

An Assistant for the CSE departmental website at IITK

A Term Project for the course CS727

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What we planned to do

- A smart chat Assistant that will provide conversational experience to the users who visit the CSE Website.
- Use the Watson API or DialogFlow to achieve this.
- The Assistant will provide all the information that is found in the CSE website in a QA manner.

What we actually did

- An Assistant that provides quite a bit of conversational experience with the users who visit the CSE website.
- We used DialogFlow to achieve this.
- The Assistant provides answer to a subset of the information available in the website.

The Actors

- End App/Device
- DialogFlow
- Fulfillment

The Play

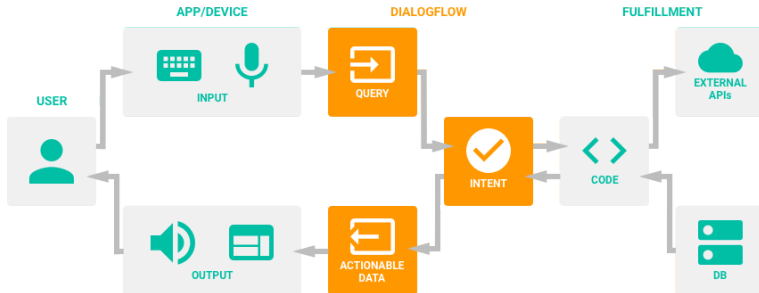


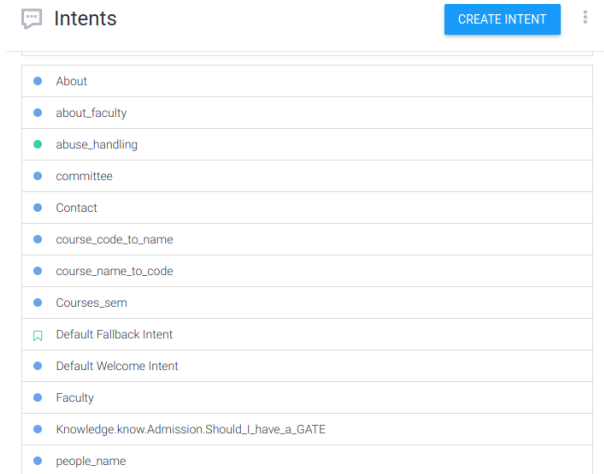
Figure: Workflow of the Assistant¹

¹Source : <https://cloud.google.com/dialogflow-enterprise/docs/images/agents/overview.png>

DialogFlow Agent

- Intents
- Entities
- Knowledge^{beta}
- Fulfillment

Intents



The screenshot shows the Google Assistant Intents interface. At the top, there is a header with a speech bubble icon, the word "Intents", a blue "CREATE INTENT" button, and a three-dot menu icon. Below the header is a list of intents, each with a colored dot (blue or green) and a text label. The intents are: "About", "about_faculty", "abuse_handling", "committee", "Contact", "course_code_to_name", "course_name_to_code", "Courses_sem", "Default Fallback Intent", "Default Welcome Intent", "Faculty", "Knowledge.know.Admission.Should_I_have_a_GATE", and "people_name".

Intent Name
About
about_faculty
abuse_handling
committee
Contact
course_code_to_name
course_name_to_code
Courses_sem
Default Fallback Intent
Default Welcome Intent
Faculty
Knowledge.know.Admission.Should_I_have_a_GATE
people_name

Figure: Intents Used in this Project

Zooming inside an intent

Courses_sem SAVE ⋮

” What are taught here?

” What are the courses that are being taught **this semester**?

” What are the courses that will be taught in the **next semester**?

1 OF 2 →

Action and parameters ^

getCourseTimeWebPage

REQUIRED ?	PARAMETER NAME ?	ENTITY ?	VALUE	IS LIST ?
<input type="checkbox"/>	course_time	@course_time	\$course_time	<input type="checkbox"/>
<input type="checkbox"/>	Enter name	Enter entity	Enter value	<input type="checkbox"/>

Figure: Inside an Intent

Entities


Entities		CREATE ENTITY	
Search entities		Q	
@	committee		
@	course_code		
@	course_name		
@	course_time		
@	designation		
@	designation_faculty		
@	faculty_names		
@	research_area		
@	year		

Figure: Entities Used in this Project

Zooming inside an entity

research_area

SAVE

☒ Define synonyms  ☒ Allow automated expansion

Machine Learning	Machine Learning
Algorithms	Algorithms
Computational Geometry	Computational Geometry
Computational Complexity	Computational Complexity
Operating Systems	Operating Systems
Click here to edit entry	

+ Add a row

Figure: Inside an Entity

Admission

SAVE

Question:

What is the syllabus for the entrance test/interview at IITK?

Answer:

All candidates have to appear for written test and programming test. Based upon the result of written and programming tests, shortlisted candidates will be called for interview. You can go to the following link to find the syllabus : Syllabus for the Tests. The tests have the syllabus similar to as that of GATE and involves basics in computer science and engineering.

Question:

Can I do a part-time Ph.D?

Answer:

There is a provision for a part-time Ph.D. You can go through the guidelines for part-time programme and section 2.9 of the PG manual. If you're selected after the test/interview, and want to do a part-time Ph.D, you have to do the following. There are 3 components for a Ph.D - coursework for about 2 years and a qualifying exam, and thesis work

Figure: Knowledge in DialogFlow

Fulfillment

Webhook

ENABLED



Your web service will receive a POST request from Dialogflow in the form of the response to a user query matched by intents with webhook enabled. Be sure that your web service meets all the [webhook requirements](#) specific to the API version enabled in this agent.


URL*	<input type="text" value="https://aed2a9f0.ngrok.io/webhook"/>	
BASIC AUTH	<input type="text" value="Enter username"/>	<input type="text" value="Enter password"/>
HEADERS	<input type="text" value="Enter key"/>	<input type="text" value="Enter value"/>
	<input type="text" value="Enter key"/>	<input type="text" value="Enter value"/>
	 Add header	
DOMAINS	<input type="text" value="Disable webhook for all domains"/>	

Figure: Fulfillment Setting

Webhook

- User Defined Callback.
- Written in Python.
- Uses the Flask Web Microframework.

Capabilities of CSE-IITK-Assistant

- About the Faculties, just their designations. And also list them if asked.
- Names of the Ph.D. Students (year-wise) and Post-Doctoral Fellows.
- Links to other students' list pages.
- Research Areas and their associated faculties.
- Course names against codes and vice-versa.
- Links to some other important pages when asked accordingly (eg. Publications, webmail etc.).
- Small Talk.

Glitches and Possible Scopes of Improvement

- Sometimes the invoked intents are not what was intended.
- Failures are not automatically sent for training.
- Data is static. Retrieves information from already scraped json files.
- The Assistant cannot provide information about everything on the website still.
- Knowledge service from DialogFlow is still in it's beta version and sometimes performs unexpectedly.
- Extensive testing with human users and updating the agent with the questions that it cannot answer it yet.

Deployment

The Assistant is deployed in the web and can be found at <http://bit.ly/cse-iitk-assistant>.