INFO8995 - Fall 2024 - Section 1

Container and Orchestration

Final Project Report
Group 3

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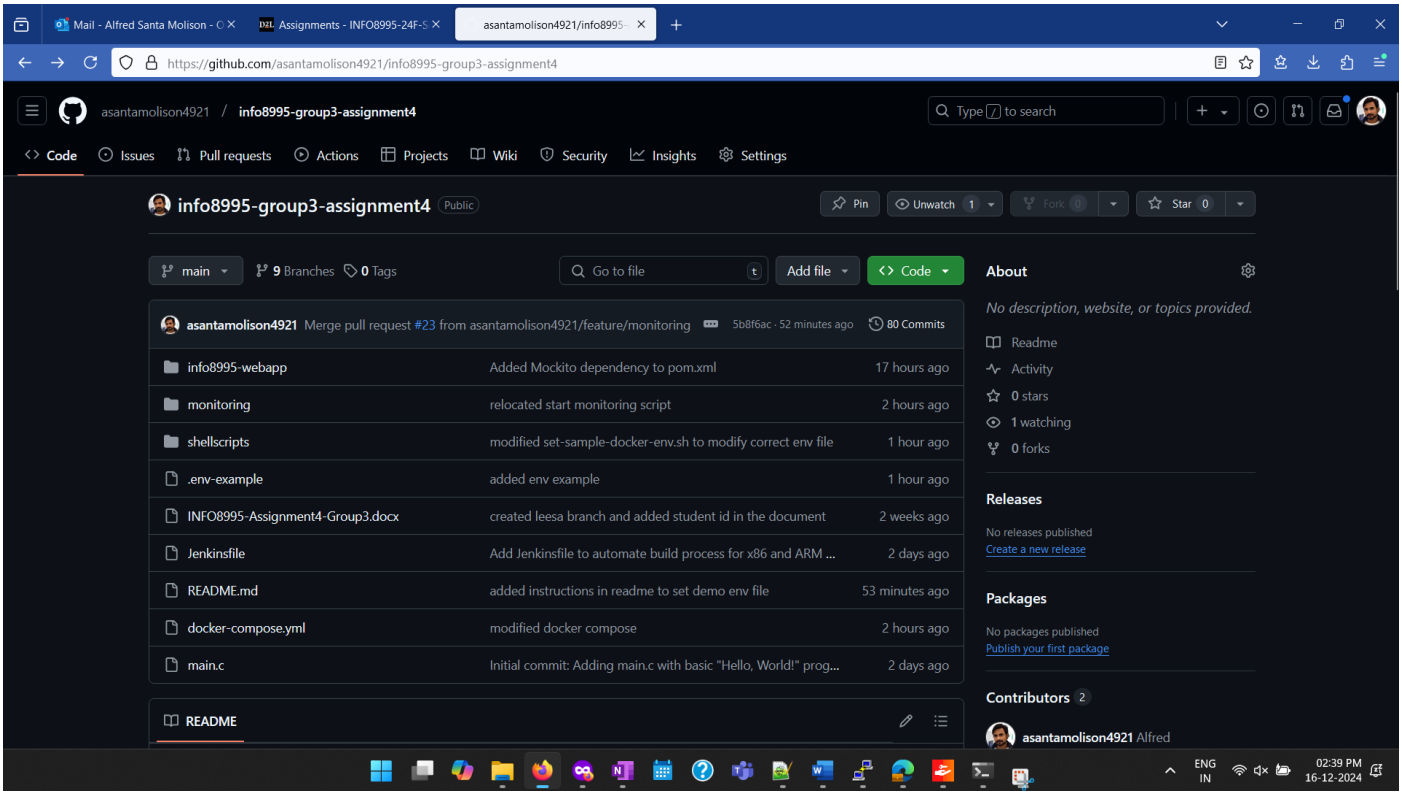
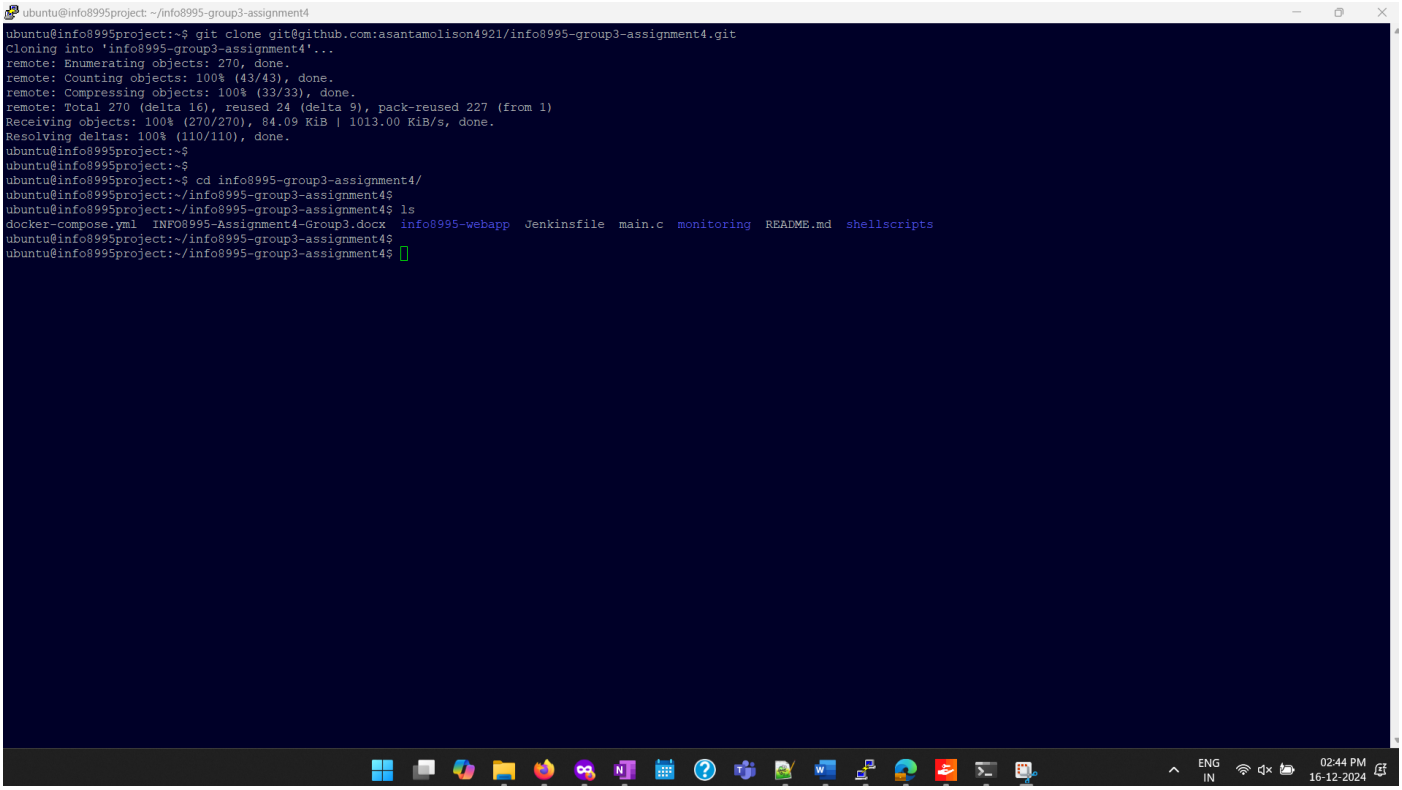
Introduction

For our group project, we developed a comprehensive application using Docker Compose. Our project includes a Java web application that displays a greeting message, with scripts for building and testing the application. We adhered to industry best practices, including the use of a .env file for environment variables. Our Docker Compose setup features multiple services: a compiler for x86 and ARM binaries, a Jenkins pipeline for continuous integration, a Prometheus service for monitoring, and a Grafana service for visualization. This setup ensures a robust and scalable environment for both development and deployment.

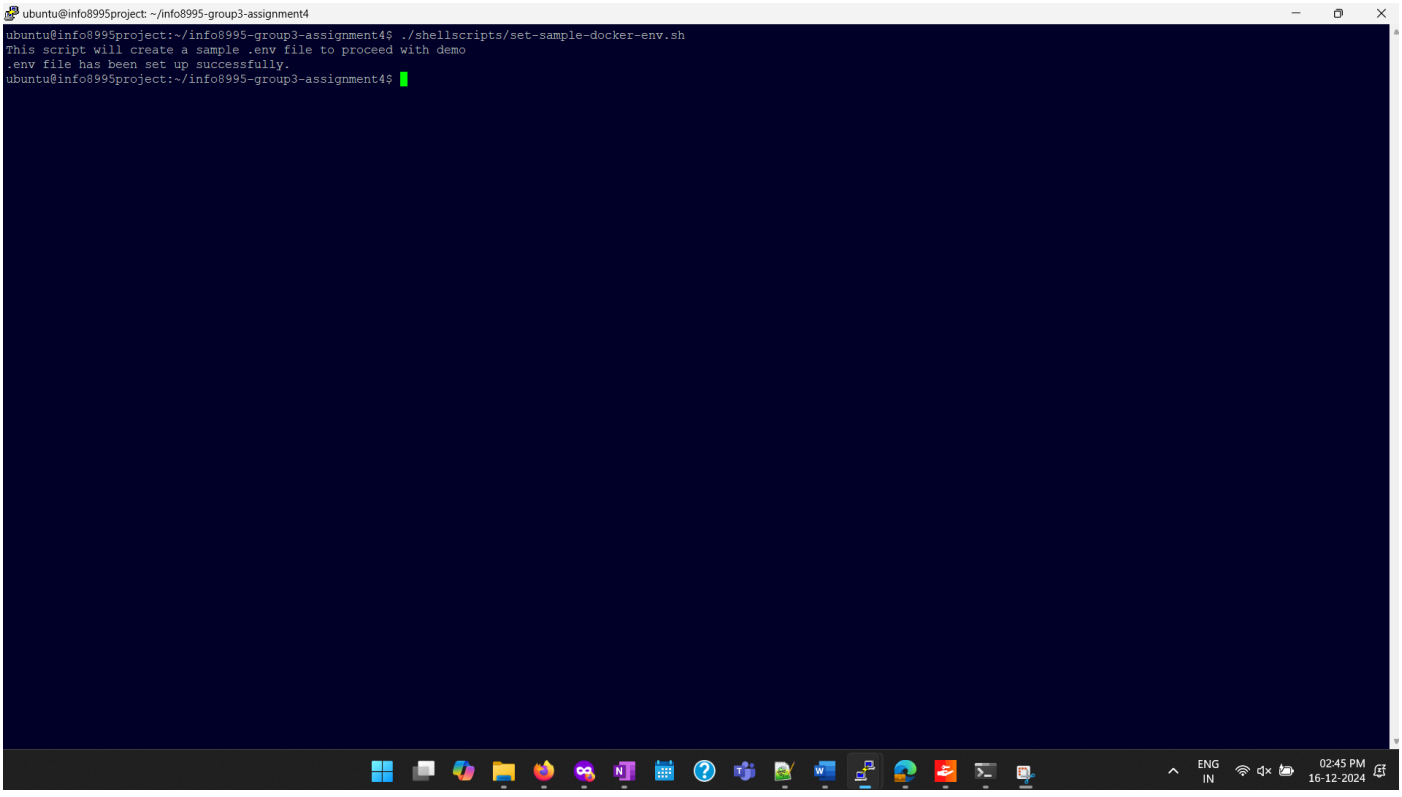
Screenshots



The screenshot above shows GitHub repo

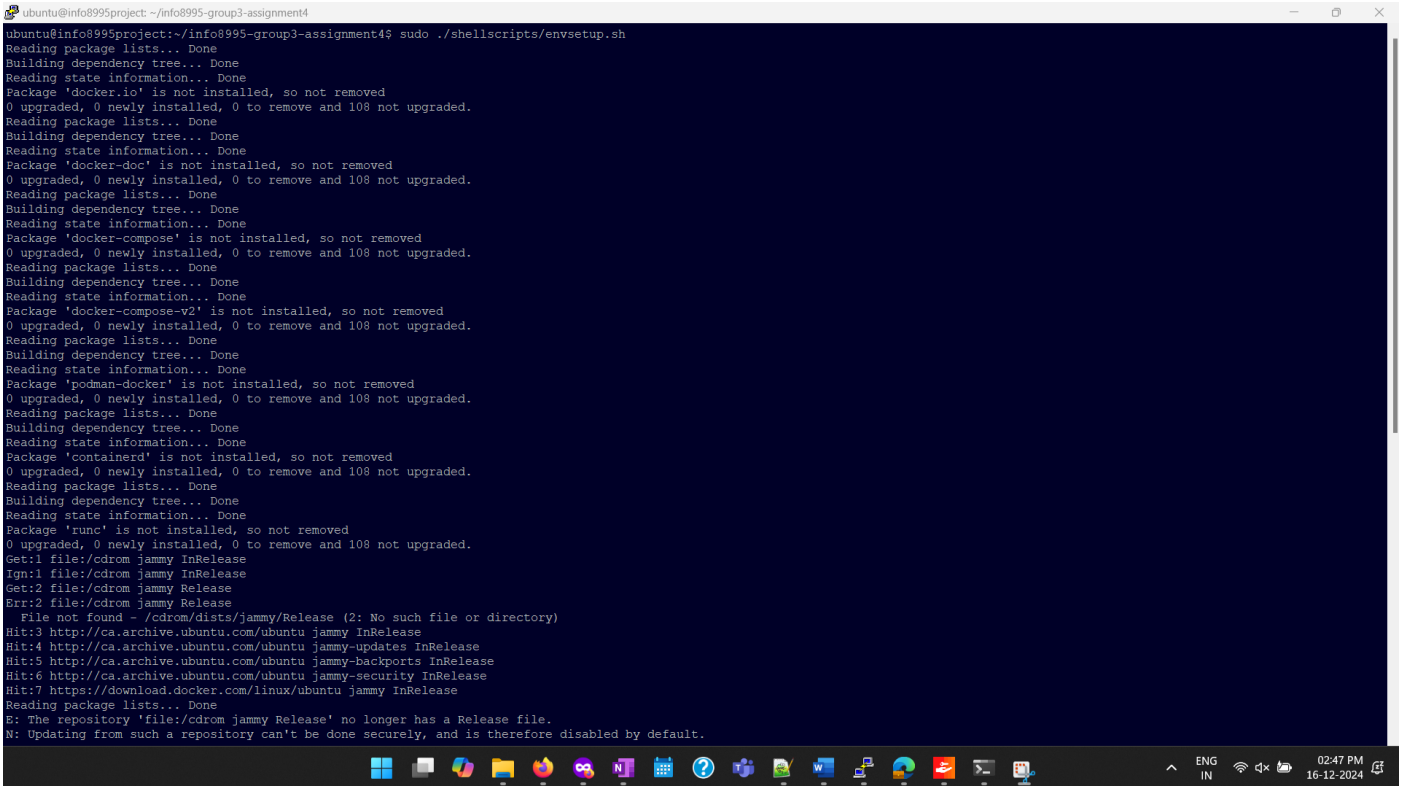


The screenshot above shows repo has been successfully cloned and files are visible

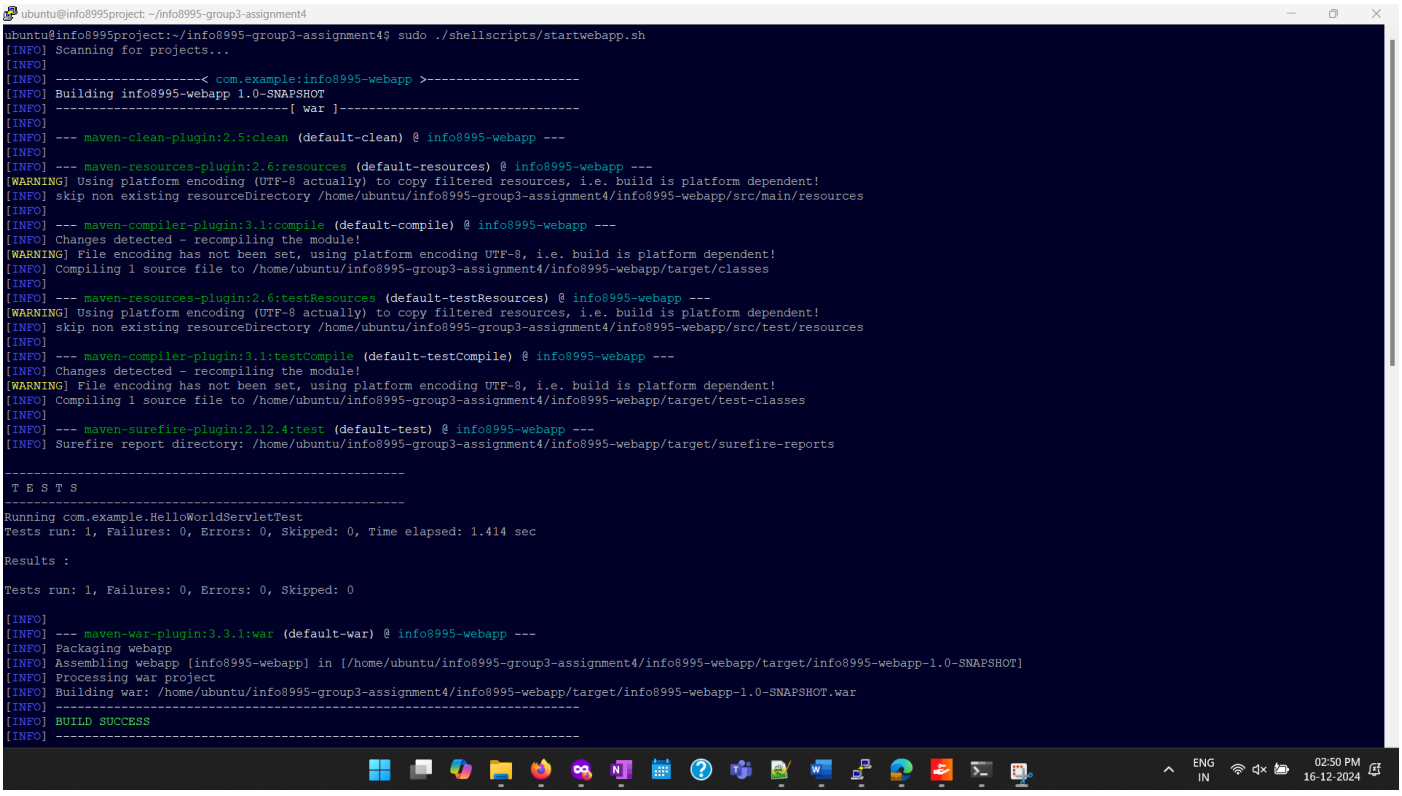


Shell script `set-sample-docker-env.sh` completed successfully. A `.env` file is required to handle environment specific configurations and implementation of secret variables. The shell script will rename the env example file and will load it with some dummy data.

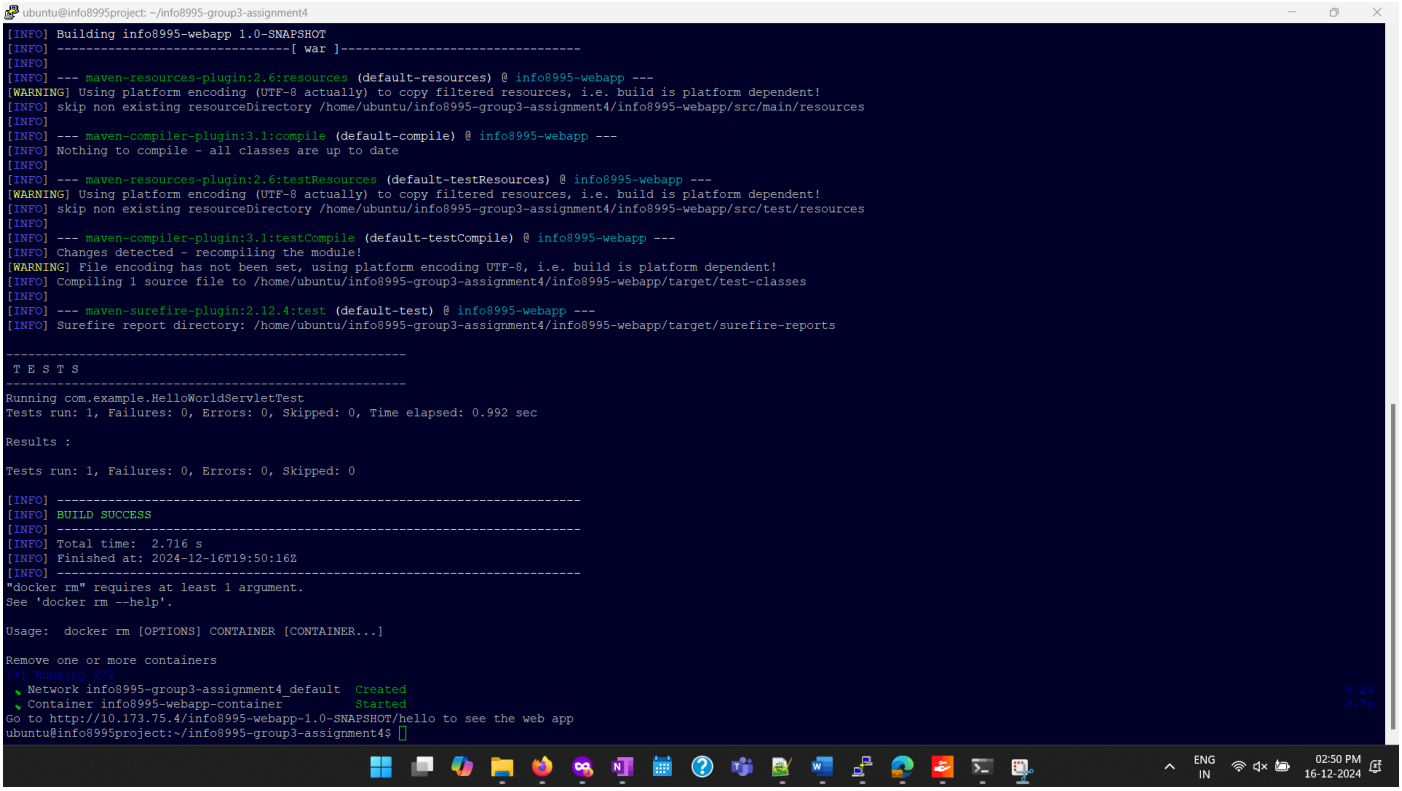
The pipeline always has some steps to modify the env file with real parameters.



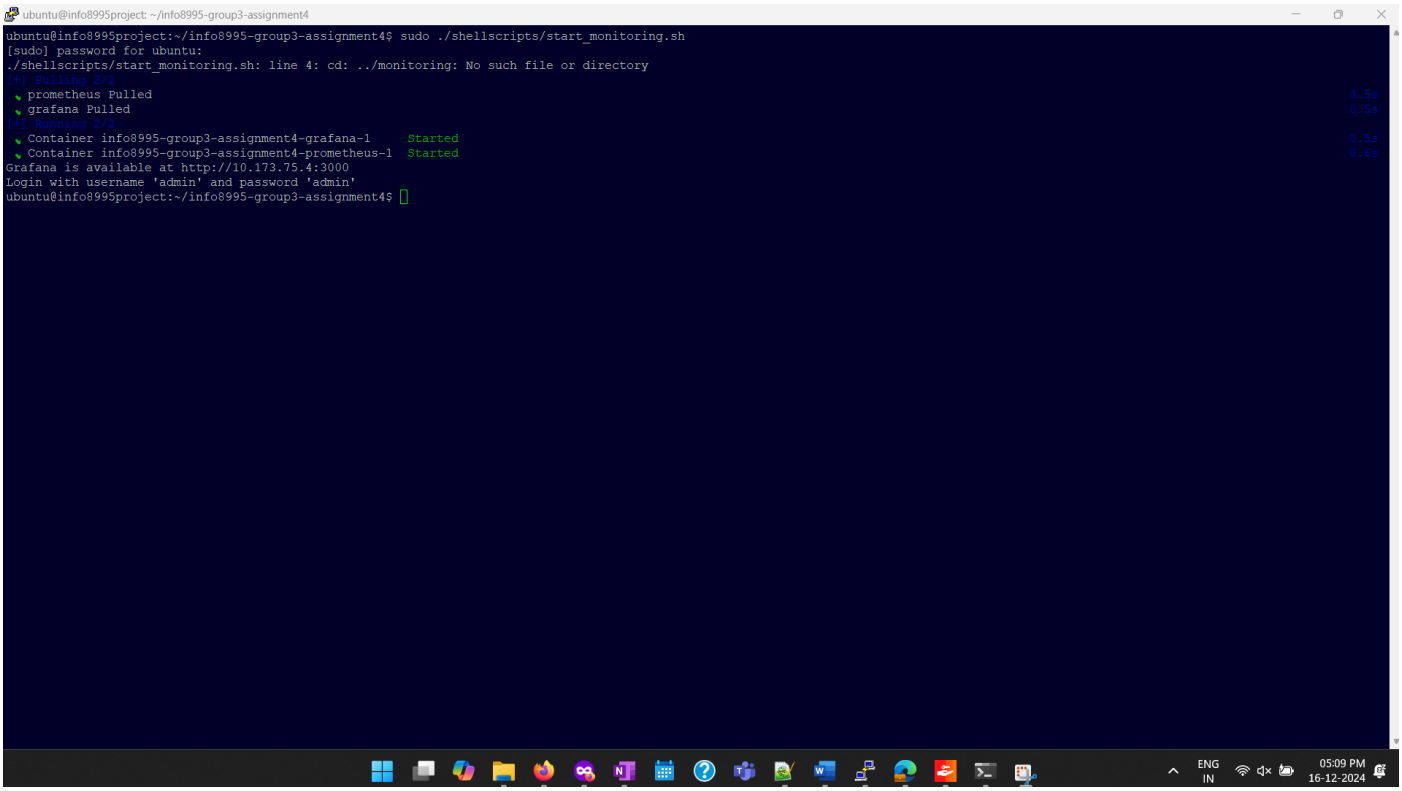
The envsetup.sh shell script will install all dependencies and will create all directories for the successful build and deployment of the application.



The `startwebapp.sh` script will do the build, test, package, and deployment of the web app docker container. The screenshot also shows test phase.



The above screenshot shows that the container is up and running. Also it shows the url to access the application.



The above screenshot shows that the shell script start_monitoring.sh executed successfully and that both Prometheus and Grafana containers are running. Also it shows that the url in which Grafana is accessible.