a system?

That's how Kubernetes comes to the rescue! Kubernetes provides you with a framework to run distributed systems resiliently. It takes care of scaling and failover for your application, provides deployment patterns, and more. For example, Kubernetes can easily manage a canary deployment for your system.

Kubernetes provides you with:

* **Service discovery and load balancing**
* **Storage orchestration**
* **Automated rollouts and rollbacks**
* **Automatic bin packing**
* **Self-healing**
* **Secret and configuration management**

**Deploying Node.js App on Kubernetes:**

1. **A screen shot of a computer code

   Description automatically generatedTest.js**
2. **A screen shot of a computer program

   Description automatically generatedIndex.js**
3. **Dockerfile:**

**A screen shot of a computer program

Description automatically generated**

1. **A computer screen shot of a computer screen

   Description automatically generatedBuild and containerize your image:**
2. **A screen shot of a computer

   Description automatically generatedPush your image to Docker Hub:**
3. **A computer screen with text

   Description automatically generatedDo Deployment, pods and service to containerize app:**
4. **Hit the URL and check its running or not:**

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