CS 6359.001 Object Oriented Analysis and Design

Web Search Engine

Preliminary Project Plan

Team Members	
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1. Introduction

1.1 Project Overview

CyberMiner is a search engine that accepts input and displays list of URLs, whose description or title matches to the input entered. It takes list of keywords through textbox in the user interface. In output, it displays the list of URLs, titles and descriptions. When the user clicks on the URL, which has been retrieved as the result of the search query, the system takes the user to the corresponding website.

1.2 Project Deliverable

Deliverable	Due date	Team Leader
Preliminary Project Plan	02/02/2022	Rainam Shah
Interim Project I	03/07/2022	Rainam Shah
Final Project I	03/23/2022	Rainam Shah
Interim Project II	04/18/2022	Rainam Shah
Final Project II	04/25/2022	Rainam Shah

2. Project Organization

2.1 Process Model

Our project has followed Agile process model. The agile process model encourages continuous iterations of development and testing. Each incremental part of our project has been developed over an iteration, and each iteration is designed to be small and manageable so it can be completed within a couple of weeks. Each iteration focuses on implementing a small set of features completely.

2.2 Organizational Structure & Project responsibilities

Team Distribution

Team	Members	Team Leader
Frontend Team	Rainam Shah Dhyani Gandhi AbhijeetSinh Vaghela Chenyue Li	Rainam Shah
Backend Team	Poojitha Bijjam Akash Karuturi Rohith Jallipalli Pavan Sai Pabbisetty Yasaswi Devi Tiyyagura	Poojitha Bijjam
UML and Documentation Team	Dharav Bhatt Rutvik Avaiya Yash Majmudar Yang Yang	Dharav Bhatt

3. MANAGERIAL PROCESS

3.1 Management Objectives and Priorities

We have divided our main objective which is to create a search engine into many subtasks that is to be performed to get the final Search Engine result. The top priority of the system is to get the input query from the user and then return the result according to that query to the user which is the basic requirement of the search engine. So, we divided our sub-tasks keeping this immediate goal in mind and then will work towards increasing the data in database, giving autocomplete and suggestion features and providing user more flexibility to enter search query.

3.2 Constraints

The biggest constraint is the data. There is millions and trillions TB of data out there in the world and storing all that data in the database and retrieving results from it is very difficult. So, there will be a constraint on the amount of the data we can store and provide to the user.

3.3 Risk Management

The database we created has capability of storing only a limited amount of data. There are tons of different kinds of data in real world. Accommodating each kind of data is a cumbersome task. Therefore, there might be cases, where user will end up getting “no result” or “result not found”. But this constraint is such that we can’t do much to overcome it.

3.4 Monitoring and Controlling mechanisms

When the team is large for a project, it becomes necessary to have a monitoring mechanism to track the progress of the project and the work that team members do. For that we have created 3 sub-teams and have a team leader for each team. The task of individual team leader will be to conduct regular meetings with the team to check up on the progress of work of their respective teams and then report it to the project leader. The project leader organizes meeting with the team leaders 2 times a week to discuss about the progress of the respective team’s work and the future work to be done. Then finally there is a team meeting every week so that each team member can be on the same page regarding the tasks and can discuss about the improvements that can be done for the project and communication.

4. Technical Process

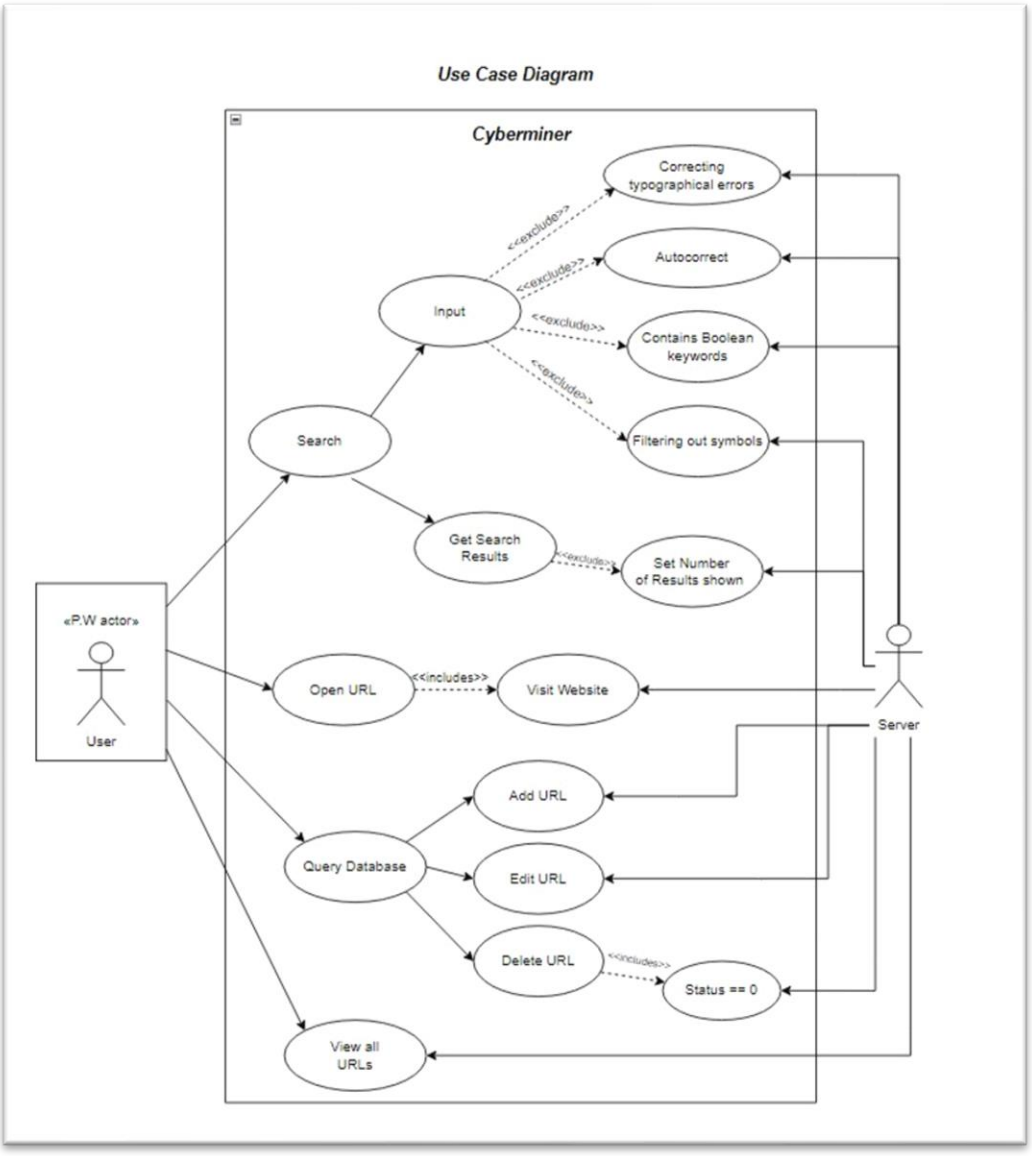
4.1 Method, Tool and Techniques

Front-end Technologies – React JS.

Back-end Technology – Python (Flask Web-framework).

4.2 Software Document

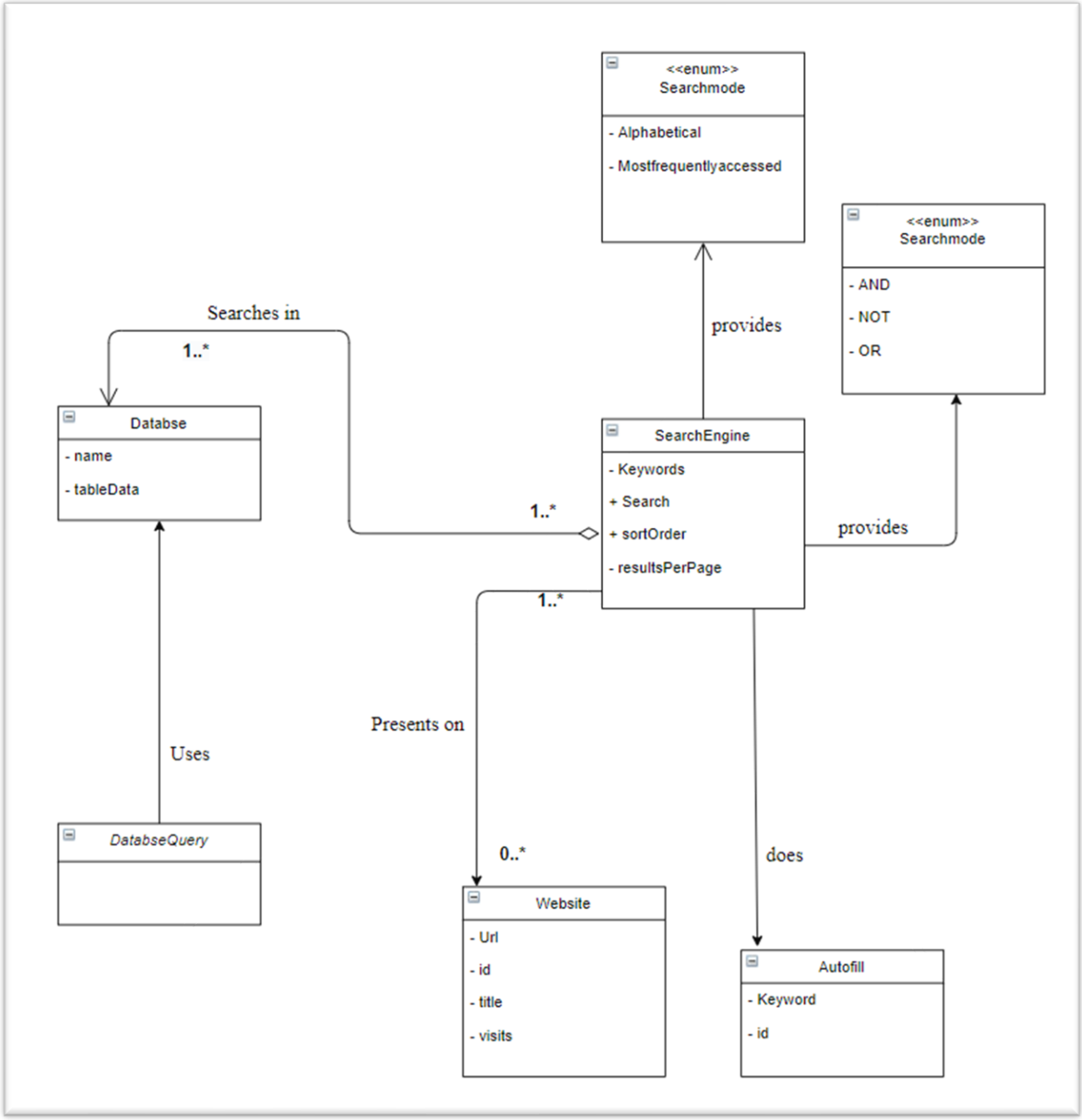
4.2.1 Use Case Diagram



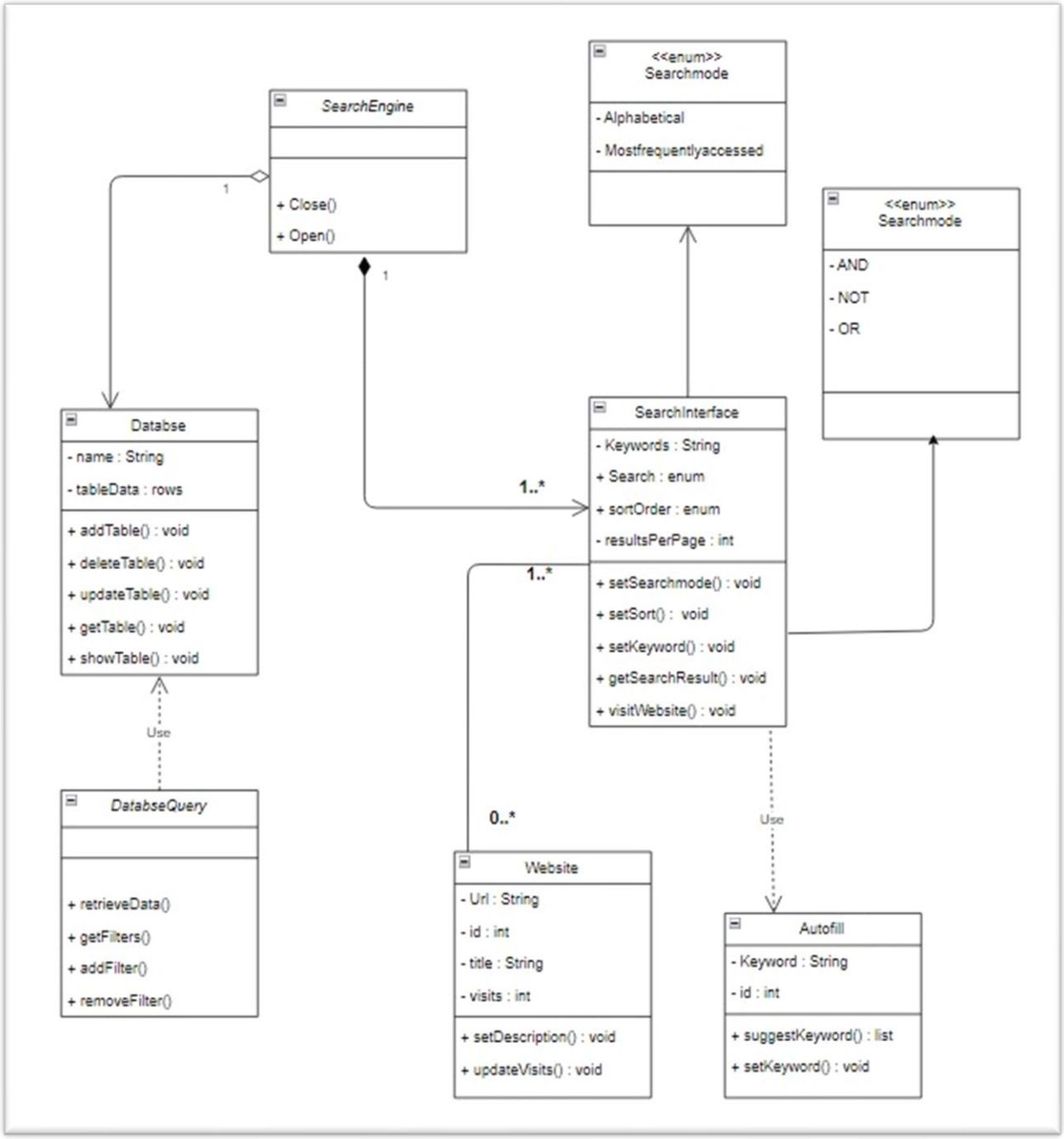
4.2.1.1 Use Case Template

Use Case	Description
Actors	User, Server
Description	User searches for query and system returns a lists of corresponding Titles, Descriptions, and URLs.
Main Scenario	1. User enters a query. 2. Search for a query in the database. 3. Output corresponding Titles, Descriptions, and URLs.
Alternative Scenario	1. If wrong query is searched, Show error. 2. If query not found, show message and return to home page.

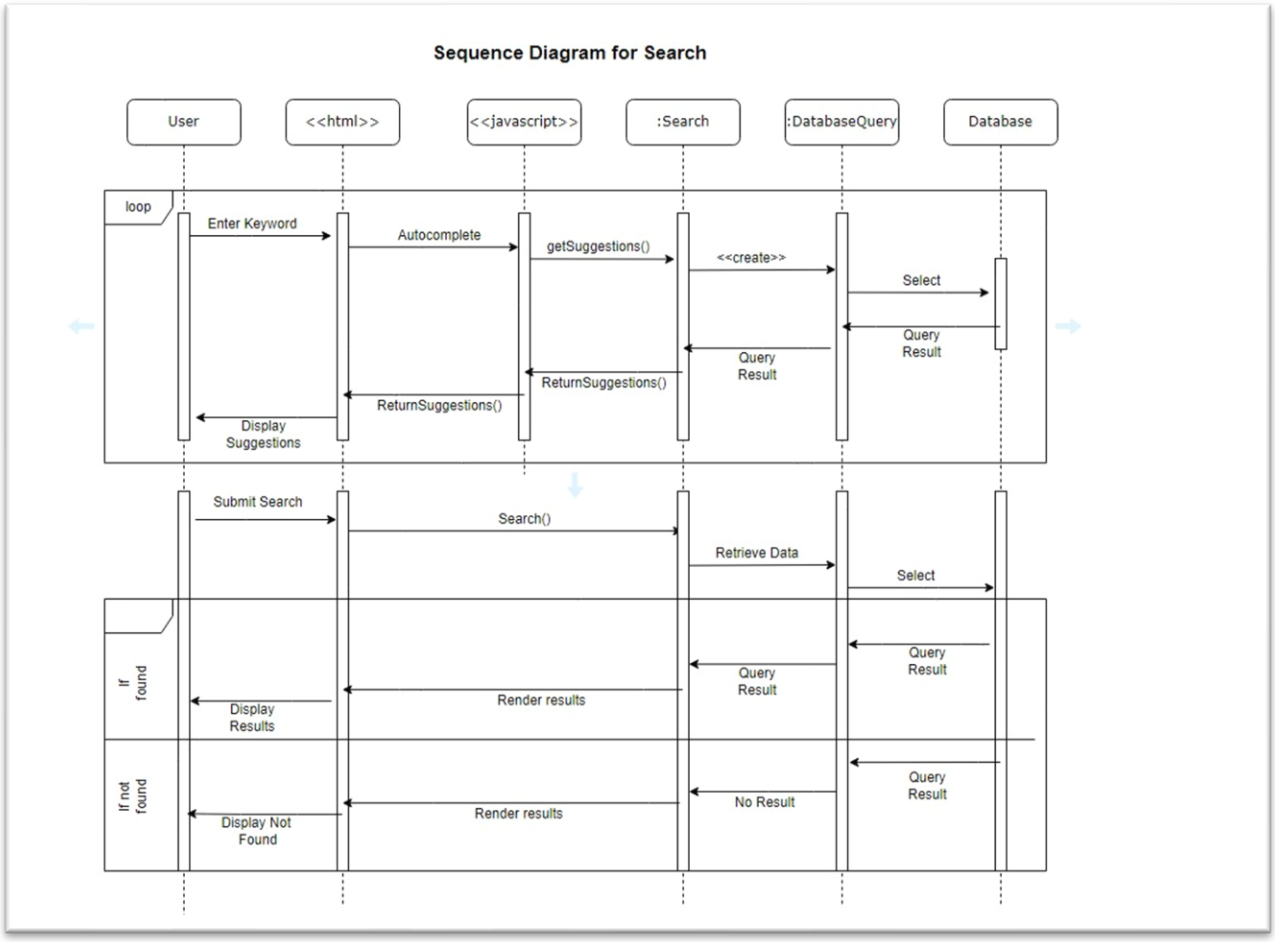
4.2.2 Class Diagram (Domain Model)

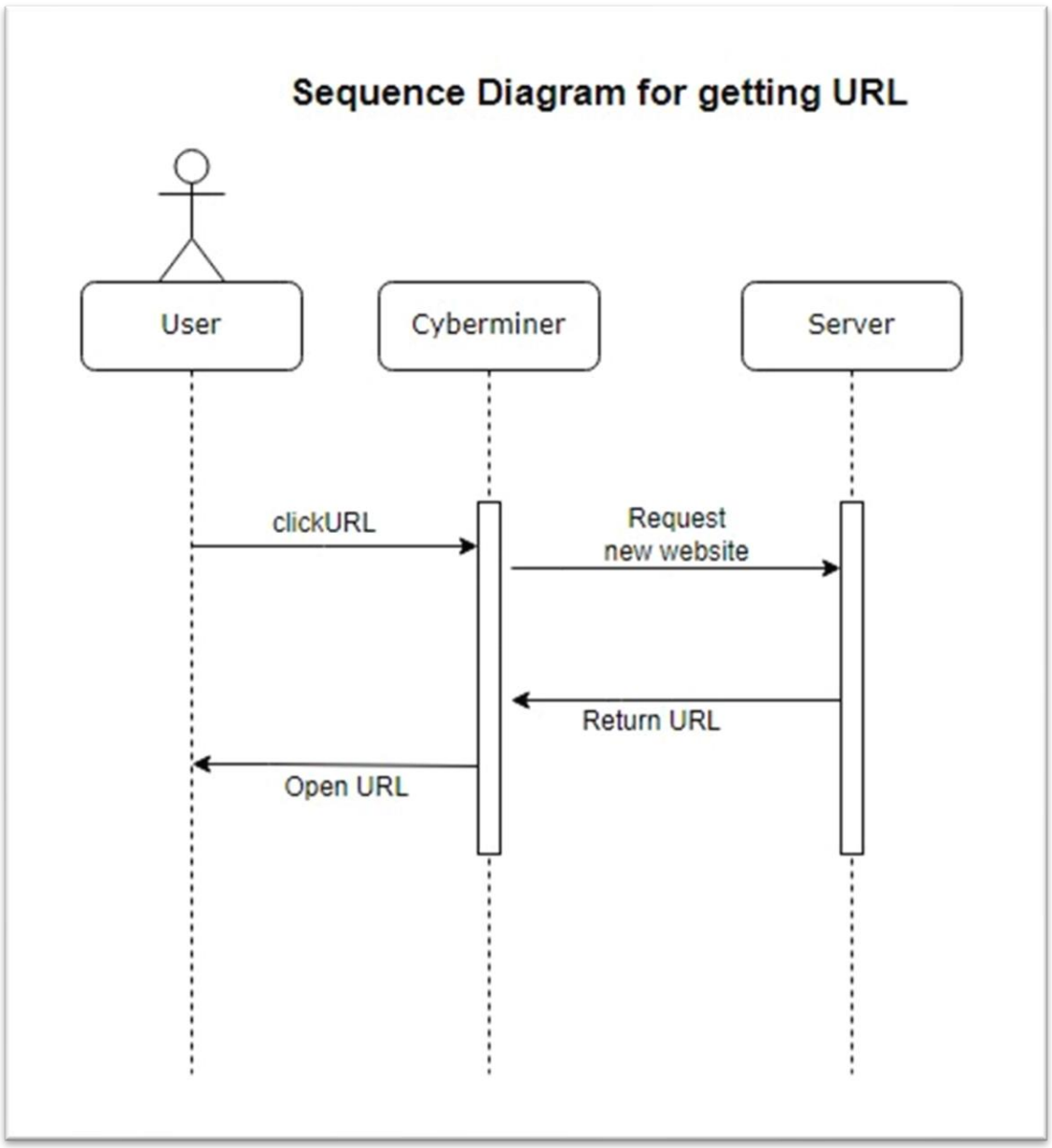


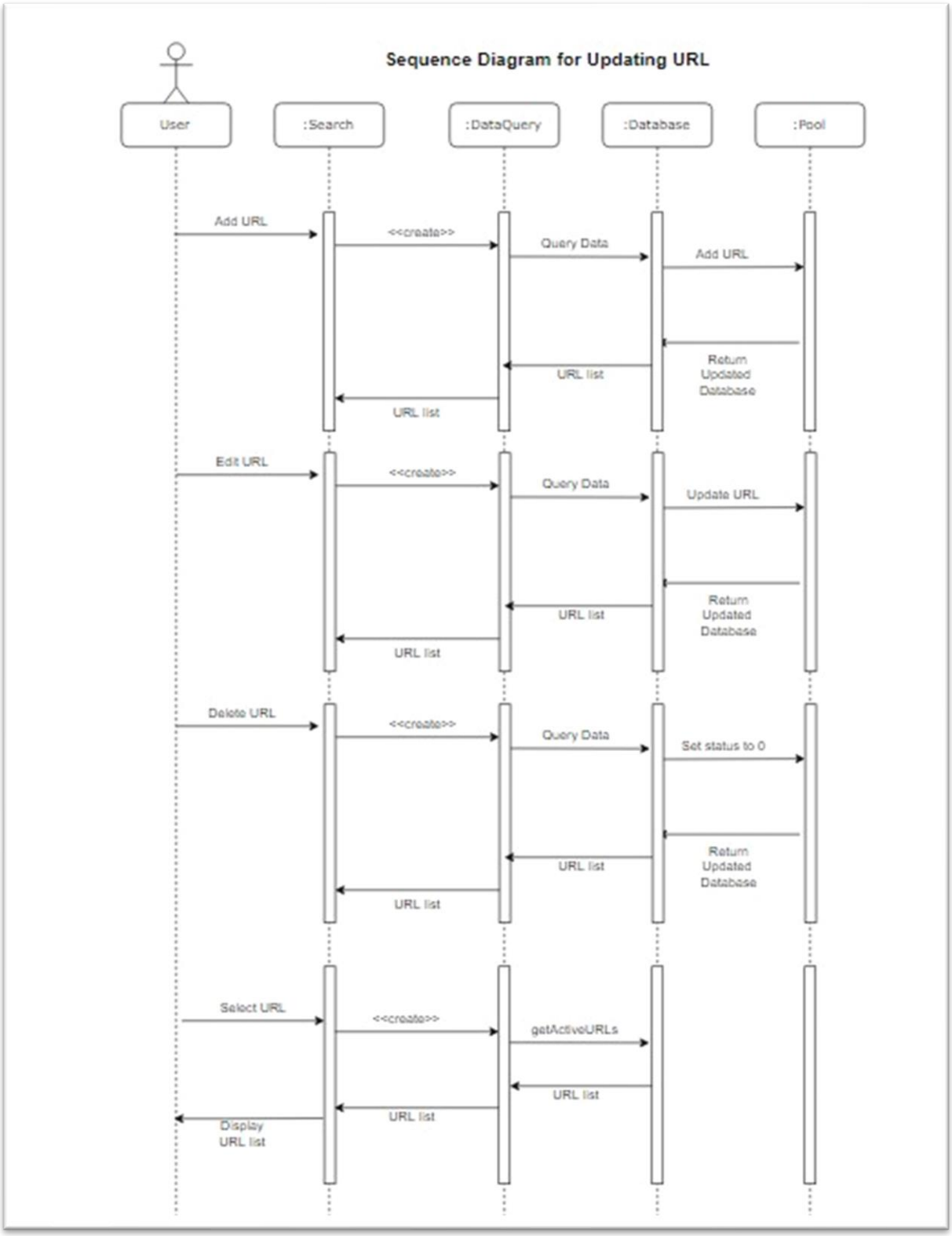
4.2.3 Class Diagram (Design Model)



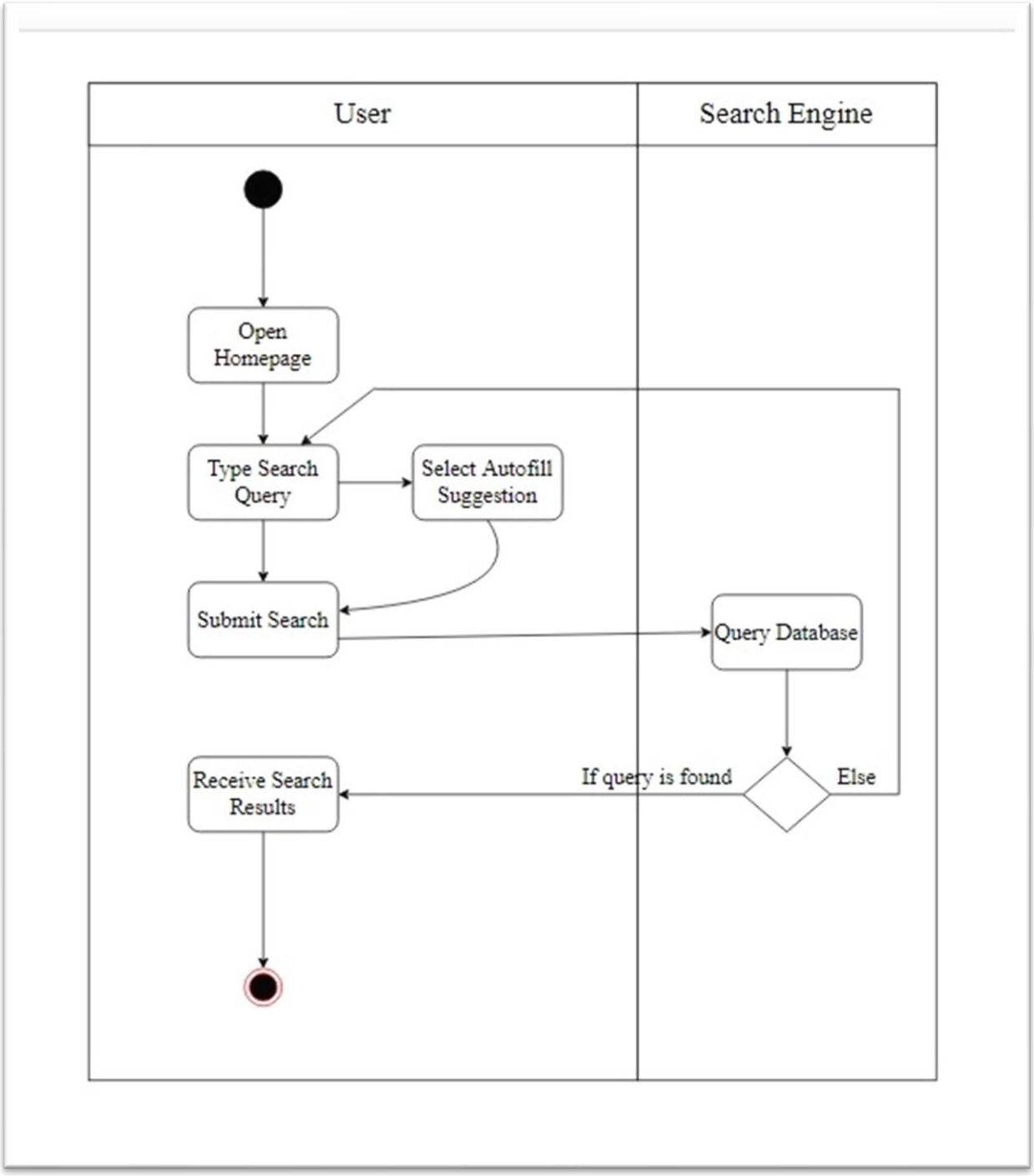
4.2.4 Sequence Diagram



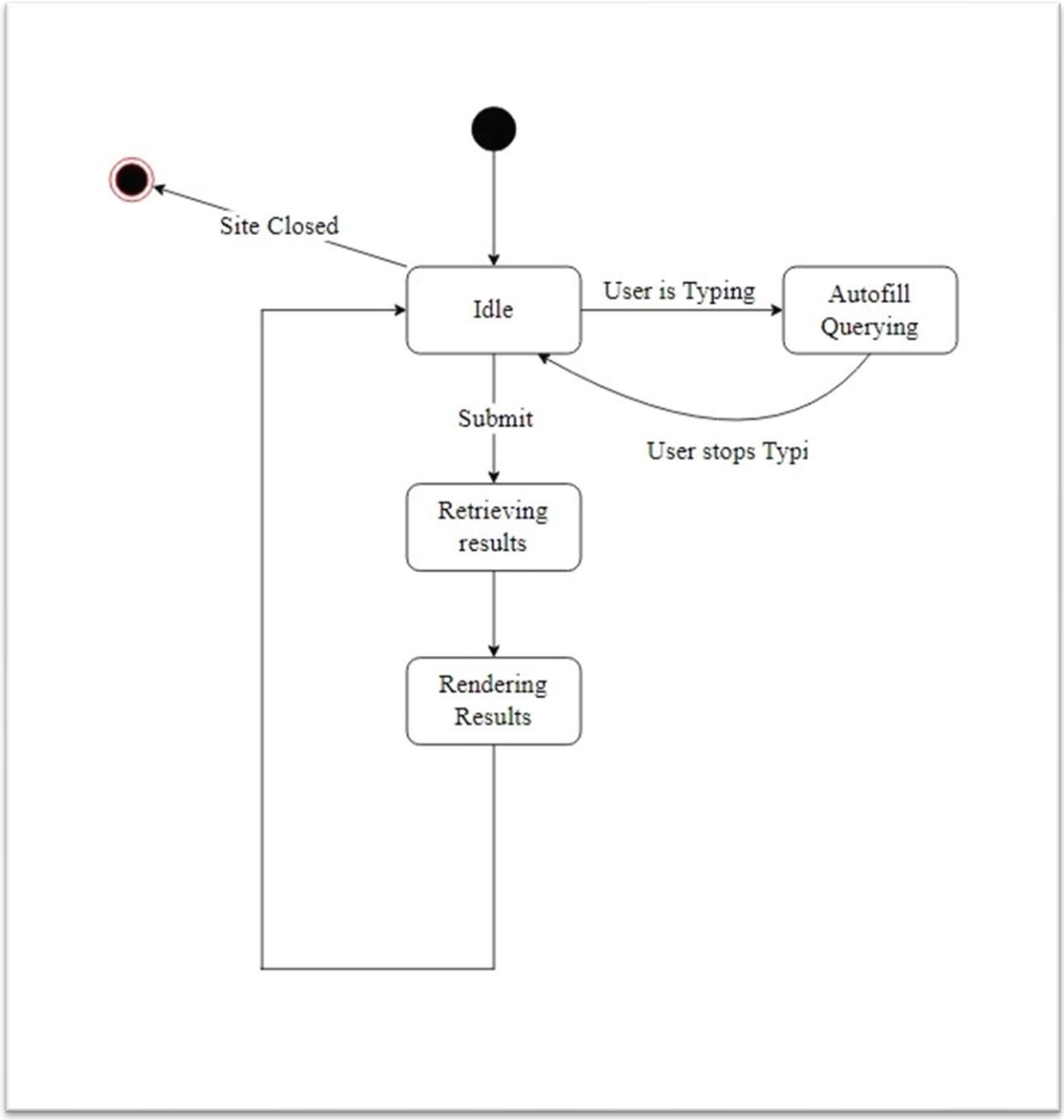

Sequence Diagram for getting URL
User
Cyberminer
Server
clickURL
Request
new website
Return URL
Open URL


Sequence Diagram for Updating URL
User
:Search
:DataQuery
:Database
:Pool
Add URL
<<create>>
Query Data
Add URL
Return Updated Database
URL list
URL list
Edit URL
<<create>>
Query Data
Update URL
Return Updated Database
URL list
URL list
Delete URL
<<create>>
Query Data
Set status to 0
Return Updated Database
URL list
URL list
Select URL
<<create>>
getActiveURLs
URL list
URL list
Display URL list

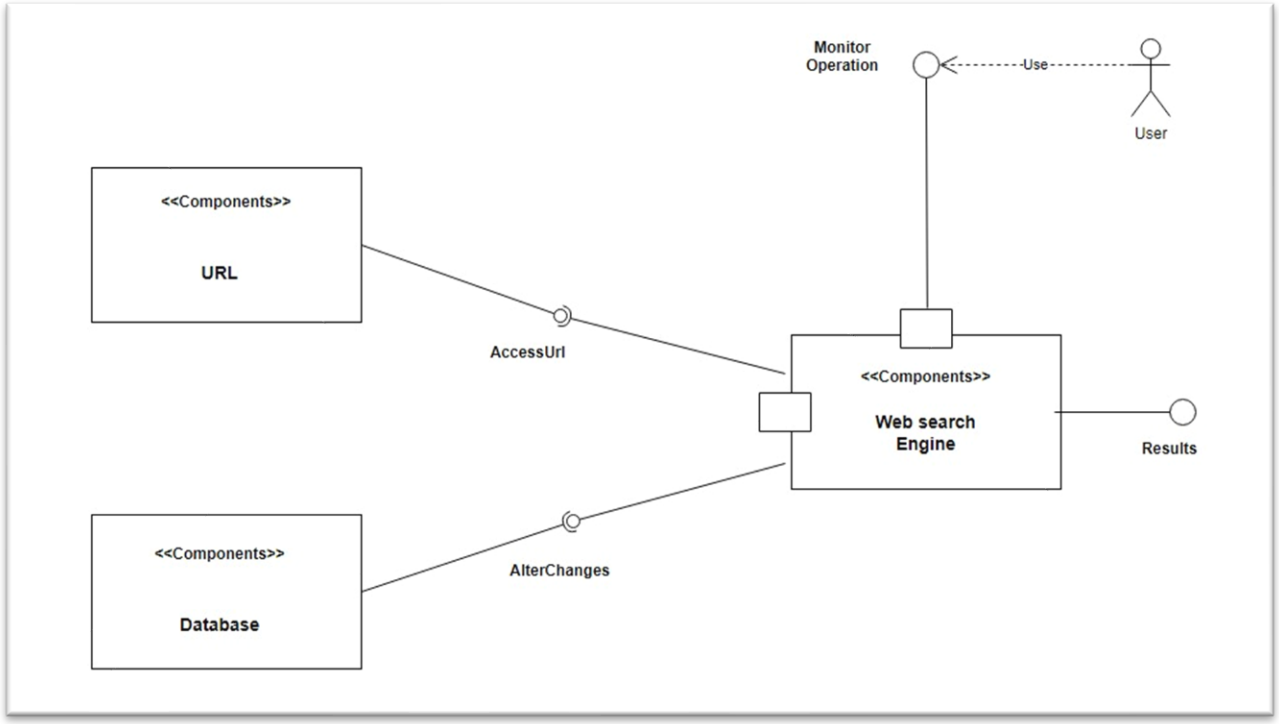
4.2.5 Activity Diagram



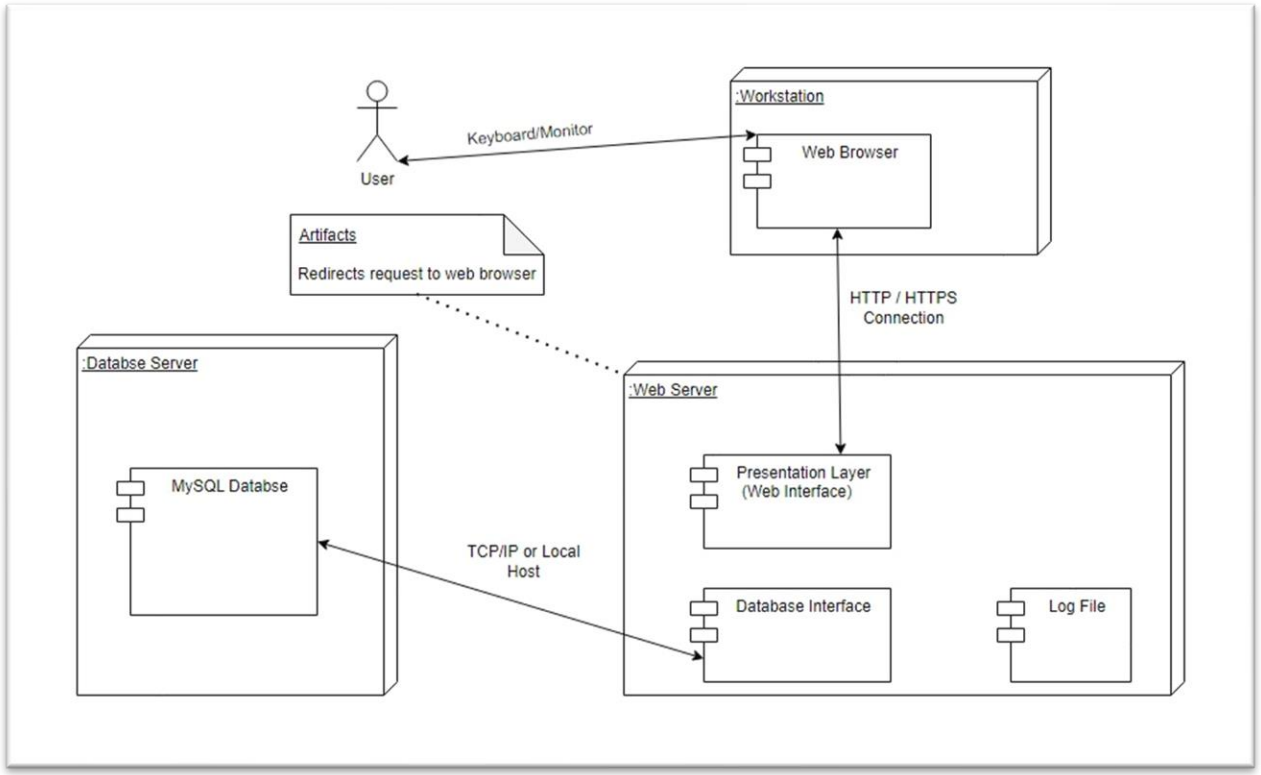
4.2.6 State Transition Diagram



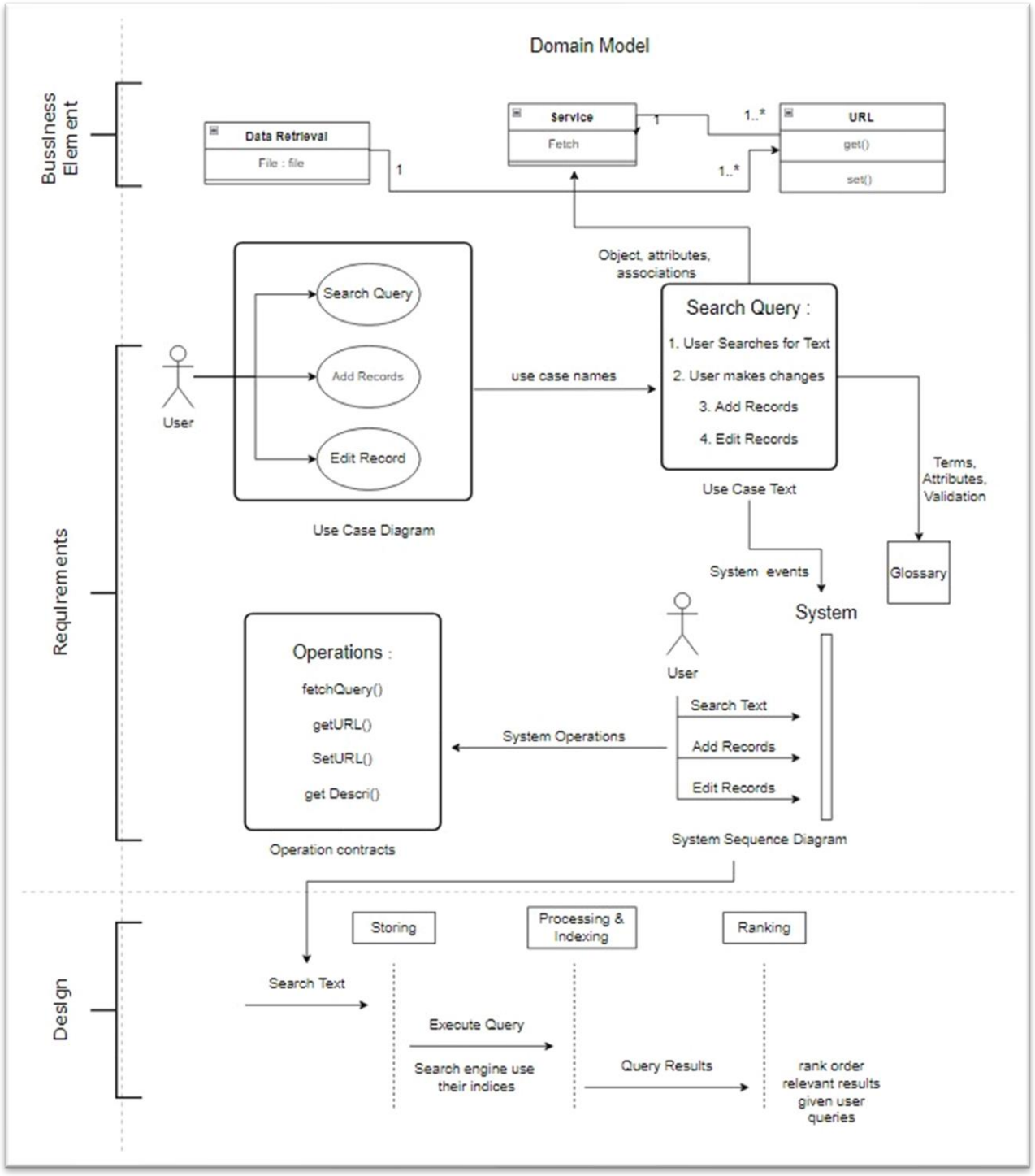
4.2.7 Component Diagram



4.2.8 Deployment Diagram



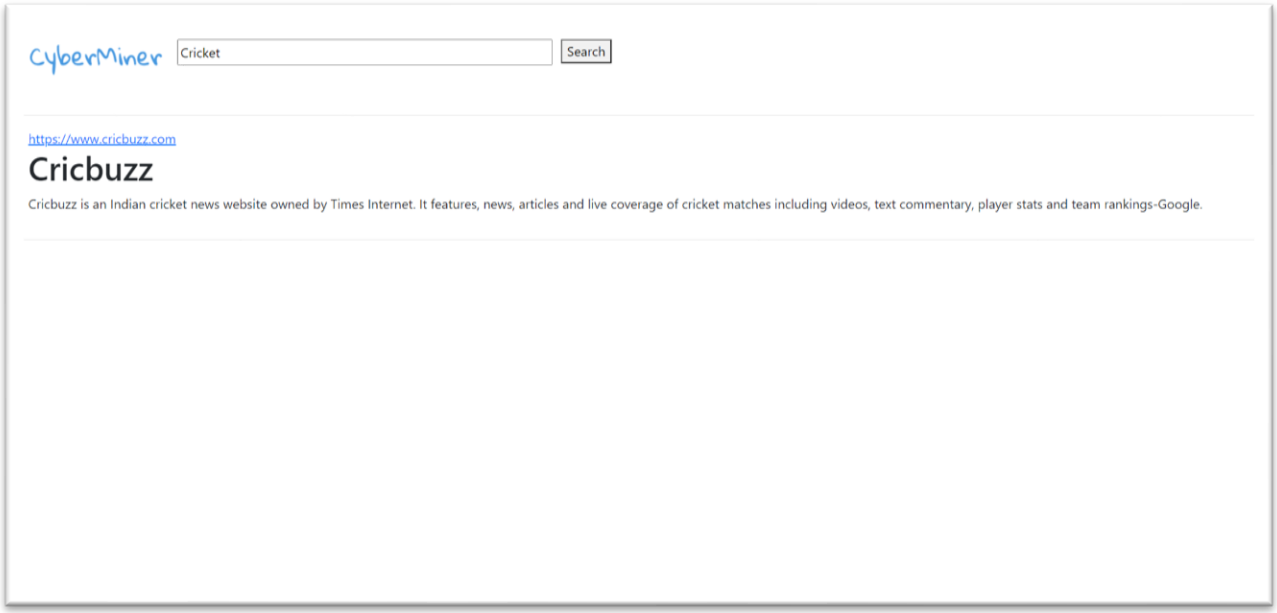
4.2.9 Road Map Diagram



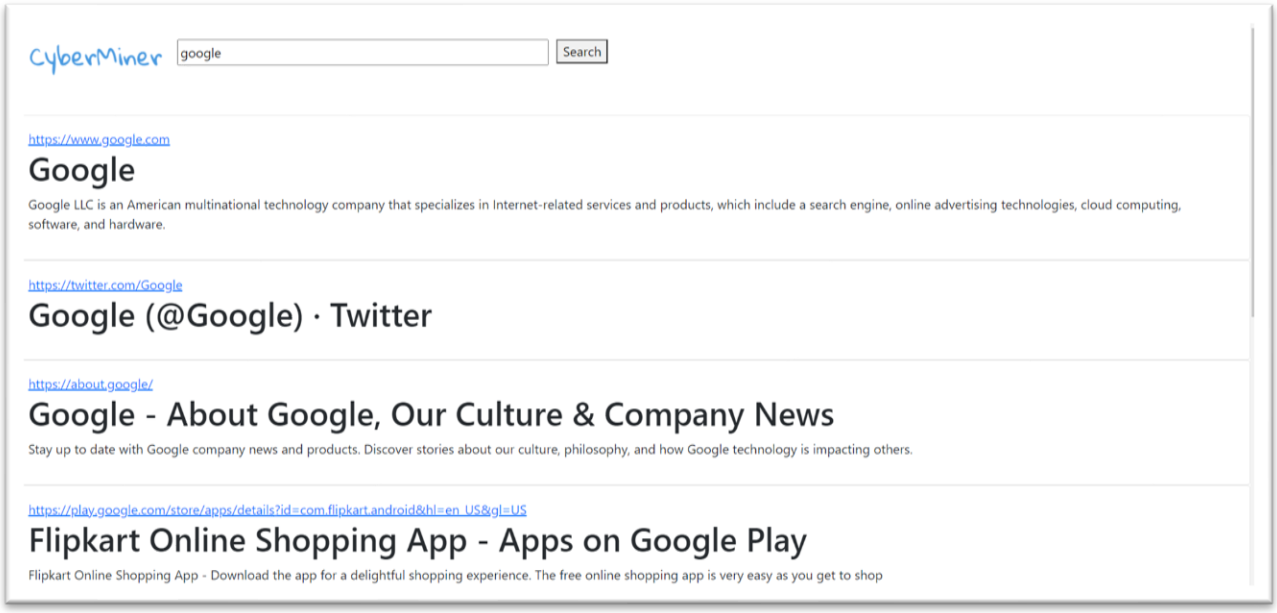
4.2.10 User Interface

Home Page

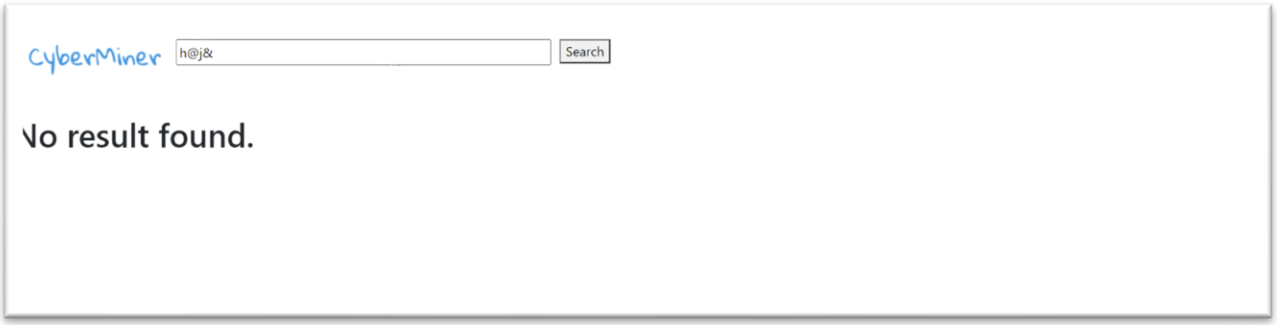
Search based on description



Search View



Invalid Query



4.3 Website Link

https://personal.utdallas.edu/~Rainam.Shah/

4.4 Demo Link:

https://drive.google.com/file/d/1JtXrV2tkj4g1QJeFvER-APf8nuolmC3p/view?usp=sharing

5. Work Element, Schedule and Budget

5.1 Work Breakdown Structure

Member	Work
Rainam Shah **Dhyani Gandhi** **Abhijeetsinh Vaghela**	All the three members have worked together in developing the user interface.
Chenyue Li	She has handled the integration of front-end code to the back-end code.
Poojitha Bijjam **Akash Karuturi** **Rohith Jallipalli** **Yasaswi Devi Tiyyagura** **Pavan Sai Pabbisetty**	Rohit, and Pavan have added URL data to the file and worked for SQL database creation. Akash, Poojitha & Yasaswi have implemented code for Flask back-end and have completed connectivity to database.
Dharav Bhatt **Rutvik Avaiya** **Yash Majmudar** **Yang Yang**	Dharav has prepared this report and managed the UML diagram work. Rutvik, Yash and Yang have made the UML diagrams.

5.2 Team Meetings and Planning

Team	Date
Whole Team	Jan 31, Feb 7, Feb 14, Feb 21, Feb 28, Mar 2, Mar 4, Mar 6, Mar 7, Mar 14, Mar 21, Mar 28, Apr 4, Apr 11, Apr 18,
Front-end	Feb 11, Feb 18, Feb 25, Mar 4, Mar 11, Mar 18, Mar 25, Apr 1, Apr 8, Apr 15
Back-end	Feb 22, Feb 26, Mar 2, Mar 6, Mar 20, Apr 3, Apr 4, Apr 17, Apr 3, Apr 4, Apr 14
UML and Documentation	Feb 9, Feb 23, Mar 2, Mar 23, Mar 30, Apr 6, Apr 11, Apr 15