

**Software and Computer Security**

**SOFE 4840U**

**Identity and Access Management**

**Project Abstract**

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**Project Group: Group 8**

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# **1- Project background:**

Identity and Access Management (IAM) is a framework of business processes, policies, and technologies that facilitates the management and access to the digital intellectual property based on digital identities. IAM is an acronym for Identity and Access Management (IAM) and as the name suggests, it handles access to critical information based on the Identity of the user and their permissions within the organization. This security service is very beneficial to all organizations, from small to large which require multiple layers of security in which access to corporate information is utilized. IAM aids organize the security of information and automate a process that otherwise would be very error-prone and tedious if done manually by an administrative person/employee. IAM will help prevent mistakes where otherwise lower privileged users in the system get access to higher sensitive information. Companies that utilize IAM frameworks have an easier time ensuring that their data is not being misused, an easier time enforcing policies, and increasing efficiency in allowing changes to multiple privileges just by switching roles. Our implementation of IAM aims to govern data and ensure that only data that is necessary and relevant is shared. In our project, we will mimic an IAM service similar to Amazon’s AWS IAM from scratch by identifying users' roles, and how roles are assigned, assigning access to roles, and securing sensitive data behind roadblocks.

# **2- Project purpose and objectives:**

The purpose of this project is to build a web application that includes a login screen and a few different pages that shows specific individuals with their privilege and the authorizations that are given to them. We aim to accomplish this project by using various tools and frameworks that are available such as Flutter and firebase. Flutter will be used for the implementation of the user interface Firebase will be used as a database which will allow us to host and remotely manage the user roles. Our goal for this project is to provide the users with the ability to manage different roles within the application ensuring security and privacy by following different protocols. The first step of this project is to have a discussion about the requirement specification and analyze how each of these requirements can be executed. The next step will be to create a conceptual design using available resources that we have from the requirement specification step. Lastly, we will implement the web application and connect all compounds of this project to have a final working product.

# **3- Project Scope:**

IAM provides additional security to any system or application on top of simple user authentication. The use of IAM provides benefits such as preventing the risk of any internal attacks where a user is attempting to gain access to resources that they are not authorized to access [2]. The scope of the project includes the development of a web application with several different pages and services that are available to only certain individuals based on their roles and a database that will hold the data regarding the user's identity and permissions for accessing certain resources on the web application. The goals and objectives of the project were discussed in detail in the previous section. The following table describes the various project deliverables of the project and also the deadlines for each deliverable:

| **Project Milestone** | **Description** | **Deadline** |
| --- | --- | --- |
| Design the various views and resources that will be available on the web application based on identity | This deliverable includes designing the views of all the pages that will be part of the web application. Each page or resource on the site will be linked to a set of roles that can access the page or resource. This will enable the system to protect certain resources from being accessed even if the authentication of one of the users is compromised. | February 12, 2023 |
| Design database to appropriately store user identity related information | This deliverable involves the designing of the database to store user authentication (username, password), user information, and permissions. | February 12, 2023 |
| Development and deployment of the database | For this deliverable, the database designed in the previous deliverable will be created and deployed so that it can be utilized by the web application. | February 19, 2023 |
| Development of the web application including identity and access management system | The goal for this deliverable project is to develop a web application that includes the development of the various pages designed in the first deliverable. This deliverable will also include the implementation of the identity and access management system which will utilize the database created in the previous step. | March 12, 2023 |
| Testing and verification of the system | Finally, the last deliverable of the project will involve testing the system to ensure that the project goals were met. This can also include making enhancements to the system to better achieve the objectives of the project. | March 26, 2023 |

# **4- Deliverables:**

The deliverables for this project will consist of a web application and a database. The web application will have a login screen as well as a few pages dedicated to specific individuals with the privilege and authorization to access them. The database will consist of the user's profile and identification which the user can use to be authenticated into the application. We aim to use Flutter and Firebase Database in the development of our application. Flutter allows us to develop for multiple platforms and Operating systems, while the Firebase database will be a hosted database in the cloud which will enable remote storage of the user's credentials to be used during authentication verification and permission authorization. The scopes available to the user will consist of uploading specific files (e.g. pdf) or various types of image types (e.g. png, jpg). Moreover, the application should be able to provide scopes to various other functionalities such as utilizing the gamepad, camera, and location, allowing the administrator to assign permissions to the personals on an intuitive UI. This is to simulate the objective of assigning roles to various users and simultaneously restricting them from unauthorized access.

# **5- Project Timeline:**

Our aim for this project's timeline is to complete it within 3-4 weeks. The first will consist of planning, designing, and sharing responsibilities. The second and third weeks will consist of developing the UI on Flutter and integrating Firebase Database into the project, as well as developing various roles and access for the application. The fourth week will consist of finalizing the various components of the project. Various scopes will be created that will enable access to various aspects of the project as well as functionality.

# **6- Project References**

[1] S. Gittlen and L. Rosencrance, “What is identity and access management? guide to IAM,” *TechTarget*, 10-Aug-2021. [Online]. Available: <https://www.techtarget.com/searchsecurity/definition/identity-access-management-IAM-system>. [Accessed: 05-Feb-2023].

[2] I. A. Mohammed, “SYSTEMATIC REVIEW OF IDENTITY ACCESS MANAGEMENT IN INFORMATION SECURITY,” SSRN Electronic Journal, vol. 4, pp. 1–7, Jul. 2017. Available: <https://www.researchgate.net/publication/353887659_SYSTEMATIC_REVIEW_OF_IDENTITY_ACCESS_MANAGEMENT_IN_INFORMATION_SECURITY/citation/download>. [Accessed: 05-Feb-2023].