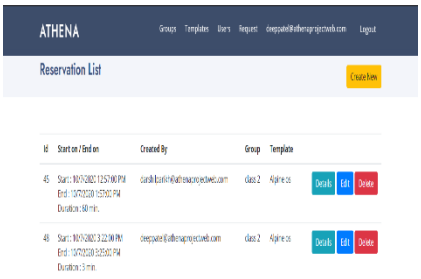
KUBERNETES

By: Team Phoenix Supervisor: Richa Panjabi Client: Paul Bryant

Main Page of web application



Lab Reservation List page

Running Operating system in web application

INTRODUCTION

Project's client Paul Bryant, senior professor at Wellington Institute of Technology (WelTec), brought light to a concept regarding the virtual lab. He chose to have a web application system which can run virtual labs using the latest up to the minute technology "Kubernetes" and "Docker". This type of application can be used as an educational medium and make students familiar with current technologies. Whereas there is a concept similar to these which is NetLab and it is used in tertiary as well, but on the other hand a system with indistinguishable kind of functionality using new technology was Paul's vision.

The cloud technology is growing rapidly in this area majorly open source operating systems are being used for learning, testing and development. So at the educational level students do not have that much physical components which can install multiple OS's on personal system. So to overcome this issue people are using virtual labs.

While, team Phoenix found this as a great opportunity to already developed web application system naming "Athena", which helps to give the virtual labs to the user without installing extra components to the system. This will be the system where, student can reserve lab and then user can have multiple operating system to access at a single run without setting it up every time in their computers. This application can be access through remote location. This Web application project is mainly focused for students and teaching methods.

DEVELOPMENT

To implement the idea and develop system, major steps were performed by the team Phoenix to deliver a system naming KUBERNETES.

- Initially, information concourse regarding Kubernetes was done from the internet as well as we from the documents provided by the client. We understand the details and then gave client a brief overview about our understanding.
- Behind all the information gathering, we selected the Kanban methodology to enhance this web application. From all the information, we made a proposal according to it. Following that, we arranged all the required tools which were going to use in web application development. Along with that we selected to go with the legacy technology for coding and selected Linode platform for networking.
- Following and setting up all the tools and plan for the web application, we started to work on the system designing and analysis. In this we created Storyboard, Use case diagram, Sequence diagram, Activity diagram. This leads to give the clear work flow of the system.
- Afterwards we started with the development and in that phase we initially started working on the network part. In networking we used Linode as a cloud platform for installing kubernetes cluster and along with that we used Docker hub. After that we switched over frontend phase.
- We used manual testing where we first developed all the test cases and then evaluated them accordingly while generating a test report in line with that.

CONCLUSION

This web application project will mainly focus on the area of students and teaching methods of the tertiary, using latest technology.