OBJECT ORIENTED ANALYSIS AND DESIGN WITH JAVA

MINI PROJECT REPORT

JSurfNet

(Web Browser in Java)

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Project Synopsis

Project Title: JSurfNet

Project Description:
JSurfNet is a lightweight web browser application that provides users with a simple and intuitive browsing experience. It supports multiple tabs and bookmarks, allowing users to easily navigate and save their favorite websites.

Features:

Multi-Tabbed Browsing: JSurfNet allows users to open multiple tabs for browsing the internet simultaneously.

Bookmark Management: Users can add, remove, and rename bookmarks with ease, and organize them into folders for easy access.

User Interface: JSurfNet has a modern and intuitive user interface that is easy to use and customizable.

Password Manager: Store and update passwords for different Websites and prompt or offer to save the password.

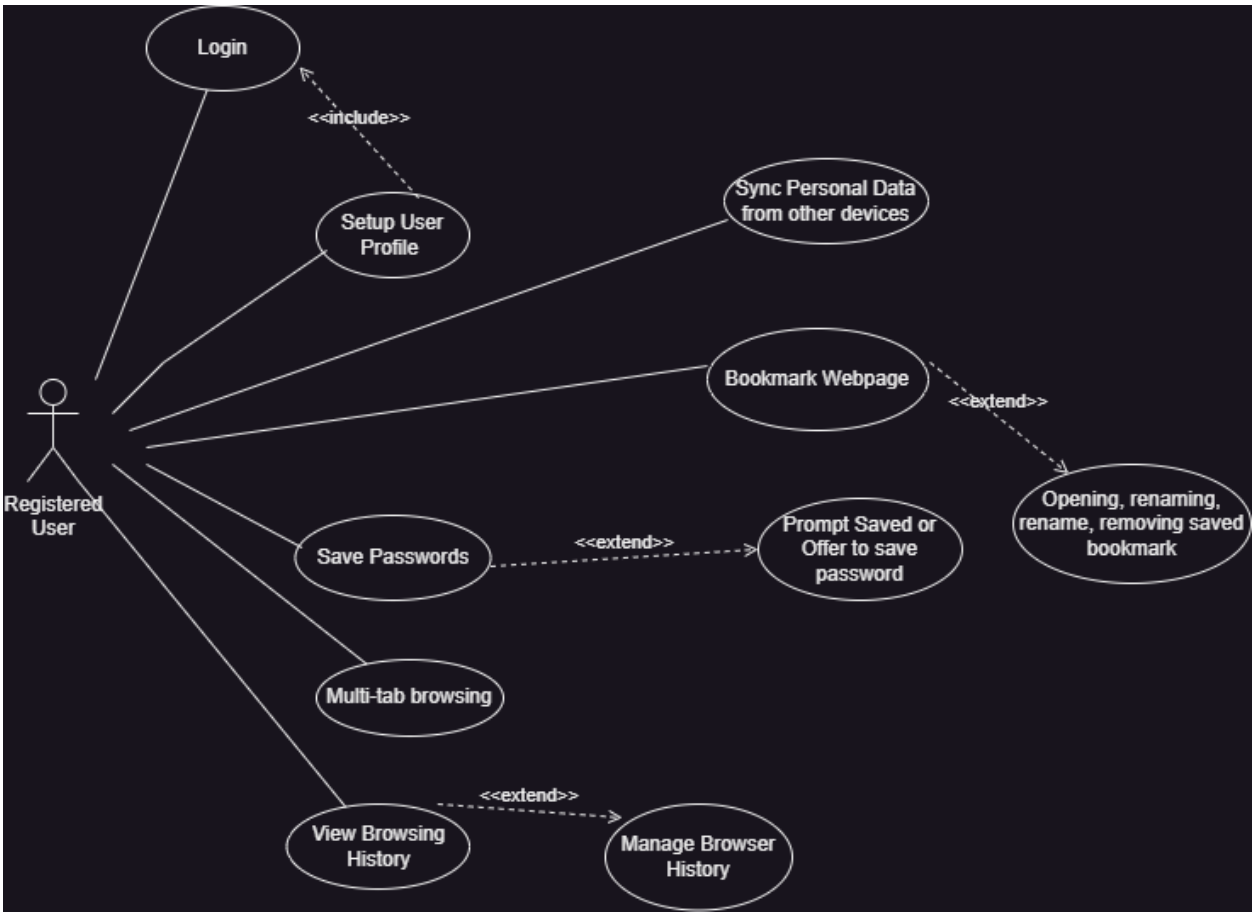
View History

Login from multiple profiles across multiple devices

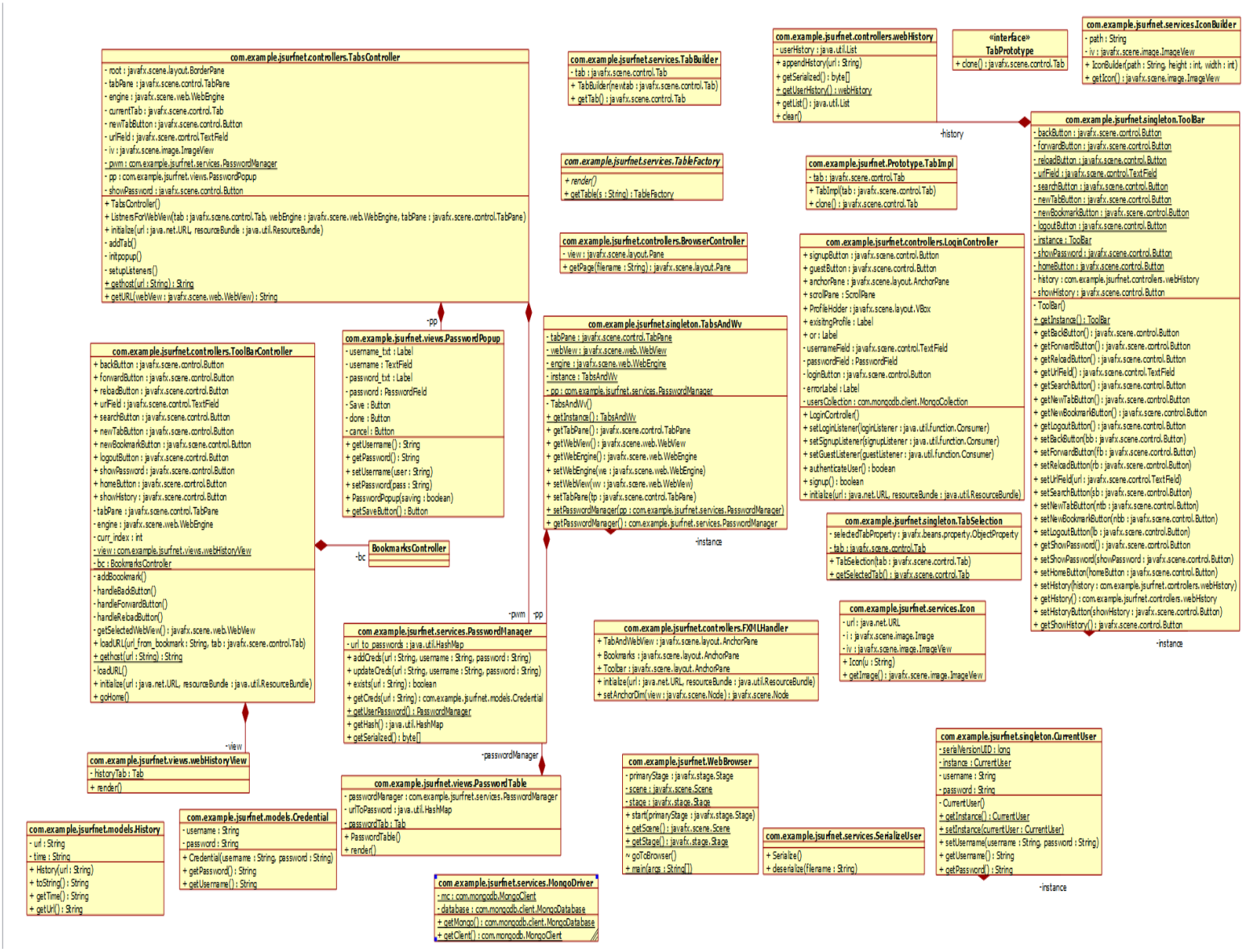
Technologies Used:

JSurfNet is built using JavaFX for the user interface and MongoDB for storing Bookmarks, User profiles, History and passwords in a safe and secure manner.

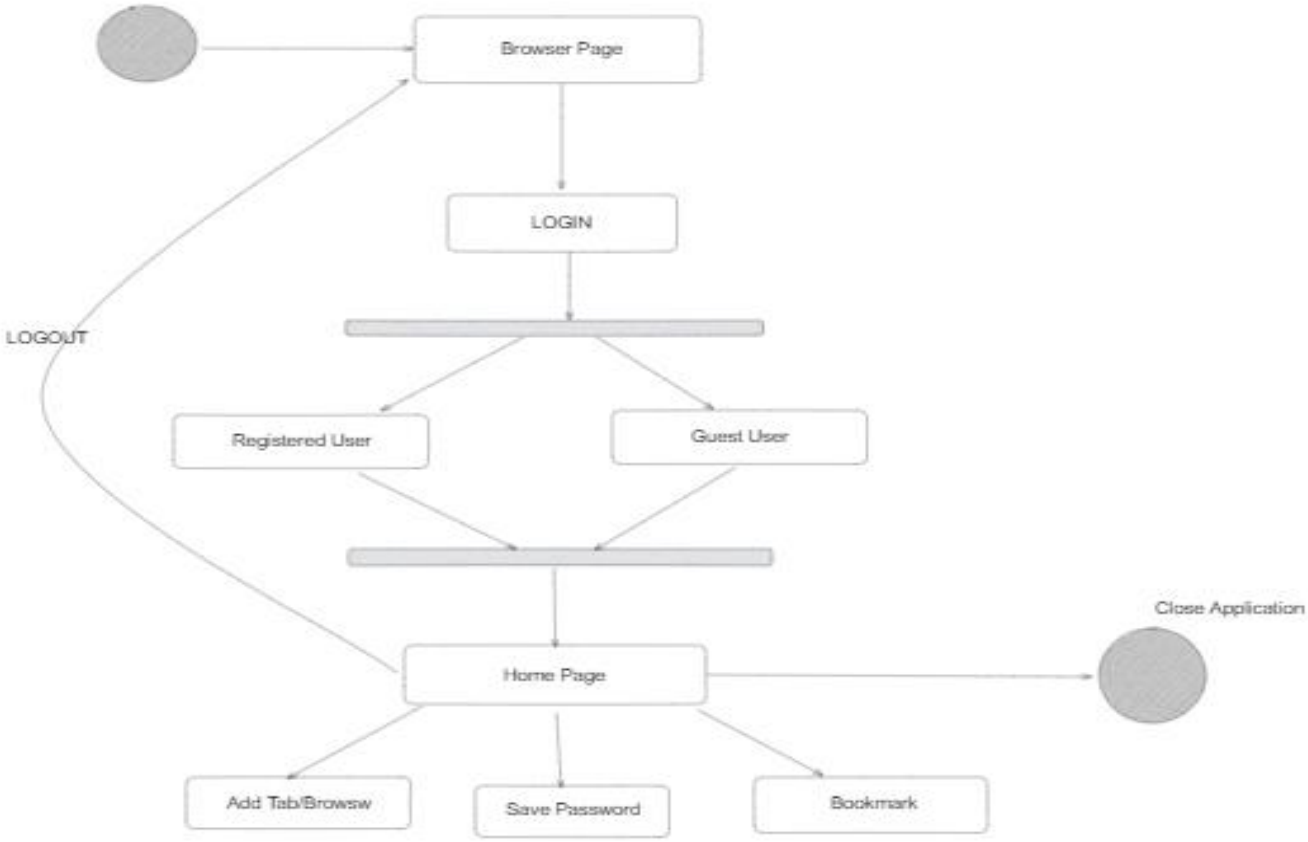
Use Case Diagram



Class Diagram



State Diagram;



Design Principles and Design Patterns

1. Design Principles

- The MongoDB access is controlled by a class “MongoDriver”, and since it has only this responsibility it follows **Single Responsibility Principle.**

- The tables generated in the application to store passwords and show history to the user uses common interface, hence further features that might be built can use the same interface, hence it follows **Open Closed Principle.**

2. Design Patterns

- The toolbar, Tab Pane uses the **Singleton Pattern** since only one instance is logically possible for the application.
- The tables generated in the application for rendering stored passwords and browsing history are built using the **Factory Pattern.**
- A current open tab can also be duplicated, this is achieved using the **Prototype Pattern.**
- For each tab, the browser adds the icon of the webpage being shown. To achieve this we use the **Builder Pattern**, here the icon is first sourced, then the dimensions are set for the icon. All these operations are encapsulated in the “IconBuilder” class.