

Capstone Project Selection Secured by AWS

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PROBLEM

The current project selection process is accessed through a link to Microsoft SharePoint where students can modify their information along with other students' information.

Current Security Issues

- Student can alter other students' information
- Students can delete all the data within the excel sheet
- Process allows a project to exceed maximum number of students. Professor must manually check to ensure that each projects group does not exceed the maximum set

IMPLEMENTATION

- Create user friendly front end for project list
- Implement AWS Cognito for secure sign-up/sign-in
- Implement proper services to monitor users signing up and logging in
- Create virtualized OS to host front end
- Migrated data from excel to an SQL server
- Create multiple virtualized OS so Elastic Load Balancers can distribute traffic
- Create policies to restrict an applications accessibility and provide better security
- Implement CloudTrail to track user activity

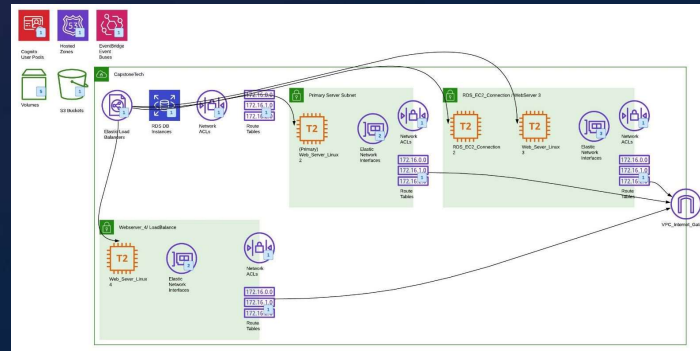
RISK ANALYSIS

	Negligible	Moderate	Severe
Very Likely	Student signs in using non-FIU account	Students alter other student's information	Student deletes all information on excel
Somewhat Likely	Student signs in using another student's account	Student accesses AWS account that hosts the website and resources	Student emails classmates fake link leading to malicious site
Unlikely	Non-FIU student signs in and alters information	Students to DDOS server	Students access AWS using unsecure ports (80, 443, 3306, 22)

CURRENT SYSTEM

The current system has students first viewing the project list on the professor's website. They are then sent a link which redirects students to an excel sheet hosted on Microsoft SharePoint. When the student reaches the excel sheet, they are shown a list of at least 50 students and which projects they have selected. This is where the student can choose the project, they wish to participate in.

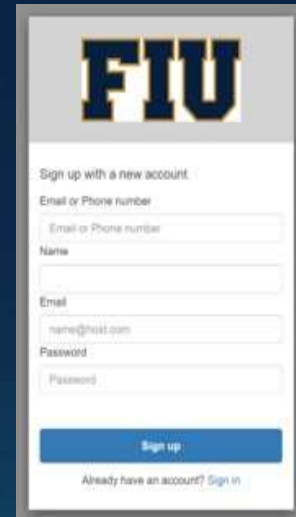
SYSTEM DESIGN



REQUIREMENTS

- Create front end to display project list and selection
- Implement sign in process with MFA
- Track any changes made by user
- Transfer excel information to SQL database
- Implement load balancers to distribute high traffic
- Implement ElastiCache to provide more efficient content delivery

SCREENSHOTS



Security Recommendations

- Move selection process off excel hosted by Microsoft Sharepoint and use an SQL database hosted on an RDS
- Modify inbound and outbound rules to prevent ports from being accessible from internet gateways.
- Use FIU SSO
- Ensure project selection link is only linked via Canvas to ensure students do not send malicious links

SUMMARY

The current capstone project selection process is confusing and unsecure. We worked to make it a more efficient and secure process for students by fully migrating to AWS. We created a front end where students can view the project lists and securely sign-in and sign-up. The information on the excel sheet was migrated to a secure SQL server hosted by AWS RDS. This can be used to hold the students' selection mores securely, while ensuring other students do not modify other students' selection's or vandalize the process.