

Term Project

CS 151: Object-Oriented Design

Technical Spec

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Team Number	Team #4	Section	02
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Software Name	Keyware		

1. Introduction

1.1 Objective

This document illustrates the overall design of the password management application, Keyware. The classes that will be created and utilized in the software are outlined, and their individual responsibilities are determined. The high-level relationships between these classes, and their interactions during runtime, are also demonstrated in the various UML diagrams. This documentation can be used by programmers to aid in the development and implementation of these classes and their functionalities when writing the software.

1.2 References

N/A

1.3 Acronyms, and Abbreviations

N/A

2. Software Overview

2.1 Problem Statement

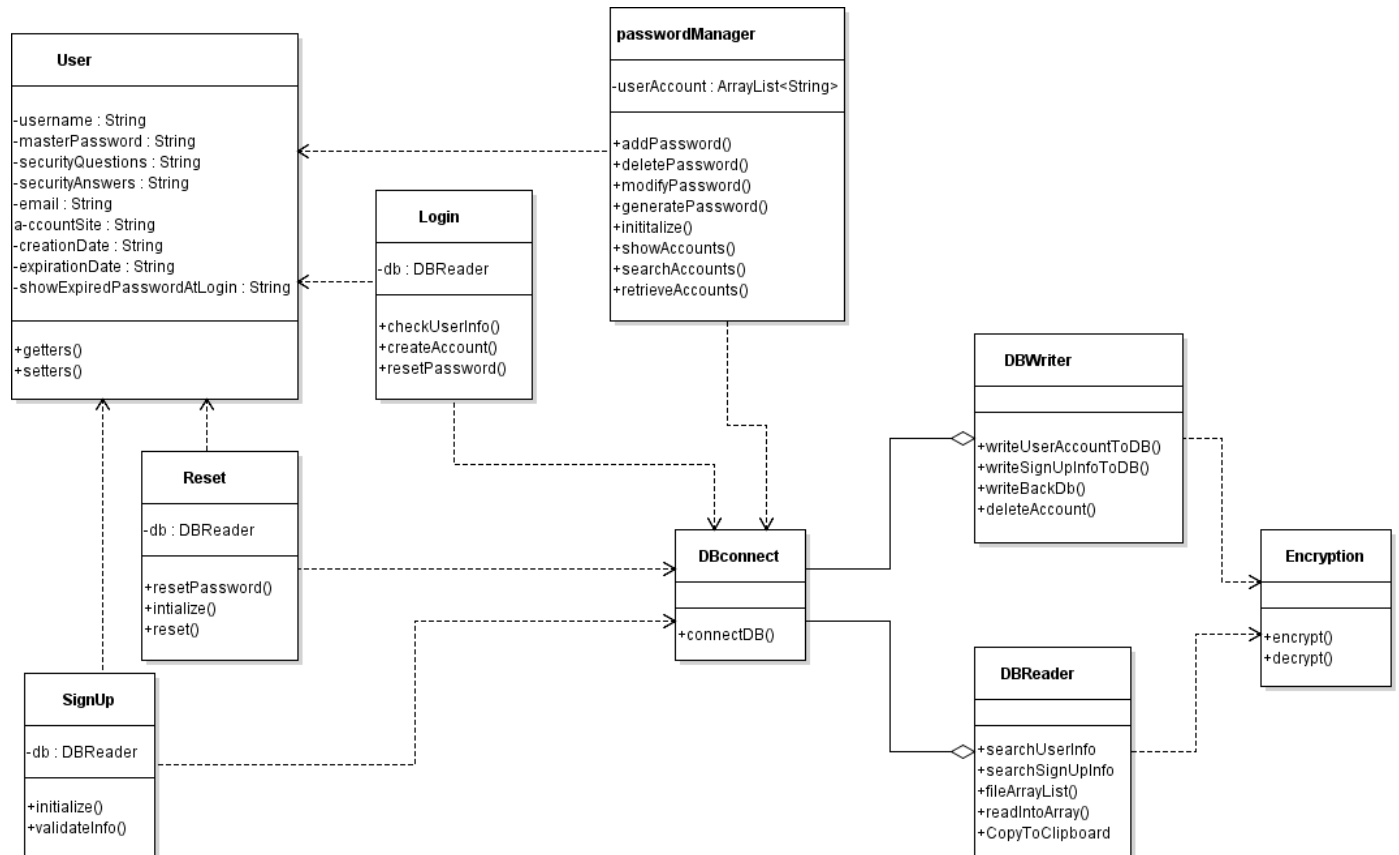
Computers and the Internet have become essential tools for business, education, entertainment, and so many other facets of daily life. The multitude of accounts required to utilize online services or computer applications can cause users to choose easily memorable passwords, or simply reuse old passwords. These passwords can also be stored in an unsafe manner, introducing many vulnerabilities into a user's personal information. Strong cyber security is paramount in protecting these passwords, login credentials, and the sensitive information locked behind them. As data breaches and online security compromises become more common in the digital age, the risk of sensitive information being leaked requires better solutions for protecting user data. Password managers can be useful in creating more secure passwords and safely storing them, although current password manager solutions are still at risk from using weak methods to encrypt the user data, and the developers having access to a user's information. An improved password manager should be developed that is easy to use, supports the creation of secure random passwords, and utilizes strong encryption of passwords.

2.2 Scope

Keyware can help increase online security and protect user data for anybody that uses online software or mobile and desktop applications that store user information.

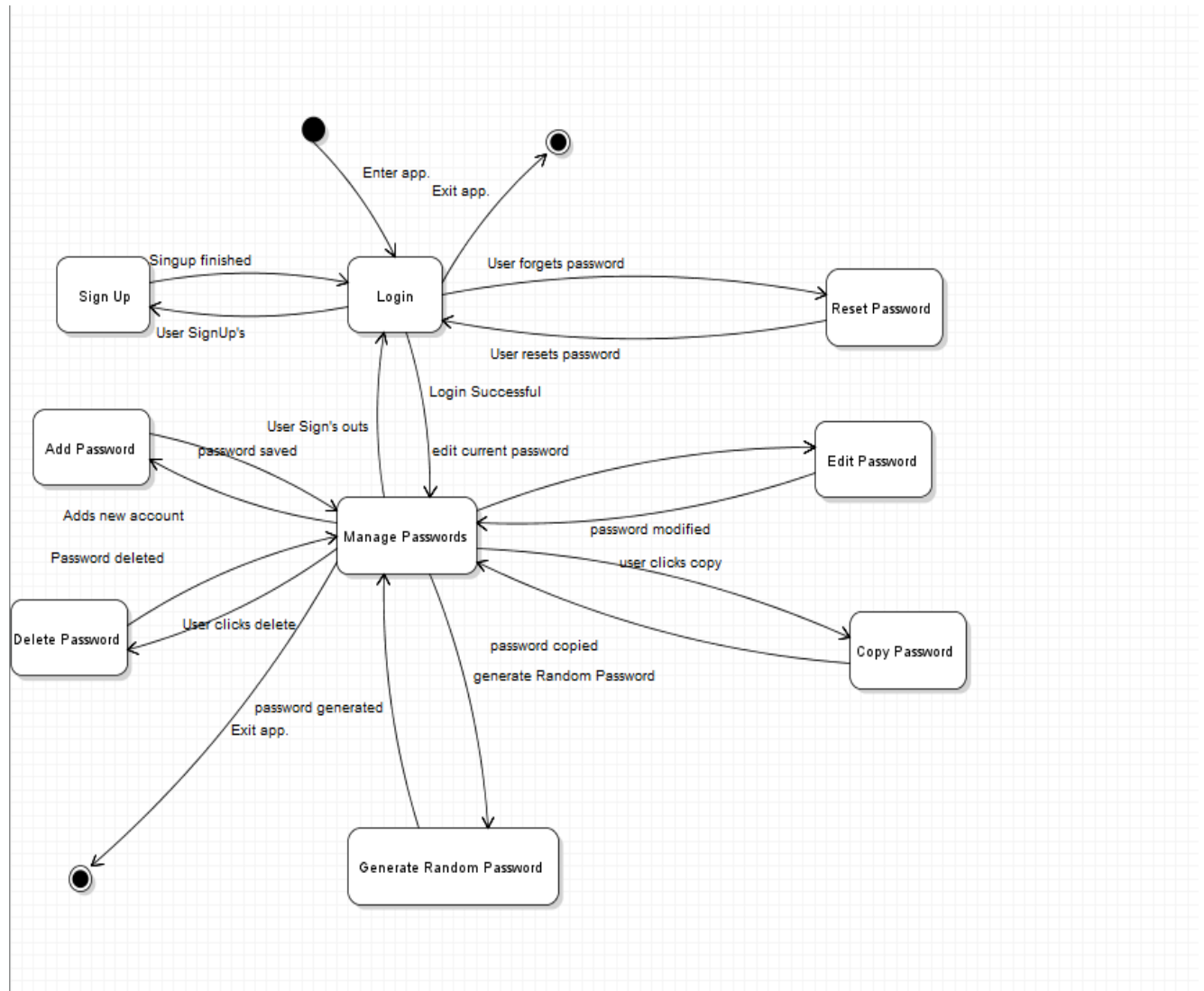
3. Detailed Design

3.1 UML Class Diagram

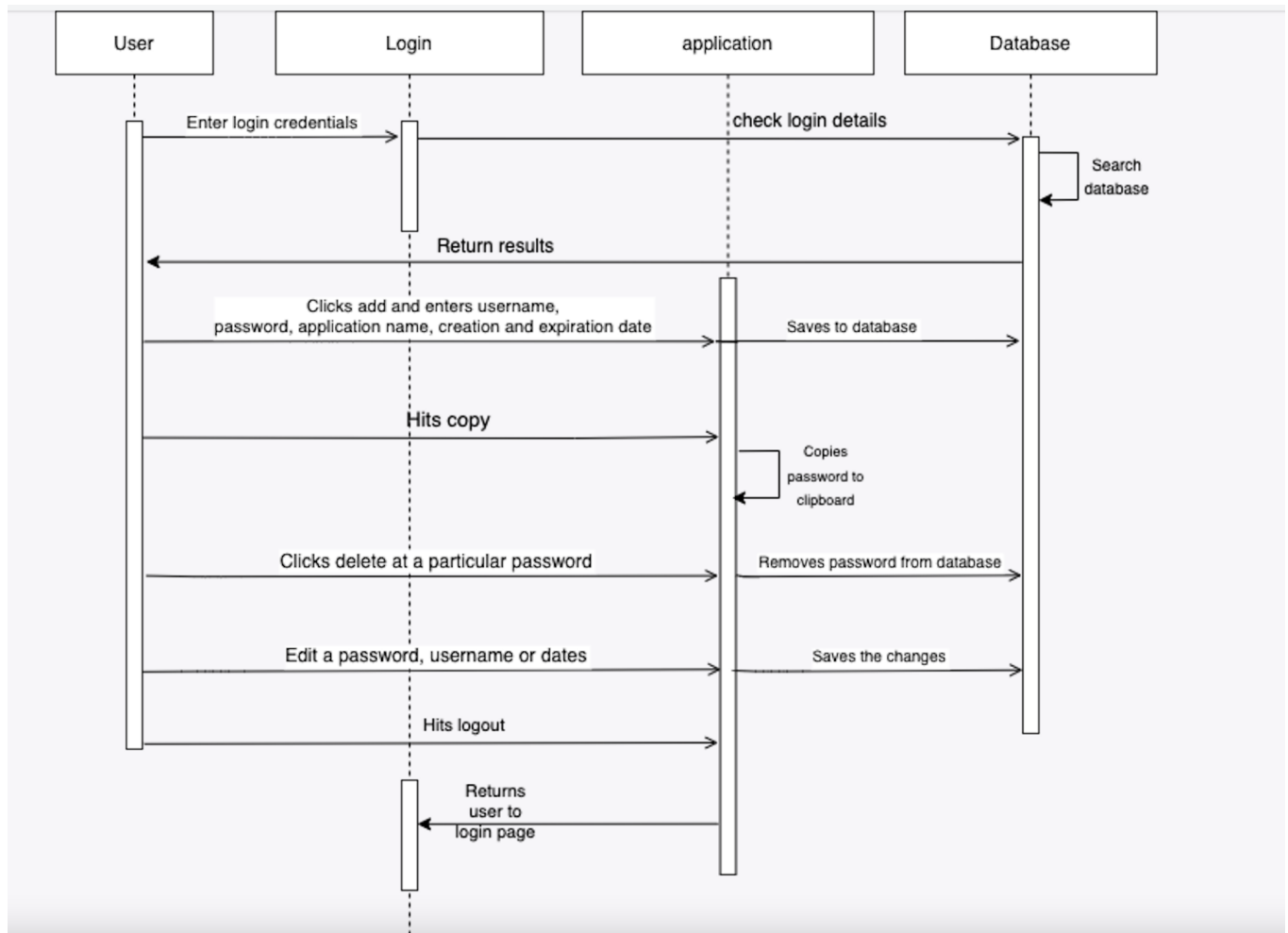


3.2 UML Sequence and State Diagrams

3.2.1 UML State Diagram

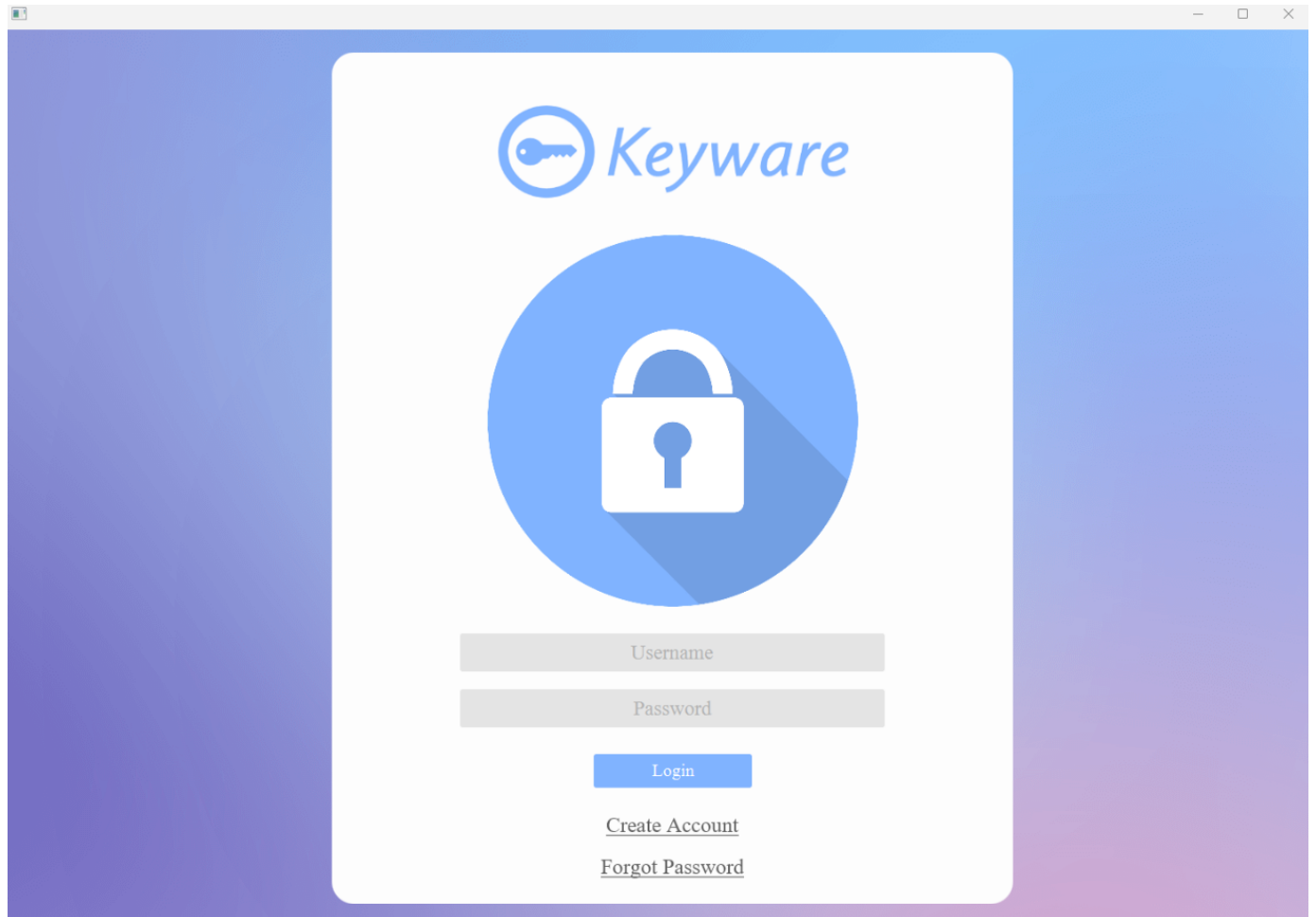


3.3.2 UML Sequence Diagram




3.3 Mockups

3.3.1 Login



A mockup of a login page for 'Keyware'. The page features a blue gradient background. In the center, there is a white rounded rectangle containing the 'Keyware' logo (a blue key icon inside a circle) and the word 'Keyware' in a blue script font. Below the logo is a large blue circle with a white padlock icon. Underneath the padlock are two light gray input fields labeled 'Username' and 'Password'. Below these fields is a blue 'Login' button. At the bottom of the white rectangle are two links: '[Create Account](#)' and '[Forgot Password](#)'.

Keyware



Username

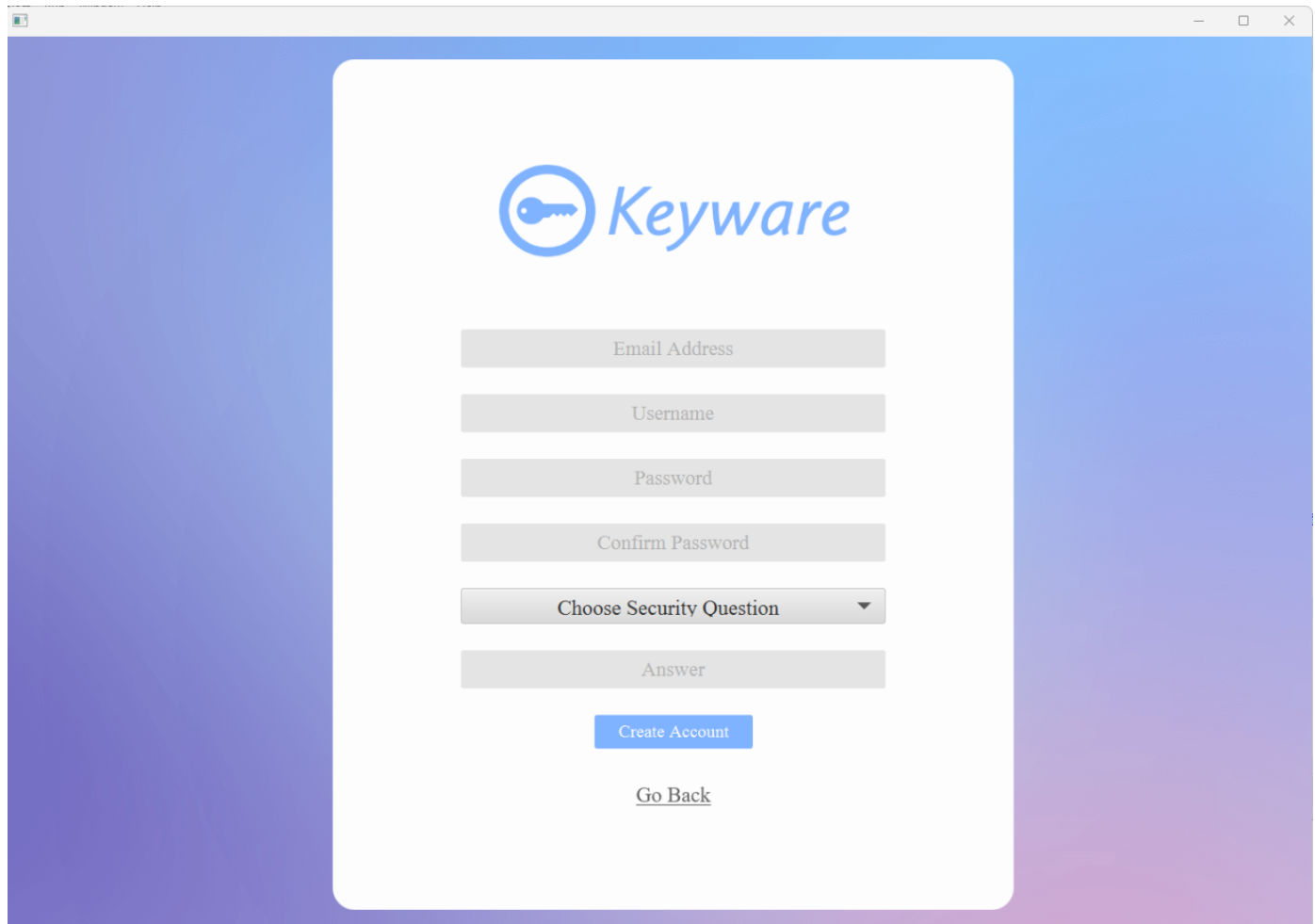
Password

Login


[Create Account](#)

[Forgot Password](#)

3.3.2 Sign Up



The image shows a web browser window displaying the Keyware sign-up form. The form is centered on a white background with a blue gradient border. It includes input fields for Email Address, Username, Password, and Confirm Password, a dropdown menu for Choose Security Question, and an Answer field. A blue Create Account button and a Go Back link are at the bottom.

 **Keyware**

Email Address

Username

Password

Confirm Password

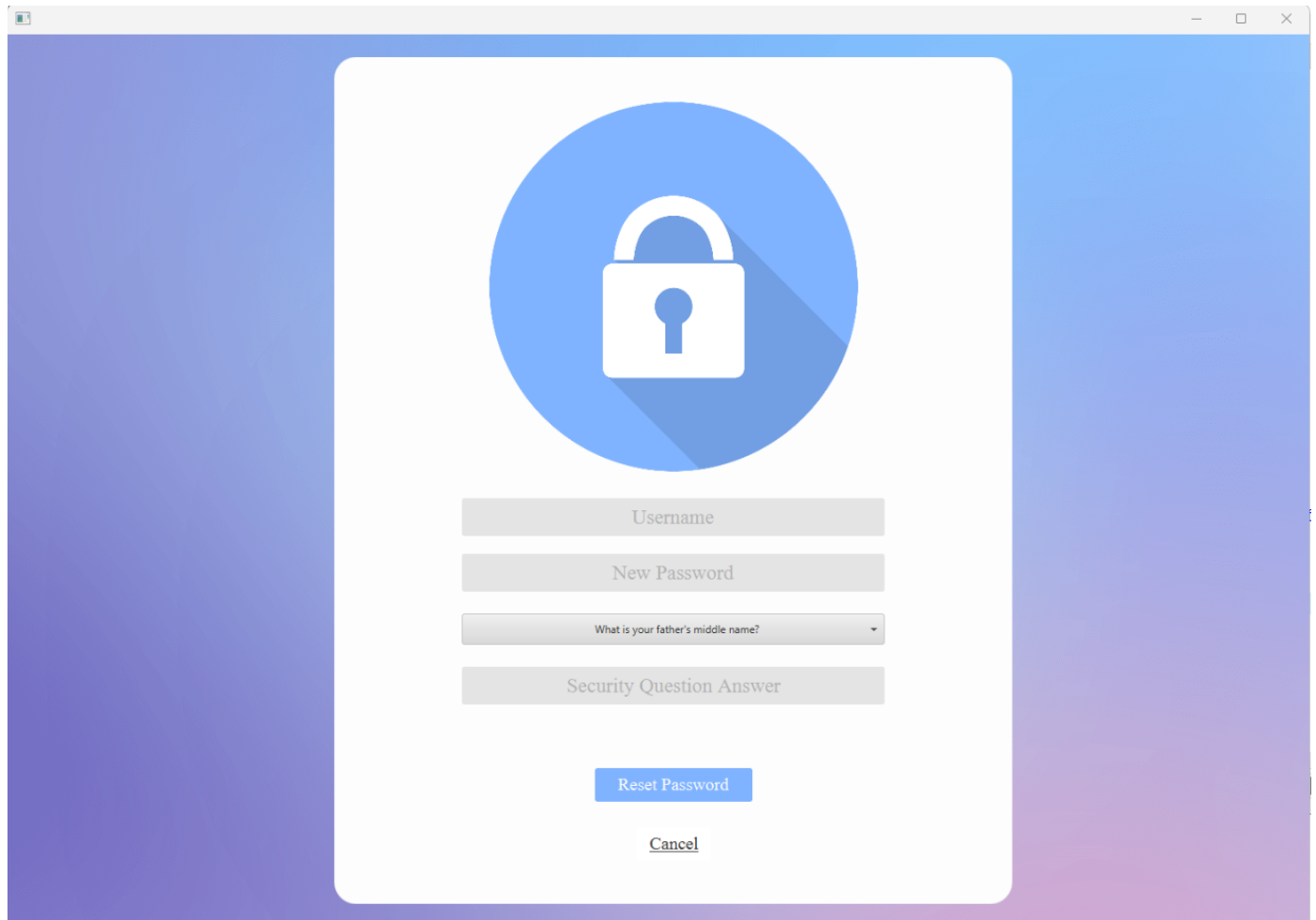
Choose Security Question ▼

Answer

Create Account

[Go Back](#)

3.3.3 Reset Password



A screenshot of a web browser window displaying a 'Reset Password' form. The form is centered on a white background with a blue gradient border. At the top of the form is a large blue circle containing a white padlock icon. Below this are four input fields: 'Username', 'New Password', 'What is your father's middle name?' (a dropdown menu), and 'Security Question Answer'. At the bottom of the form are two buttons: a blue 'Reset Password' button and a 'Cancel' link.

Username

New Password

What is your father's middle name?

Security Question Answer

Reset Password


[Cancel](#)

3.3.4 Main Password Manager

Add+Generate+Search

Accounts	User Name	Password	Email ID	Creation Date	Expiration Date			
Facebook	john	password	john@gmail.com	05/14/2022	12/12/2022	Edit	Delete	Copy
Steam	john	password	john@gmail.com	05/14/2022	12/12/2022	Edit	Delete	Copy
Spotify	john	password	john@gmail.com	05/12/2022	12/12/2022	Edit	Delete	Copy

Log Out


Keyware

3.3.5 Search For Password

Add+Generate+FindjohnCancel

Accounts	User Name	Password	Email ID	Creation Date	Expiration Date			
Insta	john	password	john@gmail.com	05/14/2022	12/12/2022	Edit	Delete	Copy
Steam	john	password	john@gmail.com	05/14/2022	12/12/2022	Edit	Delete	Copy
Spotify	john	password	john@gmail.com	05/12/2022	12/12/2022	Edit	Delete	Copy

Log Out

Keyware

3.3.6 Generate Password

Generate Random Password

Length of Random Password:

Number of Capital Letters:

Number of Special Characters:


Number of Digits:

Application

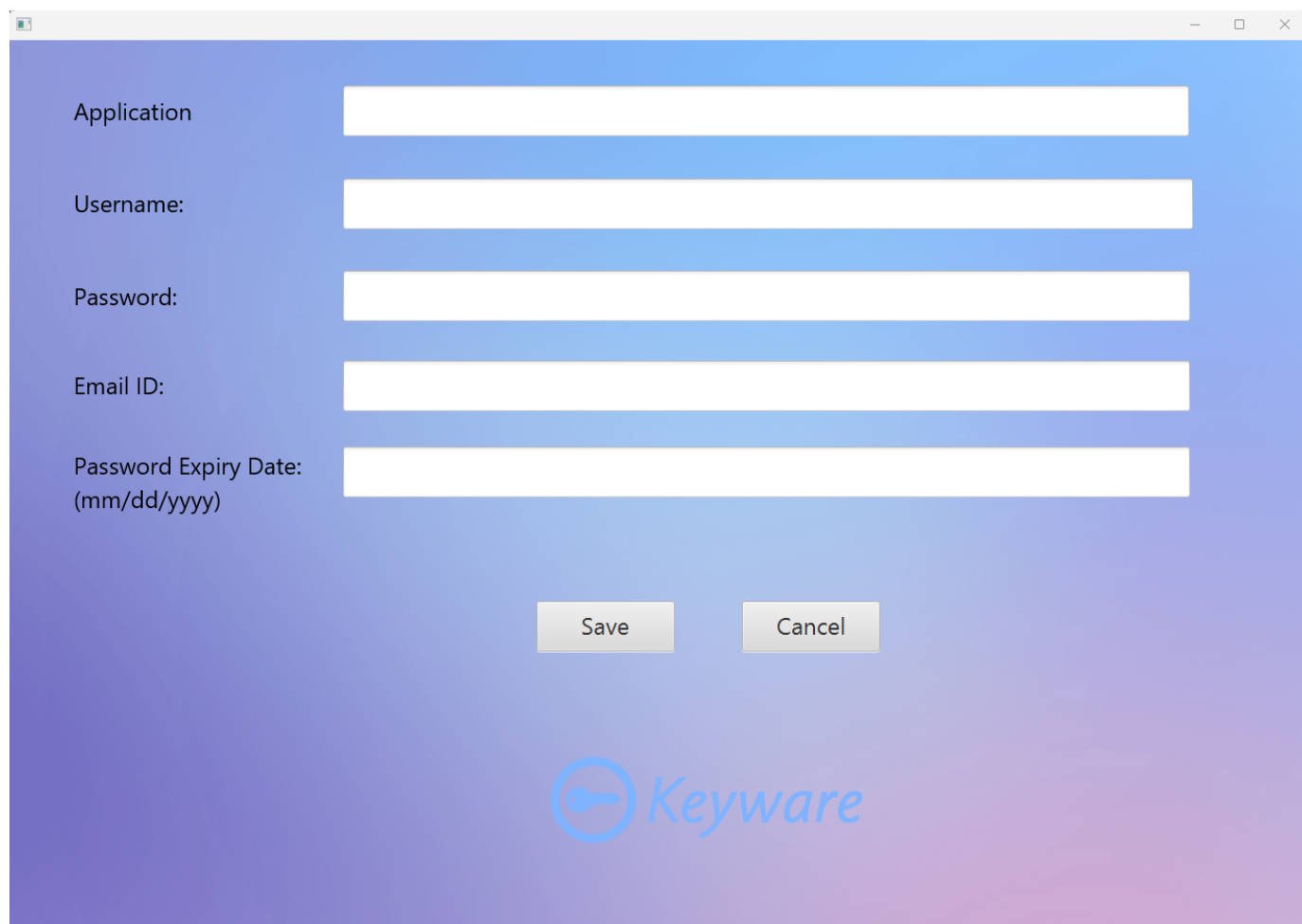
Username:

Email ID:

Password Expiry Date:
(mm/dd/yyyy)


 Keyware

3.3.7 Add Password



The screenshot shows a software window titled "Add Password" with a blue gradient background. It contains five input fields for user information, each with a label to its left: "Application", "Username:", "Password:", "Email ID:", and "Password Expiry Date: (mm/dd/yyyy)". Below the fields are two buttons, "Save" and "Cancel". At the bottom center is the Keyware logo, which consists of a blue circular icon with a key inside, followed by the word "Keyware" in a blue sans-serif font.

Application	<input type="text"/>
Username:	<input type="text"/>
Password:	<input type="text"/>
Email ID:	<input type="text"/>
Password Expiry Date: (mm/dd/yyyy)	<input type="text"/>

 Keyware

3.3.8 Modify Existing Password

