

BANASTHALI VIDYAPITH



Apaji Institute Of Mathematics & Applied Computer Technology

Software Requirements Specification

For

College Enquiry System with Chatbot - Praksh

(Version 1.0 approved)

Group ID: IT18

(Dated: 30th Jan 2022)

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1. Introduction

1.1 Purpose

The main purpose of this project is to provide correct information about our College- Banasthali Vidyapith by covering almost all FAQs by parents and other users. Along with this, it will also cover the FAQs for Students and Faculties of Banasthali Vidyapith.

The purpose of this document is to provide necessary information regarding specific requirements, that are required to build and run this project.

1.2 Document Conventions

High Priority Content is highlighted by making it “**BOLD**”.

1.3 Intended Audience and Reading Suggestions

The intended audience for this document are as follows:

- **Developers:** The developers would use this document to implement the functionalities and to ensure traceability of the software.
- **Designers:** The designers would use this document to design all the user interfaces required for the easy implementation of the software.
- **Testers:** The testers would use this document to know the interfaces and to test the software accordingly.
- **Guest Users (including guests, students and faculties):** The users would use this document to verify if the requirements specified satisfy their needs.
- **Admin:** The admin will use this document to implement the functionalities in order to manage the database.

1.4 Product Scope

The main purpose of our Website is to provide correct information about Banasthali Vidyapith by covering almost all the FAQs, generally parents, students and admission takers seek for. Apart from this, our website also resolves basic queries of students and faculties, related to the college- Banasthali Vidyapith.

“**Praksh**” is a chatbot based website which provides users with answers to all of their queries related to Banasthali Vidyapith.

The scope of the project can be listed as under:

- Administrators will be responsible to maintain the overall database of the website.
- Users will be able to ask their queries to the chatbot.
- Students will be able to ask their classes, etc related queries to chatbot.
- Faculties will be able to ask their queries to the chatbot.
- Chatbot will match the queries and answer accordingly. If any query doesn't match, it will show the “sorry message”.

Note: Users of the website can be **Student, Faculty, Parents, Admission seeker** and **Administrator**. All the users will have different access and rights granted by this website.

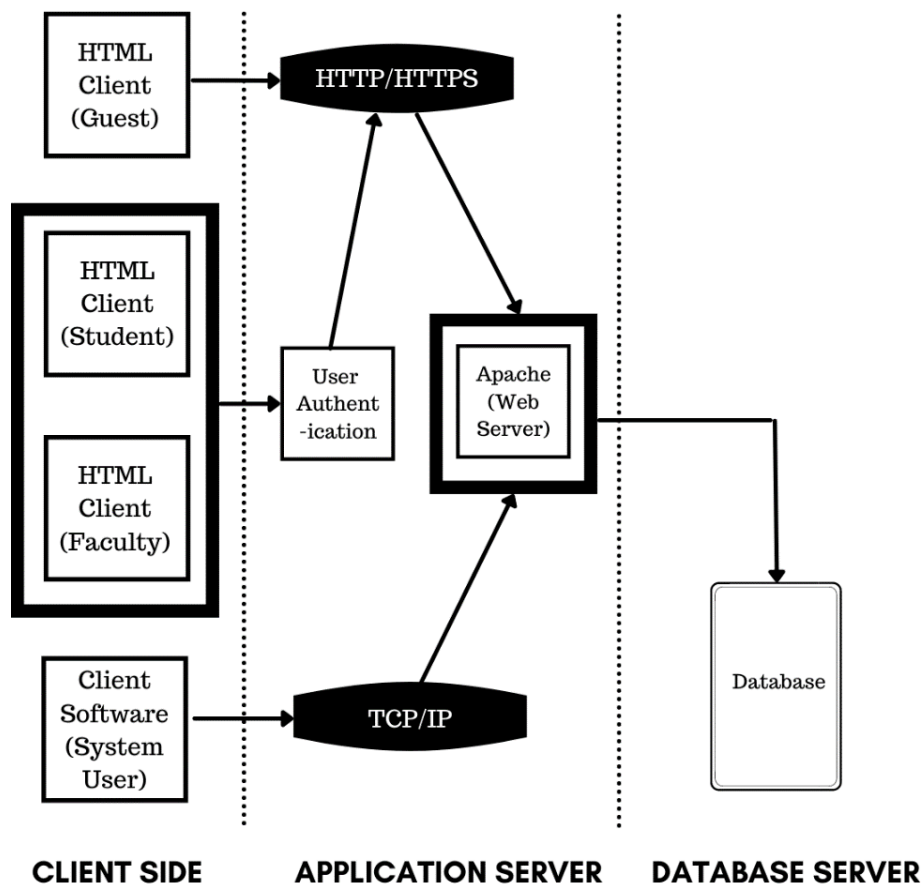
1.5 References

- Pressman Roger S., Software Engineering “A Practitioner’s Approach” Fifth Edition, McGraw-Hill Publication.
- Navathe Shamkant B., Fundamentals of Database Systems, Fifth Edition, Pearson Publication.
- IEEE STD 830-1998, IEEE Recommended Practice for Software Requirement Specifications.

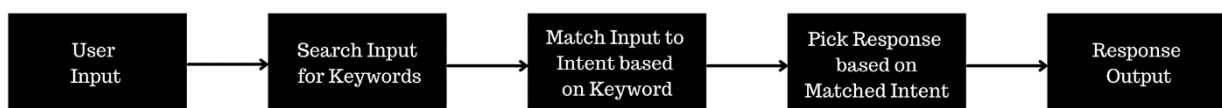
2. Overall Description

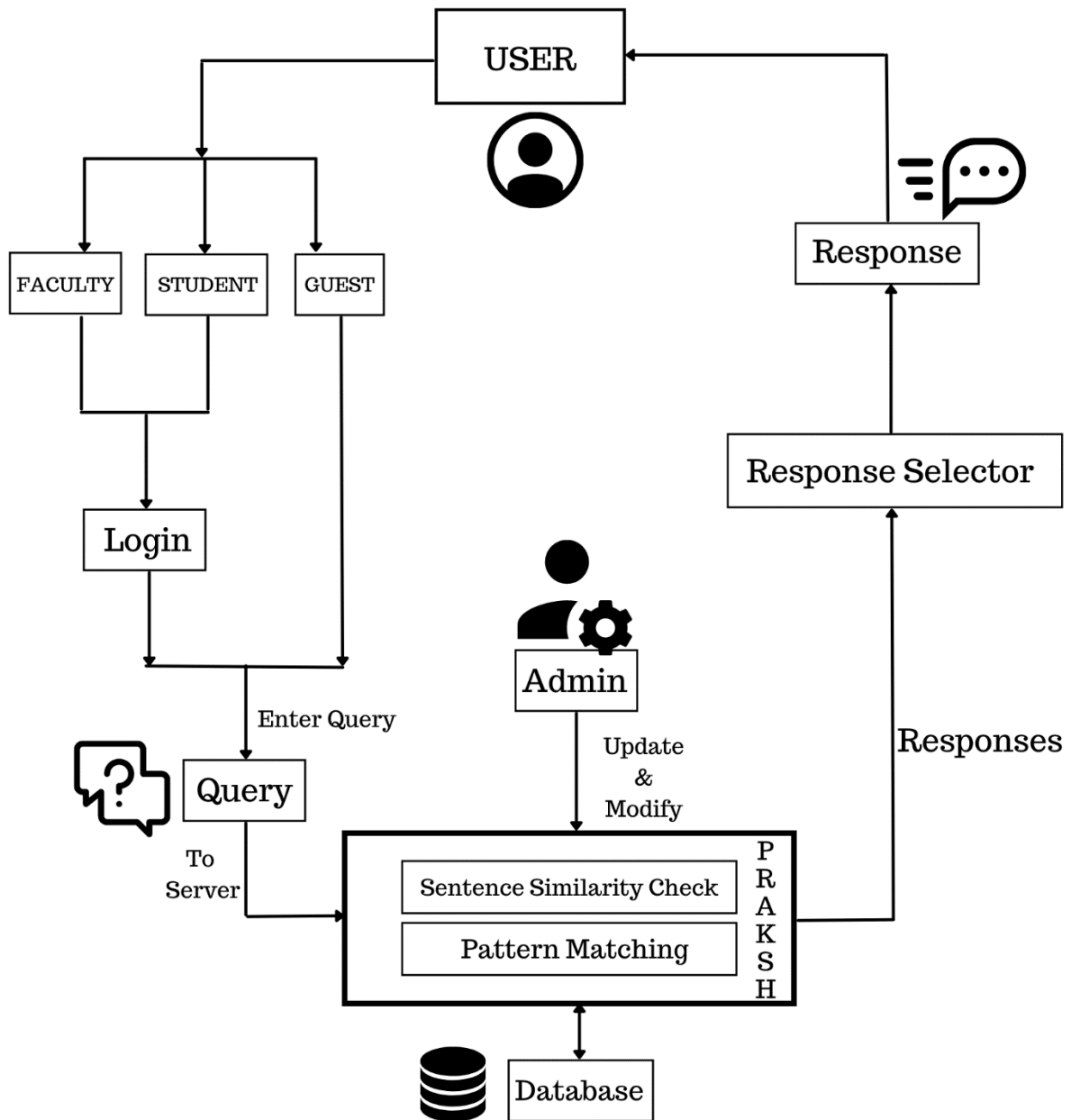
2.1 Product Perspective

This website is mainly aimed towards admission seekers to Banasthali Vidyapith, students and faculties of Banasthali Vidyapith. This website will be user friendly and reliable.



- System Architecture:





2.2 Product Functions

“Praksh” will allow:

- Guest users can directly use the chatbot by just clicking on the “Guest button” on the first page.
- Login of the Student to the system through the first page.
- After the login of the Student, they can ask queries to the Chatbot.
- Login of the Faculty to the system through the first page.
- After the login of the Faculty, they can ask queries to the Chatbot.
- For each type of user, Chatbot will match query by using “Pattern matching Algorithm”, with database query and give response accordingly.
- If query does not match with database, it will give sorry message.

2.3 User Classes and Characteristics

User classes are mainly focused on four types of users:

- **Users:** They can directly use the website with simple clicks.
- **Student:** Students need to authenticate their login by entering ID and Password.
- **Faculty:** Faculty Members need to authenticate their login by entering ID and Password.
- **Admin:** Admin is able to add/modify or delete queries and responses.

2.4 Operating Environment

This website is more flexible to coexist in use with Laptops and PCs with any updated version of Windows, Linux, Ubuntu etc. It can be accessed through any browser.

2.5 Design and Implementation Constraints

- **Praksh** is a rule-based chatbot that can only comprehend a limited range of choices that it has been programmed with. Predefined rules define the course of this chatbot's conversation. It is based on (true-false) **Pattern Matching Algorithm** to understand user queries and provide relevant answers.
- The design of the website is compatible with Laptops and PCs, and thus it needs to be modified according to the devices.

2.6 Assumptions and Dependencies

- The questions included in the Chatbot- **Praksh** are based/depend on Survey (taken from college students and their parents). These questions are assumed to be most frequently asked.
- The user must have the ability to use the Internet.
- The user must have been connected to the Internet to use the system.
- The user's computer can have any of the listed operating systems: Windows XP or later versions, LINUX based systems (such as Ubuntu 9.10 and later versions), MAC OS 10 and Microsoft Internet Explorer 5.5 or later versions.
- TCP/IP protocol must be installed to communicate through HTTP messages.
- The accuracy of the information is the responsibility of all users.

3. External Interface Requirements

3.1 User Interfaces

The website will have a simple interface. The top of every page will carry the logo or name of the college- **Banasthali Vidyapith**. The bottom will carry the names of the system developers.

First page will have a menu that will provide access to following screens:

- About Us
- Contact Us

On the side corner, there will be three buttons- Guest, Student, Faculty.

All the above mentioned standards will apply in general, unless specifically stated otherwise.

The following interfaces will be available:

→ **To the general user (guest):**

Default: The user will be directed to this page by single button click. Hence it will be the 2nd page and can directly ask queries to the chatbot- **Praksh**.

→ **To the Student:**

Default: The user will be directed to this page by single button click. Hence it will be the 2nd page. It will provide a link to **Login as Student**.

- **Login:** A login area will be provided where user will be required to supply ID as username and password in order to log into her account and ask the queries.

→ **To the Faculty:**

Default: The user will be directed to this page by single button click. Hence it will be the 2nd page. It will provide a link to **Login as Faculty**.

- **Login:** A login area will be provided where user will be required to supply ID as username and password in order to log into his/her account and ask the queries.

3.2 Hardware Interfaces

- **Server Side:**
 - Processor – 1-2 GHz (ex. P-IV) or onwards
 - RAM – 4 GB
 - HDD – 40GB or more (free space excluding data size)
- **Client Server:**
 - Processor – 1-2GHz (ex. P-IV) or onwards
 - RAM – 4 GB
 - HDD – 40GB or more (free space excluding data size)
- **Developer Side:**
 - Processor – 2.50 GHz Core i5
 - RAM – 8 GB
 - HDD – 40GB or more (free space excluding data size)

3.3 Software Interfaces

- **Server Side:**
 - OS – Windows Server 2003 or onwards
 - Web Server – Apache Tomcat
 - Database Server – Wamp
 - Database- PhpMyAdmin
- **Client Side:**
 - OS – WINDOWS XP or later, Linux etc.
 - Browser – Any browser compatible with IE 5.0 or onwards


- **Developer Side:**
 - OS – Windows 7 onwards
 - IDE– Visual Studio Code, Notepad++, etc.
 - FRONT END –HTML, CSS
 - BACK END – PHP
 - BROWSER – Any browser compatible with IE 5.0 or onwards
 - SERVER – Wamp- Localhost

3.4 Communications Interfaces

PROTOCOLS – TCP/IP, HTTP

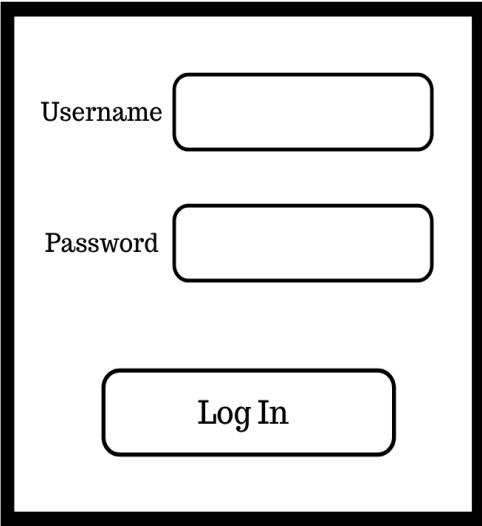
4. System Features

- Home Page Interface will have 3 buttons for all types of users.



A diagram showing three rectangular buttons stacked vertically within a thick black border. The buttons are labeled 'GUEST', 'STUDENT', and 'FACULTY' from top to bottom.

- For Student and Faculty, user will be directed to Login page interface. This includes space for entering Username and Password. After that, user needs to click the Log In Button.



A diagram showing a login form within a thick black border. It includes two input fields: 'Username' and 'Password', each followed by a rectangular input box. Below these fields is a 'Log In' button.

- Guest User will directly interact with the chatbot. And Faculty/Student will be able to interact with the chatbot, after successful login.
- Praksh will have space for asking query in bottom and a Go Button to send the query.

Praksh
Guest/Student/Faculty Chatbot

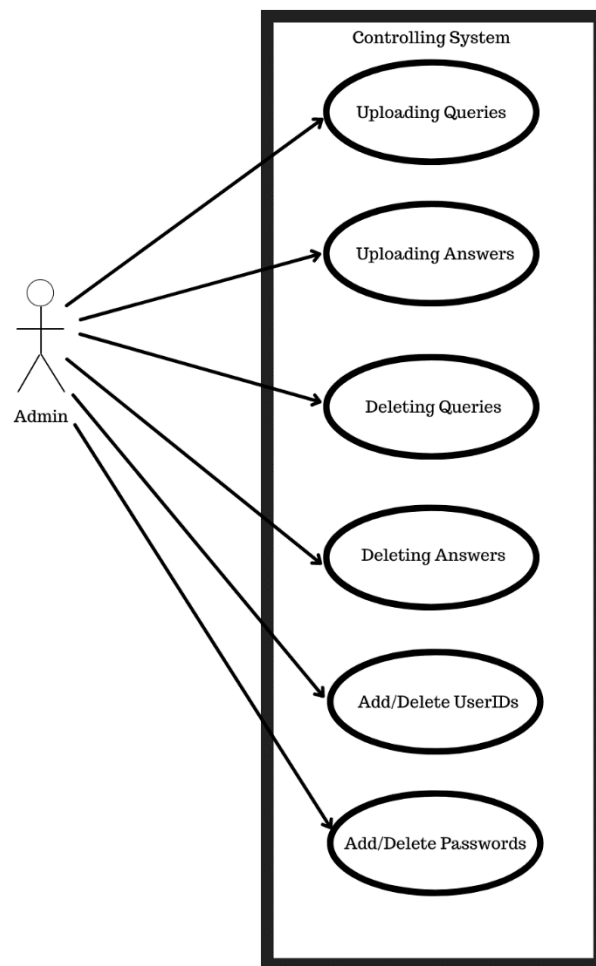
Hello!

Hi!
How can I help you?

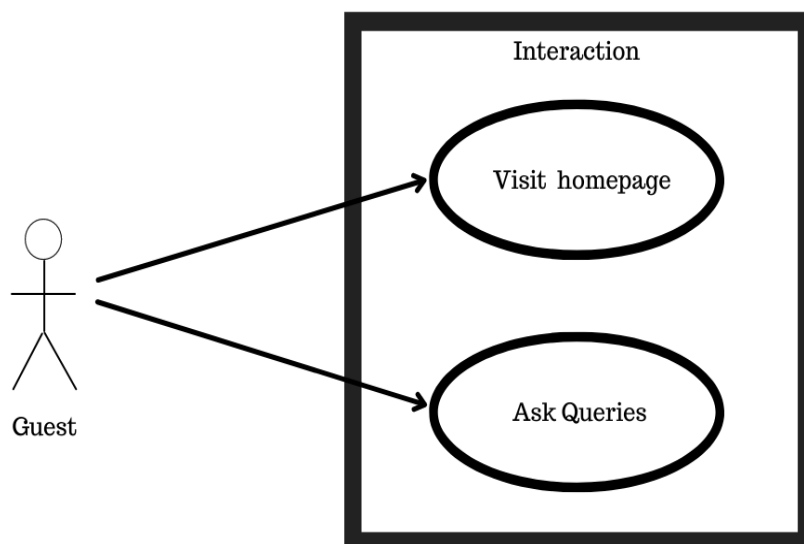
Type Your Query here

Go

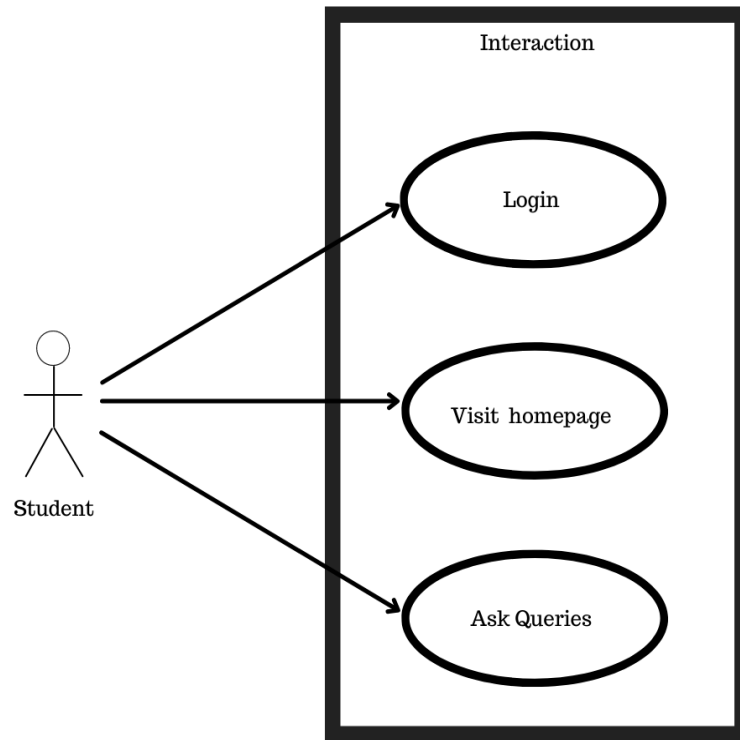
- **Use case Diagram for Admin:**



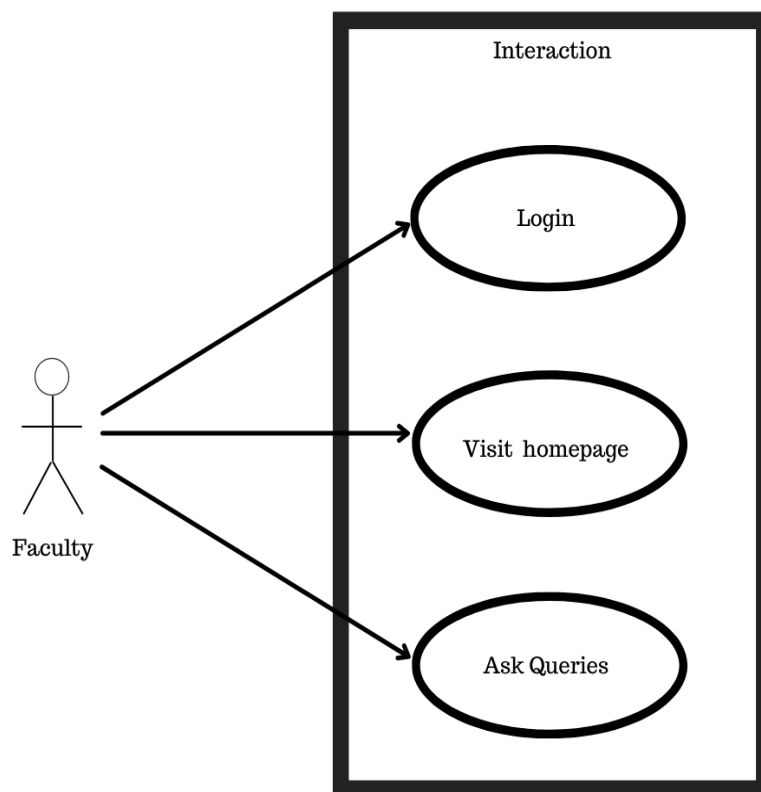
- **Use case Diagram for Guest User:**



- **Use case Diagram for Student User:**



- **Use case Diagram for Faculty User:**



▪ **The Use Cases are as follows:**

▪ **USE CASE NO.-1**

Use Case Name	Guest Redirection
Actors	Guest User
Description	This module will help guest users to directly interact with Praksh Guest Chatbot by single click.
Normal Course Events	<ol style="list-style-type: none"> 1. Homepage is displayed. 2. System connects to Chatbot. 3. Chatbot connects to database.
Output	Chatbot page will be displayed and guest user can ask queries.

▪ **USE CASE NO.-2**

Use Case Name	Login
Actors	Student
Description	This module will help students to directly interact with Praksh Student Chatbot by login.
Pre-conditions	There should be an existing User Id and Password.
Input	Registered User Id and Password.
Normal Course Events	<ol style="list-style-type: none"> 1. Homepage is displayed. 2. Student enter their User ID and Password. 3. System connects to Chatbot. 4. Chatbot connects to database.
Alternative Courses	<ol style="list-style-type: none"> 1. Student enters incorrect User ID and Password. 2. Login Failed. 3. Continue with Step 2 in the normal course events.
Output	Chatbot page will be displayed and Students can ask queries.

▪ **USE CASE NO.-3**

Use Case Name	Login
Actors	Faculty
Description	This module will help students to directly interact with Praksh Faculty Chatbot by login.
Pre-conditions	There should be an existing User Id and Password.
Input	Registered User Id and Password.
Normal Course Events	<ol style="list-style-type: none"> 1. Homepage is displayed. 2. Faculty enter their User ID and Password. 3. System connects to Chatbot. 4. Chatbot connects to database.
Alternative Courses	<ol style="list-style-type: none"> 1. Faculty enters incorrect User ID and Password. 2. Login Failed. 3. Continue with Step 2 in the normal course events.
Output	Chatbot page will be displayed and Faculties can ask queries.

▪ **USE CASE NO.-4**

Use Case Name	Controlling System-(Data Modification)
Actors	Admin
Description	<ol style="list-style-type: none"> 1. Admin can add/delete User IDs and Passwords. 2. Admin can add/delete or modify queries and responses.
Pre-conditions	Admin can directly access database.
Input	User ID, Password and Query Modification.
Normal Course Events	<ol style="list-style-type: none"> 1. User ID Added/Deleted. 2. Password Added/Deleted. 3. Query Added. 4. Query Deleted. 5. Response Added. 6. Response Deleted.
Output	Query/Response Modified.

4.1 System Feature 1: Student/Faculty Login-Authentication

4.1.1 Description and Priority

Student and Faculty members need to login with their respective Ids and Passwords. This feature is of high priority, so that only Student and Faculty of Banasthali Vidyapith, can get their specific details and answers to their queries.

4.1.2 Stimulus/Response Sequences

The responses of Students/Faculty login will be checked with the back-end database to verify the genuine login.

4.1.3 Functional Requirements

In order to have back-end data, admin must enter all the necessary information before-hand using PhpMyAdmin.

4.2 System Feature 2: Query matching by following Pattern Matching Algorithm

4.1.1 Description and Priority

Praksh Chatbot will use pattern matching to produce responses to queries. This technique deployed matching pattern to generate appropriate response from users' questions, which depends on different types of matching such as simple statements or the meaning of enquires. Pattern matching is often referred to as "brute force" as the developer of the system needs to describe every pattern and its response.

4.1.2 Stimulus/Response Sequences

The query of users will be matched with the database and response based on that query will be generated back by the Chatbot.

4.1.3 Functional Requirements

In order to have back-end data, admin must enter all the necessary information and responses before-hand using PhpMyAdmin.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

If developers are using Visual Studio Code, extensions for HTML, CSS and PHP must be added prior to run the codes.

5.2 Security Requirements

The authorization mechanism of the system will block the unwanted attempts to the server and also let the system decide on which privileges may the user have.

The system has different types of users so there are different levels of authorization

5.3 Software Quality Attributes

5.3.1 Reliability

A backup file is maintained so that in case of system crash, the data will not be affected.

5.3.2 Portability

The system is developed using Visual Studio Code or Notepad++ which provides a framework for developing web based applications.

5.3.3 Maintainability

This website will follow the modular structure so it will be easy to maintain.

5.4 Business Rules

The data of the college students and faculties requires privacy in accordance with college, hence, data as back-end must be operated by administrative staff of the college and must follow the university rules.

Appendix A: Glossary

Definitions, Acronyms and Abbreviations:

Title: Praksh- (meaning) A page to ask something (like query).

- **FAQ's:** Frequently Asked Questions
- **HTML:** Hypertext Markup Language is a markup language used to design static web pages.
- **HTTP:** Hypertext Transfer Protocol is a transaction-oriented client/server protocol between a web browser & a Web Server.
- **HTTPS:** Secure Hypertext Transfer Protocol is a HTTP over SSL (secure socket layer).
- **www:** World Wide Web
- **TCP/IP:** Transmission Control Protocol/Internet Protocol, the suite of communication protocols used to connect hosts on the Internet. TCP/IP uses several protocols, the two main ones being TCP and IP.
- **DB:** Database
- **RAM:** Random Access Memory
- **HDD:** Hard Disk Drive
- **IIS:** International Information Server
- **IE:** Internet Explorer
- **IEEE:** Institute of Electrical and Electronics Engineers.
- **OS:** Operating System

Appendix B: To Be Determined List

System features are yet **to be determined**, that will be further enlisted in this document.