UNIVERSITY OF PETROLEUM & ENERGY STUDIES,
DEHRADUN- 248007. Uttarakhand

Software Requirements Specification

TECH-QUERY RECOMMENDATION SYSTEM

Mentored by
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Prepared by

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1. INTRODUCTION

1.1 Purpose of the Project:

A recommendation system in simple words is an algorithm that suggests relevant items to users.

The purpose of this document is to present a detailed description of the Recommender System that we will design and implement. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate. This document is intended for both the stakeholders and the developers of the system. The corresponding environments that this project will be integrated to are supposed to and probably will have a large number and variety of users in which many of them need such 5 systems to find whatever it is they need. The users may or may not be aware of their need for a recommendation feature on the software or website they are using, but such features can increase efficiency and save time to users, while they are looking in a place where there is a large number and variety of content which causes them to waste a lot of time to find what they need. From another point of view, there might be users that don't exactly know what they are looking for and such situations can also make a useful solution out of this project.

1.2 Target beneficiary

-> This project will be useful to sort massive amount of questions to identify interests of users
-> Makes information search easier.
-> To reduce time in debugging and solving queries of programmers.

1.3 Project Scope:

-> Search history based recommendations
->Recommendations based on real-time data

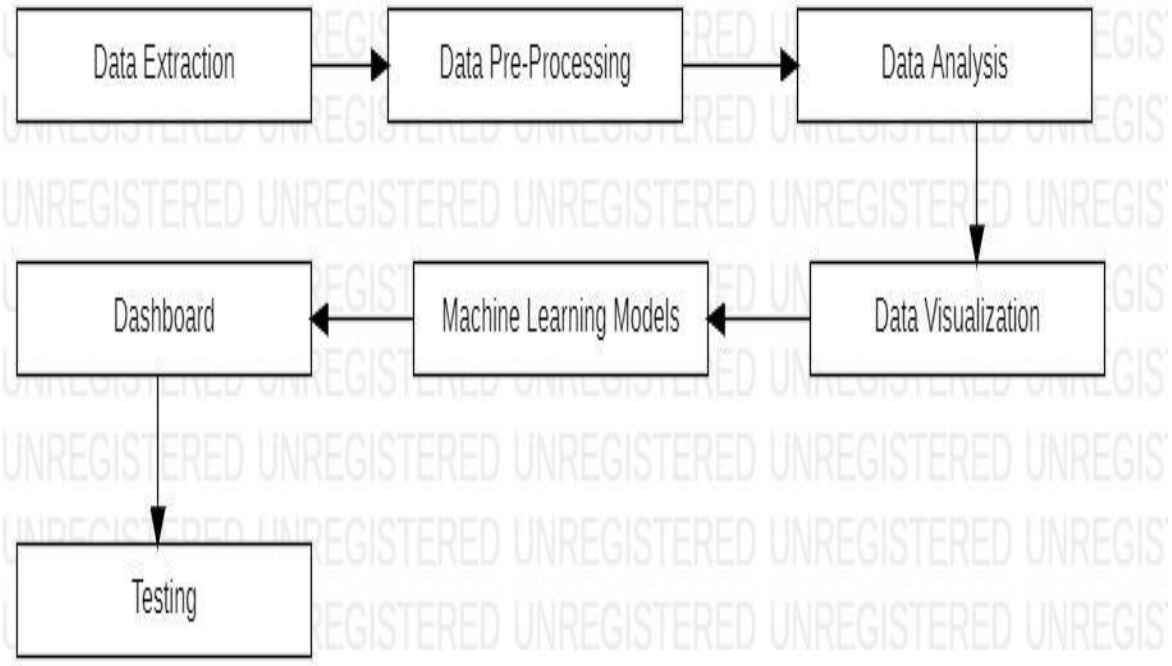
2. PROBLEM DEFINITION

We are working on some common problems the recommender systems face and trying to improve the current solutions on these problems to increase the accuracy of the recommendations. The main issues would be huge, dense & sparse data sizes. There also may be issues about similarity, calculations, and data integration. To make the picture more clear, if we are to specify data integration process as an example, to integrate data from different sources requires combining heterogeneous data sources under a single query interface which raises an important issue. The problem about huge and dense data is that it may lead to the need of more complex calculations with inefficient speed. Therefore we need to work heavily on different paradigms, algorithms, and databases to create an efficient solution even for very large data sets. Sparsity of data is also a major issue, because no matter how well the algorithms are, if there is no data to process, this system will be of no use. Therefore we need to create solutions to also deal with these situations.

2.1 Reference Algorithm:

KKN and Collaborative filtering algorithm is used to implement this project .

Flow chart:



2.2 SWOT ANALYSIS

Strength:

->It can be updated any time
->Users can find the required answer easily without any hassle
-> Suggests/Recommends the users similar questions

Weakness:

->We need real time data.

Opportunities:

-> We can develop an application based system and make it handy/user friendly

Threats:

->Protection of the users' personal information, ratings,and reviews is not possible.

2.3 Project Features:

- Enhance User Experience
- Reduced Churn
- Increased loyalty and share of mind
- User friendly

2.4 DIAGRAM:

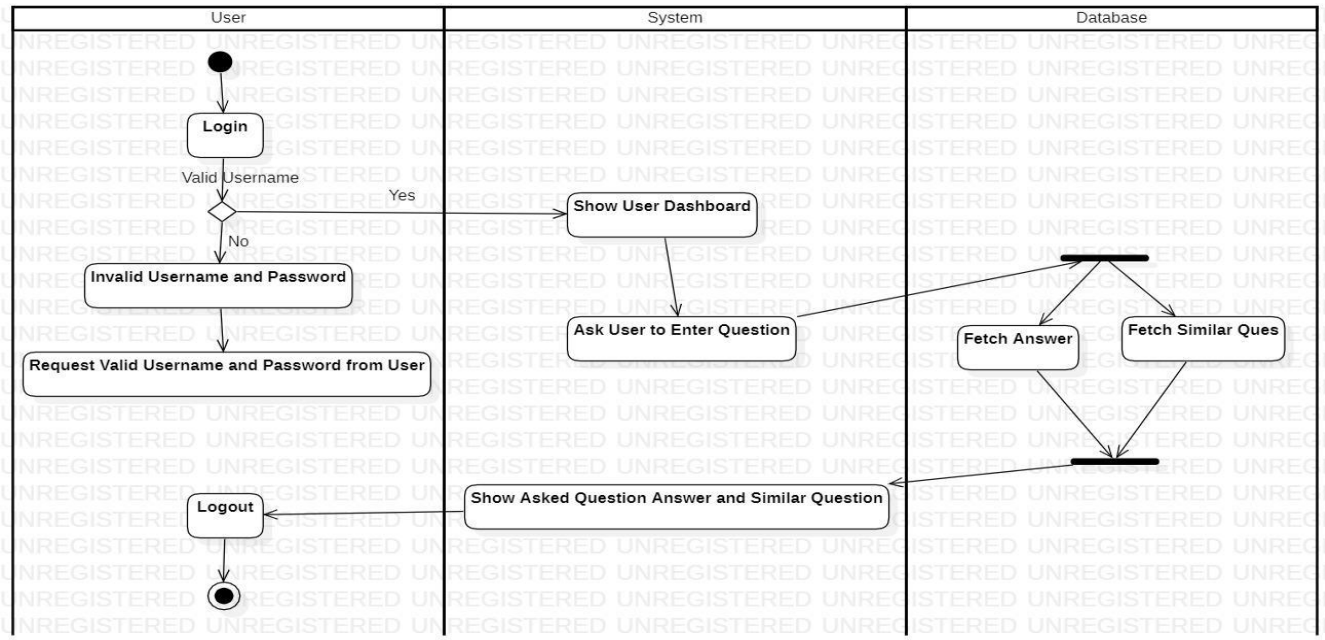


Fig 1: Activity Diagram

2.5 Design and Implementation Constraints

We have minimum requirements for this:

OS-Windows
RAM:512 MB
Hard disk or ssd:5gb /256gb
Language:Python
Software:Anaconda

3. SYSTEM REQUIREMENTS

3.1 User Interface

There will be one type of user. Therefore there are no differences between users in terms of functionality, visualization and interface. The user interface is only depend on the websites designers. The website that our system is working on the background of it can offer different opportunities to its users. For example, a website can offer the right to choose background image to each of its users. However the architecture will probably be the same for all users.

Then the recommendations will be specified according to the algorithm that depends on user actions. These actions are determined by some parameters such as the time and date or how frequently question has been searched. Up to now, we mentioned about how the recommendation will be done, but making recommendation more recognizable is also an important point. After getting a recommendation to user, the system should display it on the interface. However, if the recommendations cannot get user's attention, all the work done up to now might come to nothing. Therefore, they should be displayed on the user interface spectacular.

3.2 Software Interface

First of all, the application needs to have technical queries data to make recommendation to user and user data to evaluate. User data is necessary to make a really relevant recommendation. The system will use this information to make inference about recommendation by getting user's actions.

Software interfaces (programming interfaces) are the languages, codes and messages that programs use to communicate with each other and to the hardware. Examples are the Windows, Mac and Linux operating systems, SMTP email, IP network protocols and the software drivers that activate the peripheral devices.

An interface is the means of connecting one module to another. It tells you what to expect about the behaviour of a given module and what services it will provide, without telling you how those services will be provided. For example, the interface can define how a bank accounts module will respond to queries about the balance of an account or the types of accounts available.

The interface of a module is a description of all the externally visible operations and what other modules need to know and do to make use of them, but without any details of how the operations are implemented internally. From an object-oriented point of view, we say that the interface to the bank accounts module is an encapsulation of what we know about accounts in a bank.

3.3 Database Interface

For storage of queries and their links with their tags there is structured data base required.

3.4 Protocol

Wireless Application Protocol. It is a protocol designed for micro-browsers and it enables the access of the internet in mobile devices. It uses the mark-up language WML (Wireless Markup Language and not HTML), WML is defined as an XML 1.0 application. It enables creating web applications for mobile devices. In 1998, WAP Forum was founded by Ericson, Motorola, Nokia and Unwired Planet whose aim was to standardize the various wireless technologies via protocols.

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4. NON-FUNCTIONAL REQUIREMENT

4.1 Software Quality Attributes

4.1.1 Availability

IDE should be available with all the header files included.

4.1.2 Correctness

Syntax, logic and all the programming code methods must be applied precisely to avoid errors.

4.1.3 Flexibility

Answers and questions can be updated on a regular basis without any hassle.

4.1.4 Portability

As our software is platform independent so it is easily portable.

4.2 Other Requirements

- Technical and conceptual knowledge
- Programming knowledge
- Knowledge python ,data analysis and extraction.

5. REFERENCES

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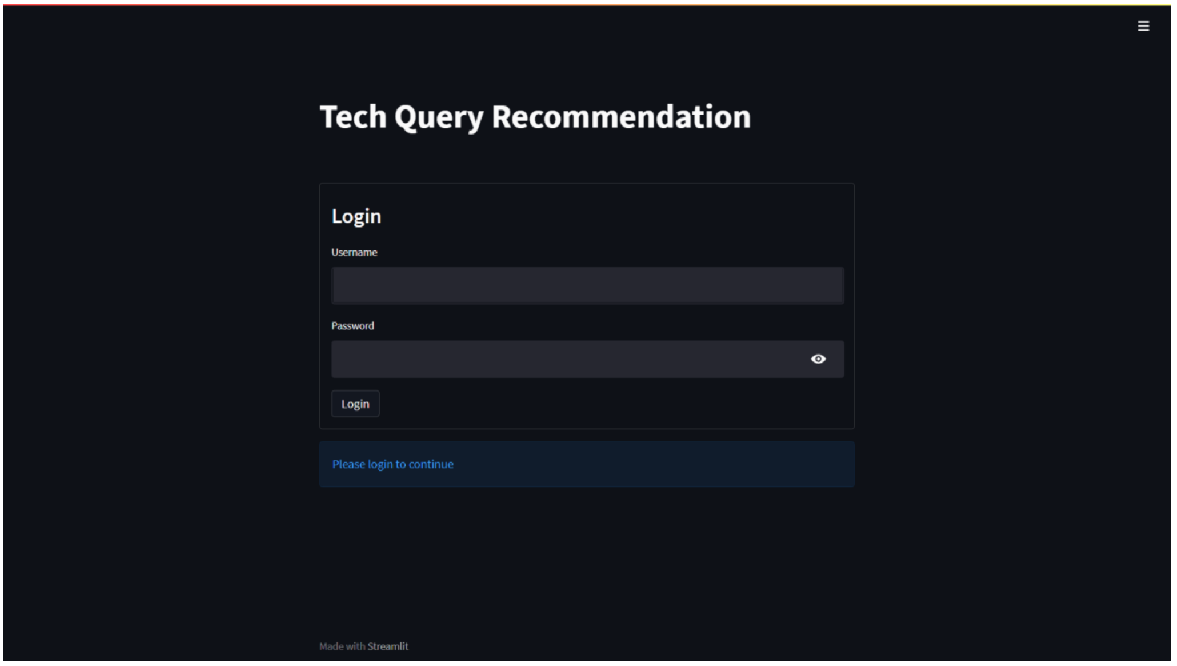
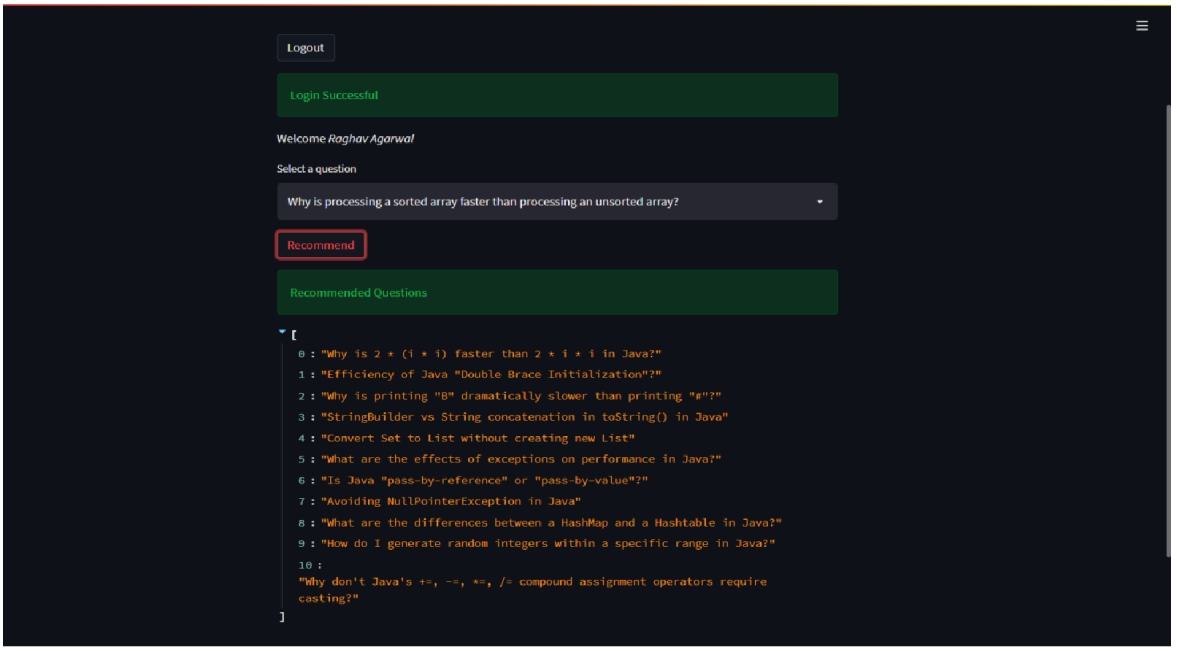
6.RESULT

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[
0 : "Why is 2 * (i * i) faster than 2 * i * i in Java?"
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2 : "Why is printing "B" dramatically slower than printing "#"?"
3 : "StringBuilder vs String concatenation in toString() in Java"
4 : "Convert Set to List without creating new List"
5 : "What are the effects of exceptions on performance in Java?"
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7 : "Avoiding NullPointerException in Java"
8 : "What are the differences between a HashMap and a Hashtable in Java?"
9 : "How do I generate random integers within a specific range in Java?"
10 :
"Why don't Java's +=, -=, *=, /= compound assignment operators require
casting?"
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