College Enquiry Chat-Bot

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Abstract - The colleges are following traditional ways for collection of documents ,feeling form doing all these work personally going to college.But in this pandemic it is not possible and this situation taught us technology is very helpful when it is needed the most.Our proposed system is "College Enquiry ChatBot" is a solution for students problem.Chatbot is electronic agent which can be like real agent.It is web based application with mobile responsive whatever user will ask system will find the relation data from database it will solve query related to college exam,admission process,fees details this system help student to get information in right time.Nowadays there are many institution are calling students to do work manually.It will create more work load for college staff and also to students.Chatbot are used in many applications in customer care like that it will in help section where student can to administration live without any interruption.

Key Words: Springboot,Angular, Chatbot using dialog flow, java

1.INTRODUCTION

The pattern of college in india is still the same, the student student have to contact administration for any detail personally to solve the problem of student and also administration we have proposed this system for colleges.chatbots is alive agent bot which will help student to solve queries and nowadays chatbot is very widely we have seen it in different levels and in different Websites and Applications etc.The chatbot is an ERP where we can Add,Read, Update, Delete operations are done it is called as CRUD operations.The operations can be done for student,exam,and staff etc..the system is very easy to understand and operate it can be useful for all colleges as well as for schools it will help to maximum institutions for using chat for their academics and queries.Institute are still performing the very load work daily that is lots of work to do to staff of our college also student face problem like in this pandemic we are not able to talk to anyone personally contact is not there that creates from because we were using the traditional way of work and that is reason not able to understand and used technology but it's high time now where student every staff teachers are using mobile and application and all the web application are now so easy to understand.The fast and using it for the student can get the information as soon as it is available without going to college. There is a communication gap created between staff and students.

fast chatbot solves the queries the user asks and the response is chatbot response fast not have to wait for response and useful for administration who performs manual work for information sharing.

2. LITERATURE SURVEY

A literature survey is information or details about previous research project topic literature review surveys,books,articles and other sources related to the research area.The study of literature survey gives detail about previously implemented and get knowledge about all theoretical bases that help for more detailed research about the topic.

Harshala Gawale, Prachi Vishe, Vedika Patil and Sonali Kolpe proposed system College Enquiry Chat-bot System System which has been built by using Artificial Intelligence algorithms.The bot can solve any college related query.The system has chatbot using chatfuel platform and integrated in FAcebook page.[1]
Sagar Pawar, Omkar Rane, Ojas Wankhade andPradnya Mehta proposed system analysis of the question and then answer of the query.The system has online notice and board on which text notices or pdf documents can be displayed.[2]
Jash Thakkar, Purva Raut, Yash Boshi, and Karishma Parekh, proposed a system of chatbots on facebook that used to answer the query about college information using import.io and api.io.[3]
Sakshi Khatakali,Suraj Tate,Vrishali,Shweta Gurav, Pranali Tate and Professor Rohit S. Barwade proposed system has concepts of machine learning and Natural language processing.Chatbot is integrated in the web based application user queries and understand and gives response.[4]

Professor Ram Manoj Sharma proposed system has study of Artificial Intelligence and pattern matching that uses chatfuel for chatbot which will answer to user block,fees,course,student and career.[5]

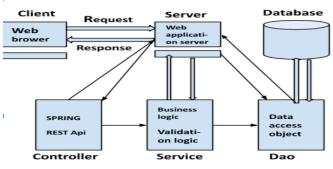Satvik Ranjan.Tathagat Ankit,Vivek Kumar and professor Gajendra Prasad K.C proposed a chatbot used for disease diagnosis. First the system will ask for symptoms and then verifying systems the user will get results. It studies the apriori algorithm.[6]
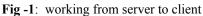
Nikhil Palde, Nikhil Sawant, Rahul Kale and Professor. A.C Taskar proposed project is used to perform task purchase products and service to customer based on chatbot.[7]

Gundapu Nitish Kumar,Devavarapu Sreenivasarao, Shaik Khasim Saheb Proposed system Chatbot and its Practical Application in the Materialistic World is all about the study of the AIML,Industrial Revolution,TensorFlow, API and Python.[8]

3. METHODOLOGY

We have proposed this system for college purposes. It is a web based application which is an ERP system where add,read, delete and update operations in the system will have a help section for the query solving chatbot.The working of the system will be easily understandable and everyone can use it.The system has the methodology of that every application frontend and backend and also the Artificial Intelligence algorithms.

2.1 Working

Fig -1: working from server to client

Controller:
Controller is the spring boot MVC framework which has annotation which indicates that the annotational service class,that means class is a controller which its is a specialization the component and is auto detected through class path scan.It is used in combination with annotated methods handler on request of mapping annotation,The classes or its methods are typically annotated aslo with requesting mapping annotations that specify what http request is handled by the controller and by its method.

Services:

Service layer provides the abstraction level that clarifies the boundaries with a layer of services that provides the application response through establishment of a set of available operations and co-ordinate.Applications require different types of interfaces to data the store and the logic they implement while there are different pur[poses of all this interfaces available often need common interactions with the applications to access and manipulate the data an to show in the logic,that's why it it is better to use business logic inside single service layer to avoid all problems.

Dao:
Dao is a data access object is a pattern that gives an interface abstraction.By mapping application calls the layer and Dao provides some specific data operations without exposing details of the databases.
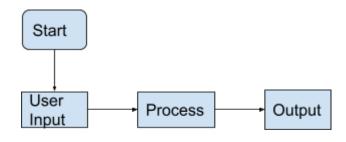

Fig -2 : Flowchart of chatbot

- The flowchart shows the process the system will work.Firstly the system is web based application which is mobile responsive and it is a scrollable page with all the interaction
- The chatbot has the option to chat in text or voice commands.
- In the text space users can type text or can give voice commands about queries.
- chatbot will reply in a quick time,it is a very responsive ERP system for college.
- The user input is to go into the process from the database and provide output.

2.2 Design Pattern

Design is very part of any project,architecture is used to solve recurring problems.so in software development design patterns are used to help developers to understand the framework design,it is a very essential part of software development.

There are major four types of design pattern that springboot use:

1. Singleton Pattern
2. Factory Method Pattern
3. Proxy Pattern
4. Template Pattern

Design Patterns and principles help to manage code in

understandable and maintainable ways .The way that the API is designed encourages you but doesn't force you to follow these patterns and half the time they follow without knowingly.ORM-Hibernate uses Domain model patternSpring uses the default pattern singleton.
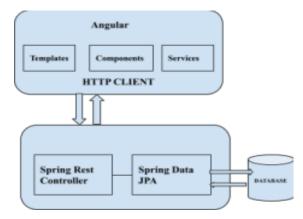
2.3 Application

Fig -3: Connection of frontend with backend

Front-End
For frontend we have used angular,and angular is a typescript open source frontend framework that is used for developing web applications that are single page which doesn't need to go to different pages for the details. Angular changes typescript into javascript. It also has html,css for coding frontend.Nowadays for development, Angular is the most used framework in angular. There are three modules: view templates,components and services.

Back-End
In Backend we have springboot, Rest API and Database.Backend is where main coding is done in the system we have used java programming.In backend there springboot framework is used which is used for java language it java framework.For database we have use PostgressQL.

Springboot has a lot of embedded libraries,which is helpful for not to code much and it saves time.The algorithm are used in the backend with the help of all frameworks.The springboot have embedded maven which executes and compile the java programming and spring boot also have a web application server tomcat-apache. which is connected to the database for the data required whenever the system will run.

2.4 Integration
In a web based application the integration between the Backend and frontend is very important. It is done through coding using link and concatenation it provides the expected output.
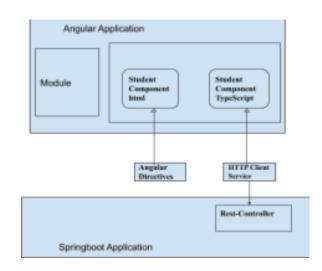

Fig -4: Modules and Components integration

Angular:
In Angular there is a module used for frontend pages in module we have created component of the different classes.and the components are in HTMLand TypeScript files.The files run through use of angular Directives.The request from chatbot or any process of request is sent through the rest api when we wish to add any data to system uses,(.post) and to view some data(.get)is used.There are different ways to add, delete,update etc.Rest API is the interface between the clients-server which takes requests and gives response.Likewise there are different components for students,admission ,exam etc.

Spring Boot:
Springboot Application has the use of spring rest controller when the API calls.There are services model,mode and spring data JPA.Which used in backend and execute it in backend take data from database and show on our screen.
Spring boot has a collection framework in java that provides a lot of interfaces.
Java collection framework provides a lot of interfaces and a lot of classes which are already built under jdk package under java and they provide various data structure implementation and inbuilt algorithms.so,we don't need to write those data structure and algorithm mechanism again and again.in collection has a map interface which stores data into key and value pair format.

REST-API:
Rest is a software Architectural style which uses a subset of HTTP it's used to create interactive applications that uses web services it is sent in JSON format.Api are the interfaces used between the two electronic devices where exchanges of data takes place.It is used when clients request for any conversations to start or asking any information it uses the web services.

Database:
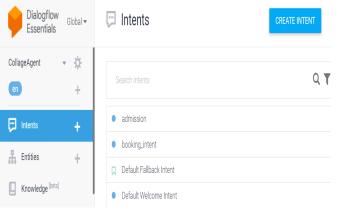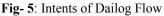For Database Hibernate is used it work for ORM tool

object relational mapping it is used for mapping if java classes to database tables it is executed by an configuration of an xml file.In Hibernate uses HQL language internally convert to sql queries.ORM tool is used to solve a impedance mismatch problem and mapping can solve it.maven uses xml file wherwill put dependency.Hibernate uses internally JDBC it is a interface API for java.
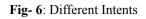
Dialog Flow:
Dailog flow is a platform to build chatbots. It is a natural language processing based platform.An Intent is a specific action that the user can ask by using one of the defined terms in the Dialogflow console.

Fig- 5: Intents of Dailog Flow

For example, the user could ask " admission ?" or "admission dates " — if these are terms defined within the console, then they will be detected by Dialogflow and the intent that is defined under will be triggered.

Fig- 6: Different Intents

Xml is extensible markup language and designed to store records or datta and help to transport data.Knowing the limitations of HTML for representation of web pages and exchange of structural data.At this point, Dialogflow has the request from the user,so it now needs to request the information to fulfil the users request. Now this data is to be sent to our web-hook so that the required information can be fetched.Once the web-hook has fetched our required information it will send it back to Dialogflow so that it can be presented to the user in the desired manner.

4. EXPECTED OUTCOME

5. CONCLUSIONS

Artificial Intelligence is a very innovative subject to learn and difficult to implement in real life applications.Its study is deep to understand the concepts and how it will work in actual environment but understanding it very interesting and others concept like machine learning how machine can work as human and make as human,and make it effective and made easy and fast through the artificial intelligence it is a field which is

vast and working with it is very important because world is moving fast and technology is getting better day by day and using it in right way will make the technology helpful. The system is made to make college less of a burden which gives manual work and reduces all problems the students are facing for getting all information.

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