EduBot for Admission

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project titled "EduBot for Admission", submitted by Md Sayed Ahammed, ID No: 133-15-3047, Abuhena Rony, ID No: 133-15-3000 and Nur A Alam Dipu, ID No: 133-15-2988 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on Tuesday 12 September 2017.

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DECLARATION

We hereby declare that, "EduBot for Admission" has been done by us under the supervision of **Dr. Syed Akhter Hossain**, **Professor and Head**, **Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

In our modern world everything is going to be online. So, life is become much easier. In our country many organization have made their system online to save their time, make their service better and quick. But the admission information and the admission process system is old and not so good enough. The applicants and their guardians have to give so much effort to get application information and to get admitted.

In this project we have developed a web based application that can provide admission information for all the applicants and their guardians in an easy way. The main purpose of the "EduBot for Admission" is to make better solution for the admission information seekers. User can ask any question about admission by using this application. The application will also provide information in the middle of the night and on the office holidays. We have used HTML and Bootstrap framework for frontend design and PHP, MySQL and AIML for back end coding. When the application is completed, we have tested the application in different terms and we found working successfully.

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Introduction

"EduBot for Admission" system is a web application that builds an easy way to provide admission information to the information seekers.

1.1 Introduction

In this era the world is in hand. Everybody wants to get information easily through internet instead of knowing information by going physically. Now, internet is widely used in everywhere.

"EduBot for Admission" is a web application which task is to provide admission information. It is an Artificial Intelligence Bot which creates a user friendly conversations.

In this application users do not need to login or create account for asking questions. User can ask questions to "EduBot" about admission information easily and it gives response based on asked question. It shows an message "I will learn about this as soon as possible" when the answer is not in database of "EduBot". Application makes a user friendly conversation for better understanding.

1.2 Motivation

We get motivation from our daily life that Traffic Jam is unbearable and common problem in our country. Also students come from far away physically to know admission information. More over Information Desks are usually remain open in institution open days. Moreover our university website keep all the information that a seeker need. But it is not easy for everyone to find information from the website. Though someone does but it takes so much time. To reduce these problems we get motived to make an application which can provide admission information easily from anywhere.

1.3 Objectives

Objectives of our web application are mentioned below:

- To provide a system for users to know information from anywhere, any time over internet.
- To provide a system to send feedback to express their opinion.
- To provide some analysis report of seekers about wanted facilities of University such as hostel facility.

1.4 Expected Outcome

"EduBot" is an application that developed such a way to provide reliable information easily for anywhere. The primary outcome is to reduce the problem of coming physically to know information. Though it will not be alternative of human Information Desk but we hope it will make our life easier by providing information through online and reducing the loss of money and time.

1.5 Report Layout

In chapter 1, we introduced our project from where we get motivated and our expectations. In chapter 2, we discussed some related works and some challenges that we have faced making the application. In chapter 3, we described the requirements and the models of our application. In chapter 4, we described the design and implementation requirement to develop our application. In chapter 5, we showed implementation environment and testing of our application. In chapter 6, we discussed about limitations of our application and future scope of works.

Background

In this section we describe about related works done by others and also discover new scope they have not done yet.

2.1 Introduction

Day by day the number of students in any educational institution is increasing exponentially. After passing intermediate they admit into University. At that time knowing a University's admission information is so important. Many University have online human controlled admission information service via phone, email or chat system. But these service are not available every moment. Considering these issues we tried to make such a system that will deliver admission information easily.

2.2 Related Works

A.L.I.C.E. (Artificial Linguistic Internet Computer Entity) is an award-winning free natural language artificial intelligence chat robot. The software used to create A.L.I.C.E. is available as free ("open source") Alicebot and AIML software [1].

Recently, many Universities are working on this area of online admission information system by Artificial Intelligence Chatting system. We have found some abroad University's works related with us. Here we have listed few websites that we have found by searching www.google.com.

On the website of MICHIGAN STATE UNIVERSITY there have a chatting system for Admission Information named "Ask Sparty!" [2].

There is an article on the website of Cornell University Library named "Chatbot for admissions" [3] to support as an Admission Consult.

Now a days, there are several websites which are very rich in content.

2.3 Comparative Studies

When we search for online admission information system, we found Michigan State University's online admission information system, University of Birmingham and others. We didn't find our expected system to provide information. The asking questions are static, we didn't find expected exact result. Also the user interface are horrible to understand the response answers.

Competitors	Туре	Is online all times ?	Have user friendly conversation?	Have user friendly interface?	Question Mode
DIU zendesk	Manual	No	Yes	Yes	Dynamic
EduBot	Auto	Yes	Yes	Yes	Dynamic
Ask Sparty	Auto	Yes	No	No	Static

Table 2.3.1: Comparison table

2.4 Scope of the problem

Already we have seen that, the university admission cannot do their work on night and holiday and the university website cannot provide proper information of admission.

Besides, the existing web applications of information system provide information but they are not able to make a user friendly conversation. Also don't have a feedback system for users to leave a feedback.

Considering these points, we decided to build up a web application that can provide the proper a user friendly interface and conversations in 24/7. We hope that, this application will saves our valuable time and do better job than human.

2.5 Challenges

When we want to build a software, we have to face some obstacles. When the application should be artificially intelligent there is much more obstacles. Similarly, to develop our project we have faced some challenges. Since our project is an artificial intelligent chatbot, it is the big challenge to make the application artificially intelligent and a user friendly conversations to motivate users.

Requirement Specification

3.1 Business Process Modeling

Business process modeling (BPM) in systems engineering is the activity of representing processes of an enterprise, so that the current process may be analysed or improved [4].

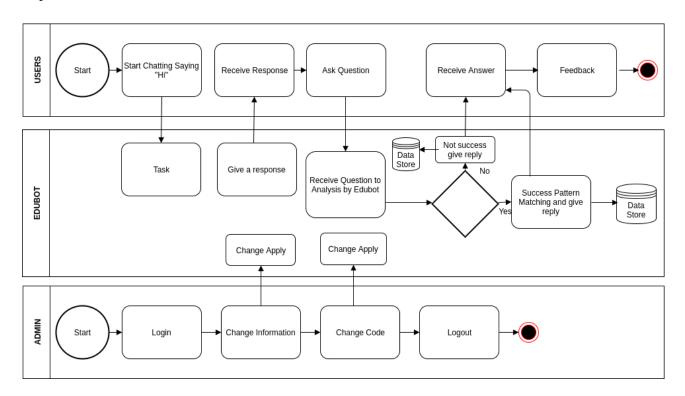


Figure 3.1.1: Business Process Model

3.2 Requirement Collection and Analysis

For application development, requirement collection and analysis is one of the major condition. There have two kinds of requirements, one is functional requirement and another is non-functional requirement. Functional requirements are those activities those are perform by an application. And Non-functional requirement defines applications performance, accuracy, efficient and so on [5].

3.2.1 Functional Requirement

From the point of view of our application, many login functional requirement should have like, a user asking section where users can ask their questions and application gives response based on user's questions. A login section where only an authenticate person can login to access dashboard. In dashboard, have some features such as, add information, delete information, modify information in database. Also able to show the conversations and feedbacks.

3.2.2 Non-functional Requirement

Non-functional requirements help to make more efficient, load quickly and smooth operation as much as possible to our application. Application User Interface should be simple and easily understandable for an excellent user experiences.

3.3 Use Case Modeling and Description

In software and systems engineering, a use case is a list of actions or event steps typically defining the interactions between a role (known in the Unified Modeling Language as an actor) and a system to achieve a goal. The actor can be a human or other external system [6].

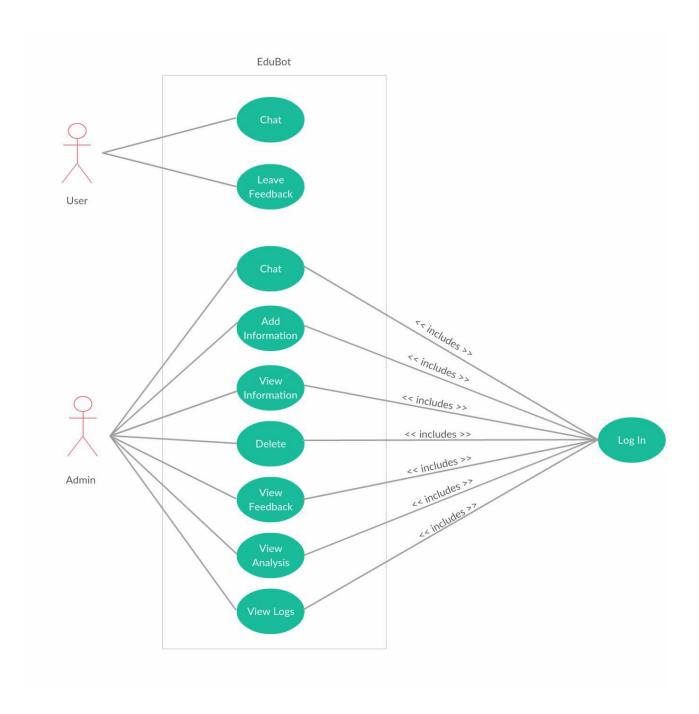


Figure 3.3.1: Use Case Diagram

Use Case Description: Browse EduBot and communicate by users

- A user browse EduBot and without login he/she can ask questions.
- EduBot give reply to the human.
- When the conversation is finished human can give a feedback.

Use Case Description: Admin

- An admin have to login before doing anything into the system.
- Admin can also chat with EduBot for testing.
- Admin can view, modify, add and delete information.
- Admin can view feedback and logs.

3.4 Logical Data Modeling

A logical data model describes the data in as much detail as possible, without regard to how they will be physical implemented in the database [7].

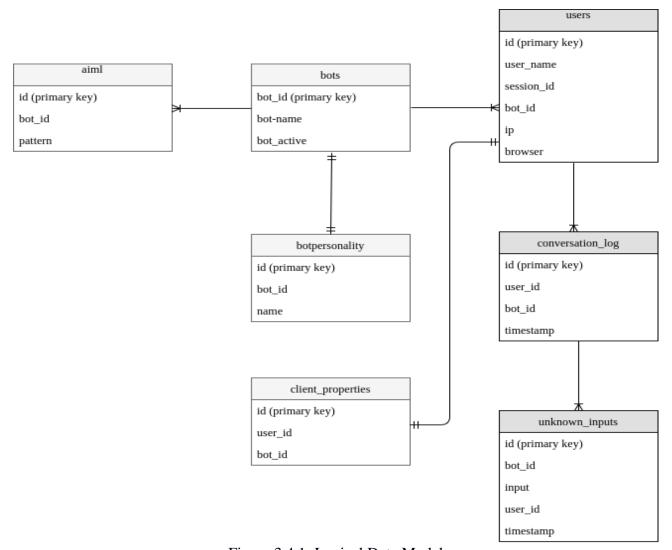


Figure 3.4.1: Logical Data Model

3.5 Design Requirement

The design requirements main theme of our project is to make an easily understandable, simple and user friendly design.

In our application, we should provide a user interface where user can ask their questions and response answer based on user's asked question. No login is required for this section. In our application, we will provide a dashboard where authenticated user can maintain the application.

Design Specification

Design Specification defines how a design is developed. In this section we try to show the front-end and back-end design of our web application. And also discussed about languages and platforms, used to build up our web application.

4.1 Front-end Design

Front-end design plays an important rule for the application development. It is very important to make and user interface such a way that user can understand easily. We attached front-end designs in bellow.

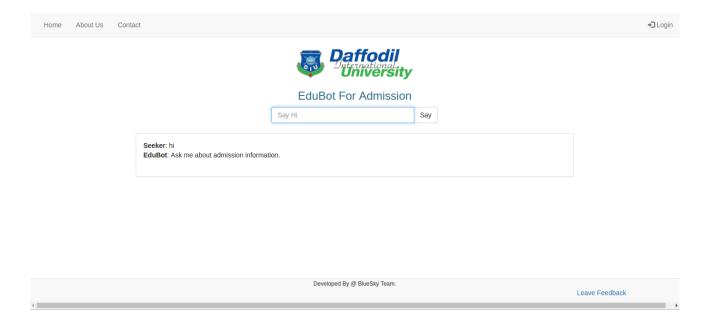


Figure 4.1.1: Question asking and response Activity

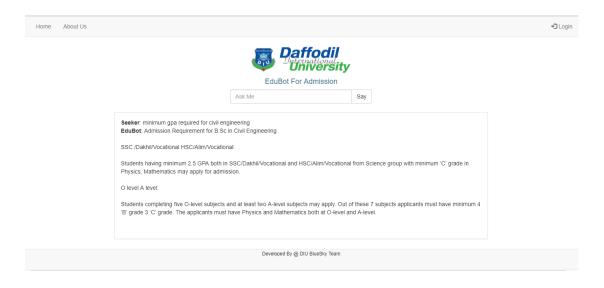


Figure 4.1.2: Question asking and response Activity

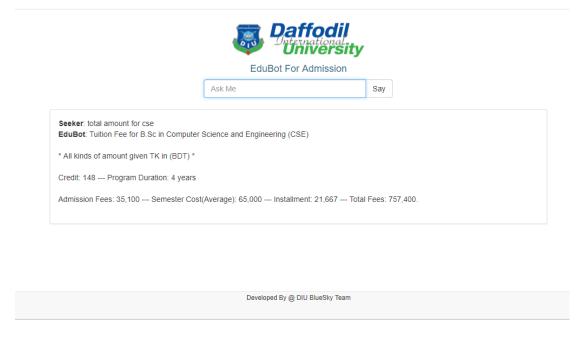


Figure 4.1.3: Question asking and response Activity



Figure 4.1.4: Question asking and response Activity

4.2 Back-end Design

Back-end design works behind the project that users can't see what is happening in back-end design. In back-end design contains Server Side languages Like Python, PHP, Ruby, etc. Actually it never visualize to a user working procedure behind the application.

In our application, we used PHP as server side scripting language and MySQL for database in Apache, PHP, MySQL Server.

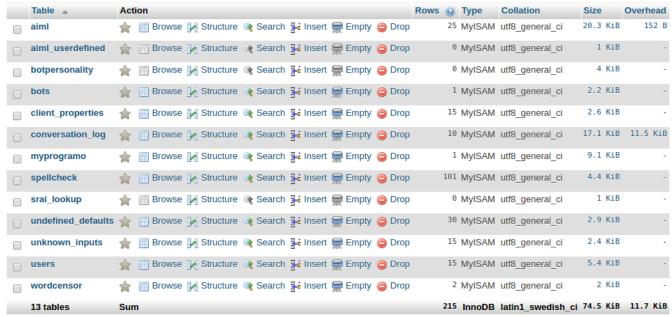


Figure 4.2.1: Database All Tables.



Figure 4.2.2: 'aiml' Table.

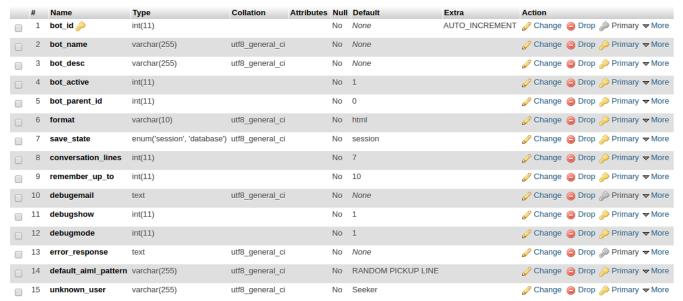


Figure 4.2.3: 'bots' Table.

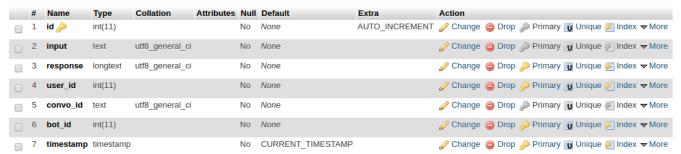


Figure 4.2.4: 'conversation_log' Table.



Figure 4.2.5: 'myprogramo' Table.

4.3 Implementation Requirement

In this implementation requirement section we discussed about the tools, environment and platform requires to develop our application.

4.3.1 Development Environment

As web application development is platform independent, specific operating system is not required. Web application can be develop in any operating system having environment of MySQL, PHP, AIML and Apache server. We used Linux LAMP server as our development environment.

4.3.2 AIML

AIML stands for Artificial Intelligence Markup Language. AIML is an XML based markup language meant to create artificial intelligent applications. AIML makes it possible to create human interfaces while keeping the implementation simple to program, easy to understand and highly maintainable [8]. The basic components of AIML are shown below:

- <aiml> defines the beginning and end of a AIML document.
- defines the unit of knowledge in Alicebot's knowledge base."> category defines the unit of knowledge in Alicebot's knowledge base.
- pattern> defines the pattern to match what a user may input to an Alicebot.
- <template> defines the response of an Alicebot to user's input.

```
File Edit Selection Find View Goto Tools Project Preferences Help
        admission_test.aiml
                                                                   ESTEANT.
  1
      <aiml version="1.0">
  2
        <category>
                                                                    STRAIN.
  3
          <pattern>ADMISSION TEST</pattern>
  4
          <template>
                                                                   STRANCE
          Tri- Semester (4 Months Duration) Fall -2017<br>></br>
  5
  6
  7
        Last Date of Application :
                                    Sep 11 , 2017 <br></br>
        Admission Test: Sep 13, 2017 <br></br>
  8
        (Time: - 11:00 AM, Only MBA : - 5:00 PM) <br></br>
  9
 10
          </template>
 11
        </category>
 12
 13
        <category>
 14
          <pattern>ADMISSION TEST *</pattern>
 15
          <template>
          Tri- Semester (4 Months Duration) Fall -2017<br></br>
 16
 17
 18
        Last Date of Application :
                                    Sep 11 , 2017 <br></br>
        Admission Test : Sep 13 , 2017 <br>
 19
 20
        (Time: - 11:00 AM, Only MBA : - 5:00 PM) <br></br>
 21
          </template>
22
        </category>
 23
 24
        <category>
          <pattern>* ADMISSION TEST</pattern>
 25
 26
          <template>
 27
          Tri- Semester (4 Months Duration) Fall -2017<br>></br>
 28
 29
        Last Date of Application :
                                    Sep 11 , 2017 <br></br>
        Admission Test: Sep 13, 2017 <br></br>
 30
 31
        (Time: - 11:00 AM, Only MBA : - 5:00 PM) <br></br>
 32
          </template>
 33
        </category>
 34
      </aiml>
Line 22, Column 14
                                                     Spaces: 2
                                                                  Plain Text
```

Figure 4.3.2.1: AIML code

4.3.3 Text Editors and Browsers

Any text editor and browser can be used in web application development. In our application development, we used Sublime Text 3 and chrome as browser.

Implementation and Testing

5.1 Implementation of Database

In implementation of database section task is to installation of DBMS on required hardware, optimize the database and create the database and load the data into database.

5.1.1 Database Design

Database design is the process if producing a details data model of database. This data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a data definition language, which can then be used to create a database. A fully attributed data model contains details for each entity [9].

A database stores data in such organized way that database satisfied the data requirements.

Database allows to access data easy, quick for the users. Tables are a collection of relative records. Data stored in a table. There have two essential configuration of a database are:

- Primary key: Primary key is a unique field for a table records.
- Foreign key: Foreign key used to make relationship between tables to form a normalized database to avoid table redundancy in a database.

5.1.2 Database Management System

A database management system (DBMS) is a system software for creating and managing databases. The DBMS provides users and programmers with a systematic way to create, retrieve, update and manage data [10]. In our application we used MySQL.

5.1.3 MySQL

MySQL is an open source popular relational database management system. MySQL is widely used in web developing sector. It is free of cost and have many free features that is generally enough to develop a small project. As Oracle database is not free of cost so for a small project it increases cost. MySQL installation and configuration is so easy than Oracle. Now we have shown our project back-end database tables and bellow:

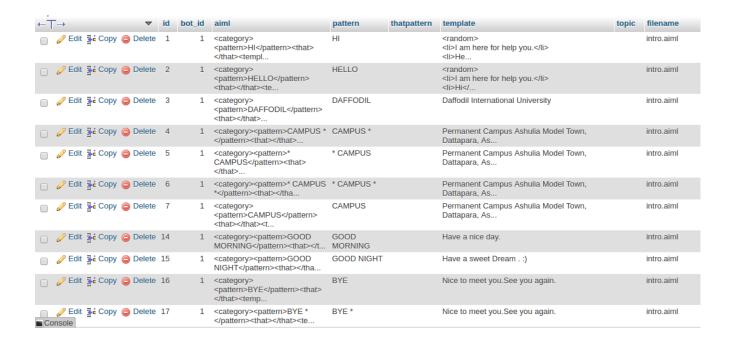


Figure 5.1.1: 'aiml' Table Data



Figure 5.1.2: 'bots' Table Data

id	input	response	user_id	convo_id	bot_id	timestamp
122	campus	Permanent Campus Ashulia Model Town, Dattapara, As	17	al3pjl2kfft2u3qp4uclqrrg7e	1	2017-08-06 15:40:56
121	chairman of diu	Md. Sabur Khan, the Chairman of Daffodil Internati	17	al3pjl2kfft2u3qp4uclqrrg7e	1	2017-08-06 15:40:50
119	admission form	For online admission form please <a daffodilvarsity.edu.bd="" href="http://a</td><td>17</td><td>al3pjl2kfft2u3qp4uclqrrg7e</td><td>1</td><td>2017-08-06 15:40:28</td></tr><tr><td>116</td><td>hi</td><td>Ask me about admission information.</td><td>17</td><td>al3pjl2kfft2u3qp4uclqrrg7e</td><td>1</td><td>2017-08-06 15:39:41</td></tr><tr><td>117</td><td>contact</td><td>Permanent Campus Cell: 01833-102806, 01847-140068</td><td>17</td><td>al3pjl2kfft2u3qp4uclqrrg7e</td><td>1</td><td>2017-08-06 15:39:47</td></tr><tr><td>118</td><td>admission</td><td><a href=" https:="" page="" show<="" td=""><td>17</td><td>al3pjl2kfft2u3qp4uclqrrg7e</td><td>1</td><td>2017-08-06 15:40:06</td>	17	al3pjl2kfft2u3qp4uclqrrg7e	1	2017-08-06 15:40:06

Figure 5.1.3: 'conversation_log' Table Data

id	user_name	password	last_ip	last_login
1	root	827ccb0eea8a706c4c34a16891f84e7b	::1	2017-08-04 18:25:52

Figure 5.1.4: 'myprogramo' Table Data

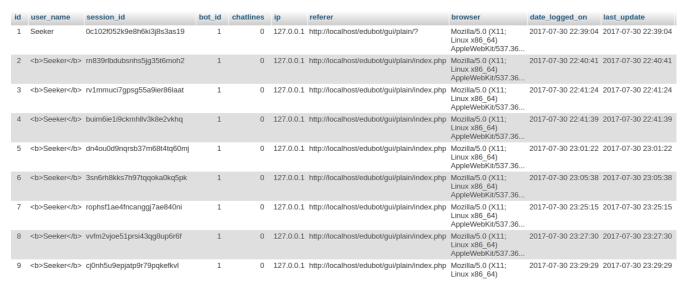


Figure 5.1.5: 'users' Table Data

5.2 Implementation of Front-End Design

We tried our best to develop a simple and user friendly user interface. Also this interface is responsive that will allows to use on any device. Some question and response of application is shown below:



EduBot For Admission

	EddBott of / tarricolori		
	Say Hi	Say	
Seeker: admission information of cse EduBot: Click Here For details admission in	nformation.		

Figure 5.2.1: User and Application Conversation

5.3 Testing Implementation

Table 5.3.1: Test Case for EduBot for Admission system

Test Case	Test Input	Expected	Actual Outcome	Result	Tested
		Outcome			On
1.Install Applicatio n	Tested on various operating system environme nt. e.g XAMPP,L AMP,	Successfully Installed and run in all environment s	Installed and run successfully.	Passed	25-08- 2017
2.Convers ation 1	WAMP admission test date	Admission Test Date and Time	Tri- Semester (4 Months Duration) Fall -2017 Last Date of Application: Sep 11, 2017 Admission Test: Sep 13, 2017 (Time:- 11:00 AM, Only MBA:- 5:00 PM)	Passed	25-08- 2017
3.Convers ation 2	total cost for cse	Total tuition fee for CSE	Tuition Fee for B.Sc in Computer Science and Engineering (CSE) * All kinds of amount	Passed	25-08- 2017

	T				
			given TK in (BDT) *		
			Credit: 148 Program Duration: 4 years		
			Admission Fees: 35,100 - Semester		
			Cost(Average): 65,000		
			- Installment: 21,667 Total Fees: 757,400.		
4.	total taka	Total tuition	Tuition Fee for B.Sc in	Passed	25-08-
Conversati	for	fee for	Electrical and Electronics		2017
on 3	electrical and	Electrical and	Engineering (EEE)		
	electronics engineering	Electronics Engineering	* All kinds of amount given TK in (BDT) *		
			Credit: 143 Program Duration: 4 years		
			Admission Fees: 35,100 - Semester		
			Cost(Average): 60,000		
			- Installment: 20,000		
5.Convers	gpa need	The GPA	Total Fees: 692,000. Admission Requirement	Passed	25-08-
ation 4	for swe	requirement s to admit in	for B.Sc in Software Engineering (SWE).	T ussec	2017
		SWE	SSC /Dakhil/Vocational HSC/Alim/Vocational:		
			Students having		
			minimum 2.5 GPA both		
			in SSC/Dakhil/Vocational		
			and		
			HSC/Alim/Vocational		
			from Science group with minimum 'C' grade in		
			Physics, Mathematics		
			may apply for admission.		
			O level A level:		
			Students completing five		
1	1		O-level subjects and at		
			least two A-level subjects		

			may apply. Out of these 7 subjects applicants must have minimum 4 'B' grade 3 'C' grade. The applicants must have Physics and Mathematics both at O-level and A-level.		
6.Convers	total	Total	In DIU has three	Passed	25-08-
ation 5	semester	semester	semester system in a		2017
		information	year.		
			Spring Semester (January		
			to May), Summer		
			Semester (May to		
			September) and <u>Fall</u>		
			Semester (September to		
			January).		
7.	fall	Information	Fall Semester Schedule	Passed	25-08-
Conversati on 6	semester	about Fall Semester	September to January.		2017
8.	semesters	Information	I will lean about this as	Failed	25-08-
Conversati	in diu	about	soon as possible.		2017
on 7		semesters		(This	
				Pattern	
				not	
				Teach)	

Conclusion and Future Scope

6.1 Discussion and Conclusion

Web Based EduBot for Admission system has been implemented successfully. It works fine after installation and gives result that we expected. This application is designed so simply that makes it user friendly and understand easily. Also we have a feedback system where users can leave a feedback that will help us for future development. Every conversation is stored in database so we can easily view the question and response. As it is a knowledge closed chat bot system it need huge information to make it so user friendly. Above all, intelligence not come in a day.

We get motivated from our real life facing problems such as traffic jam, coming from far away and Admission Information Section not available at any time. Also there is no such a good Online based admission system to satisfy the seekers.

In our project, we tried to make such an application to satisfy the seekers. In this report, we describes details of our project how it was developed.

6.2 Limitations

In our application there have some limitations. In future we will overcomes these limitations. The main limitations are below:

- Lack of information about admission.
- Some question pattern cannot recognized.

6.3 Scope for Future Developments

- We will add more information as bot knowledge.
- To recognize various question pattern we will add more question pattern.

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