**Introduction to Containerization Project**

Containerization has emerged as a transformative solution in modern software development, offering unparalleled efficiency, scalability, and portability. In this project, we embark on a journey to containerize an existing application, exploring the pivotal role of container technologies in revolutionizing deployment practices. By delving into real-world use cases, market insights, and practical demonstrations, we unravel the power of containers to optimize resource utilization, ensure consistency across environments, and streamline the deployment process. Join us as we navigate through the intricacies of Docker and embark on a hands-on exploration of containerization principles and practices. The focus of this project will be containerization of an existing Java application.

**Advantages of Containerization**

* Cost savings through resource optimization.
* Portability and consistency across environments.
* Repeatability and ease of deployment.

**Tools and Prerequisites**

* Docker as the container runtime environment.
* Docker Compose and Docker Hub for image management.
* Understanding of containers and Docker.
* Hands-on experience with Docker basics.

**Understanding the Scenario**

* Management of multi-tier application stacks.
* Challenges with traditional deployment methods.
* Resource wastage and operational expenses.
* Human errors in deployments.

**Project Steps**

1. Setting up the V-profile stack manually.
2. Finding base images from Docker Hub.
3. Fetching source code from Git repository.
4. Writing Dockerfiles for customization
5. Pushing custom images to Docker Hub.
6. Building and testing container images.
7. Hosting custom images on Docker Hub.
8. Testing containers with Docker Compose.

**Architectural Design**

A diagram of a computer

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