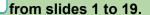


Topic	CHATBOT ADVANCED		
Class Description	Kids create their very first Al Chatbot using API programming and integrating it with their app. This involves learning to train the bot on user requests and developing appropriate bot responses.		
Class	ADV-C38		
Class time	55 mins		
Goal	Develop an Al based Chatbot by adding entities Intents.	es to the	
Resources Required	<ul> <li>Teacher Resources:         <ul> <li>Laptop/PC with WebCam</li> <li>Use your Code.org login credentials</li> <li>Earphone with mic</li> <li>Notepad and Pen</li> </ul> </li> <li>Student Resources:         <ul> <li>Laptop/PC with WebCam</li> <li>Use your Code.org login credentials</li> <li>Earphone with mic (optional)</li> <li>Notepad and Pen</li> </ul> </li> </ul>		
Class Structure	Warm Up Teacher-Led Activity Student-Led Activity Wrap Up Project Pointers and Cues	5 mins 10 mins 30 mins 5 mins 5 mins	
WARM UP SESSION - 5 mins			



# Teacher starts slideshow from slides 1 to 19.



Refer to speaker notes and follow the instructions on each slide.





TEACHER ACTIVITY - 10 mins				
Teacher Initiates Screen Share				
Say		Do		
	This is a data flow diagram.  This is how dialogflow chatbots work.  1. A user asks something. 2. The bot gets the user input and matches the words with the intents that are created. 3. If the words/phrases entered by the user match the bot's training words/phrases, the appropriate set reply is displayed. 4. If the user input words/phrases don't match the training phrases/intent questions, then the bot displays the FALLBACK intent responses, something like: "I don't understand" or "can you say that again" etc.	Open Teacher Activity 1-BOT DIAGRAM.		

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Do you remember what we learned in the last class?

We learned about the **Welcome**Intent, Fallback Intent, etc. and created a menu intent.

Can you tell me which intent is the default intent, that is the intent which gets created with the agent itself?

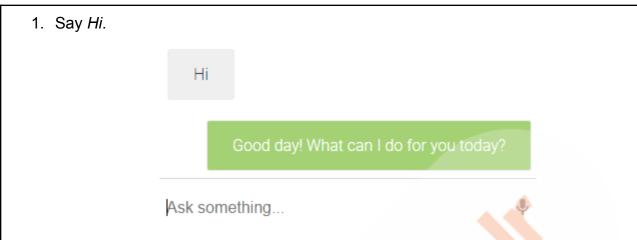
Welcome Intent and Fallback Intent

In this class, we will be creating an entity and adding that entity to the intent. And we will also learn the follow up intents.

Now let me showcase what I said.

Open <u>Teacher Activity 2-</u> SHOWCASE.





This training phrase is from the **Welcome Intent**. So the response is from the Welcome Intent, which we created in the previous class.

2. Then ask for the menu.



This training phrase is from the **menu** intent. So the response is from the **menu** intent, which we created in the previous class

3. Then ask the bot to show a review of any of the dishes mentioned.

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I would like to know the review of Paneer tikka

Paneer tikka is one of the top delicacies of the town.

This training phrase is from the **Review Intent**. So the response is from the **Review Intent**, which we will be doing in this class.

4. Now I, being a user, can say 'ok' OR 'wow' OR 'great', and the bot will reply with more information I can get about the dish, just to keep the conversation going. This is also something that we will be doing in this class.

Ok

Thank you! Would you like to know more about this dish such as its quantity, spice level, and preparation time?

Let's understand how we can achieve this.

In this class, we will create:

- **Part 1:** Create a **Review** intent which will show the review of a dish
- Part 2: Create an Entity which will be used to get the dish name entered by a user.
- **Part 3:** Connect the **Entity** with the **Review** intent we will integrate the review intent with the entity which will help us to train the bot to show the review of a particular dish.
- **Part 4:** Create a **Followup** intent for the review intent as you saw how the bot was keeping the conversation going, this should also be done.

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Now let's learn how to make some advanced things which I just showcased. Let's open the bot we created in the previous class.

NOTE: Open Teacher-Activity-3 and sign up using the Google account. Update the Food-reviewer-bot which you created in the previous class as per the below instructions.

### Sign in

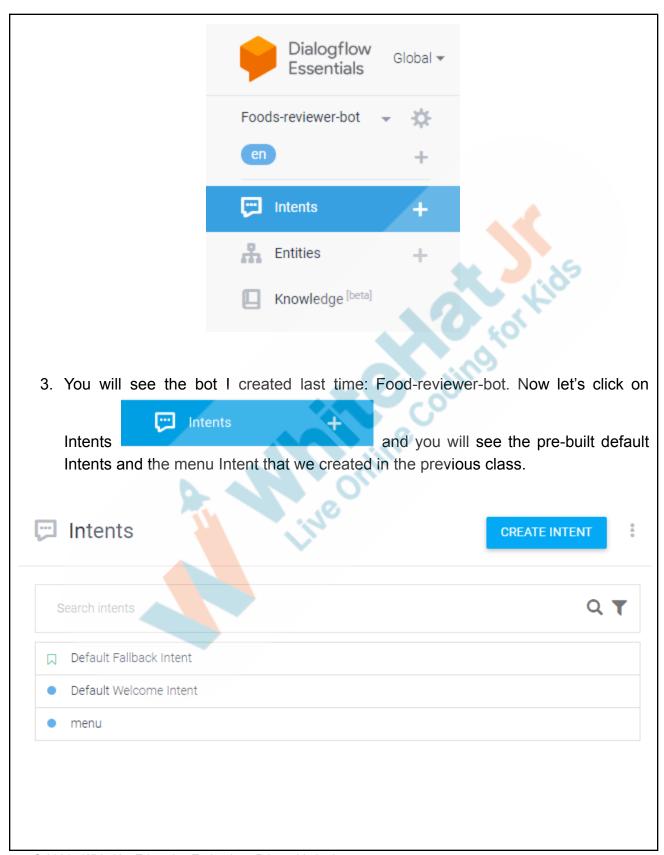
1. Click to sign in with your Gmail account or your parents Gmail account here. Use the same account that you used in the previous class. After signing in,



2. Click on the top-right corner to go to the **Developer** Console.

Wow! Now we are using the Google Developer Platform where all google engineers develop softwares.









1. Create and Name the Intent: Click and name the Intent as Review. This should answer the questions about the review for food items.

Review

SAVE

CREATE INTENT

Training phrases @



## Train the intent with what your users will say

Provide examples of how users will express their intent in natural language. Adding numerous phrases with different variations and parameters will improve the accuracy of intent matching. Learn more

ADD TRAINING PHRASES

2. Add Training Phrases: Under Training phrases, I am going to add

**ADD TRAINING PHRASES** 

questions that the user might ask. Click

, type the phrase, and hit **ENTER** to add a phrase. Add as many types of questions the user might ask about the food review.

Here is what I added-

















### → Part 2: Create an Entity.

Great! But don't you think the user might ask for the review of a specific food item?

In the last class, we created a **menu** intent where the user asked the bot about the menu the restaurant has and the bot replied with the list of menu it had.

Now the user might ask to show the review of a particular food item from that list, for example: "Show the review of paneer tikka"

Now since there is no such intent nor we have trained the bot on what to do in such scenarios, it will go in the default fallback intent, which will reply with default responses such as 'don't know', 'can you come again', 'sorry I can't help you'. And the user will not get what he/she is actually looking for.

Hence the chatbot has this feature known as **Entity** which can be used to handle such specific queries where the user wants information about a specific item.

For example: Suppose, you are creating a chatbot on your collection of toys so that you can share it with all your friends.

So one of your friend might ask -



Friend - Which toys do you have in your collection?

**Bot -** I have many but few are my favorite ones which are - Barbie Car, IronMan, and Fighter Drone.

Friend - What is a Barbie Car?

Bot - It is very unique and it is voice controlled.

By looking at this, you can understand how we can train our bot to give information on a specific item.

Similarly, we will create an entity for the food item.

**User-** Can you show me a food item review?

**Bot** - Which dish would you like to get the review of? Paneer tikka, Paneer chilli, Chicken 65, Chicken tandoori, Veg biryani.

**User-** Paneer Chilli?

**Bot** - Paneer Chilli is one of the top dishes from our restaurant and has been loved by most of our customers.

So now let's learn how to create **Entity** which can handle such specific intent.

1. Create and Name an Entity: Let's see how to create an Entity. Click

Entities + and then click on the CREATE

ENTITY button.

CREATE ENTITY

Now set the entity name.

As the entity holds various dish names, therefore we have named this entity as **dish**.

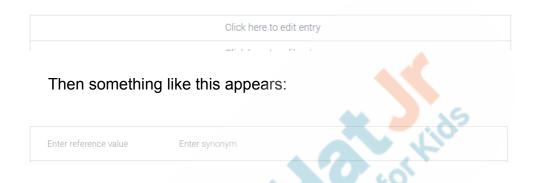
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If you are creating an entity to hold the name of toys, then you can name it as 'toy' OR 'toyNames'.

### 2. Edit Entry: An entry holds the entity. Click Click here to edit entry.



Then add the reference name as a **dish** which will hold all the dish names you want.



Now adding this dish reference will create a dish value in the synonyms as well. Hover the dish value which is automatically added in the Enter synonym section and delete the value.



If we don't delete this synonym, the text dish will also be considered as a food item name.

### For example -

If a user says "Show me the review of a **dish**" instead of "Show me the review of **Paneer tikka**", the text **dish** will be considered as a dish name and the bot will mention the text **dish** in the response as well. So it might give response like -

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'dish is rated as 5-star by 10,000 customers'.

Hence to ignore such cases, always delete the extra value automatically created in the synonym section while adding the entity.

Then add all the dishes that you want to add in the "Enter synonym" section. Type the dish name and press **Enter**.



We have specified 5 dishes. We have mentioned these 5 names because in the menu, we are showing these 5 names to the user. You can mention your favourite dishes. And you can add any number of dishes you want to.

SAVE

3. Save the Entry: Click

to save the entry.

Great! Your entity is created.

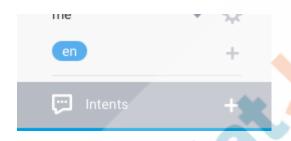




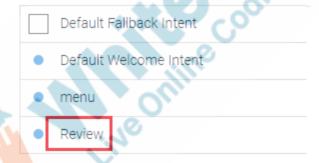
### → Part 3: Connect the Entity with the Review intent.

Now we will add more dish specific training phrases to the **Review** intent so that it also responds to the dish specific questions.

1. Go to the intent section by clicking on **Intents**.



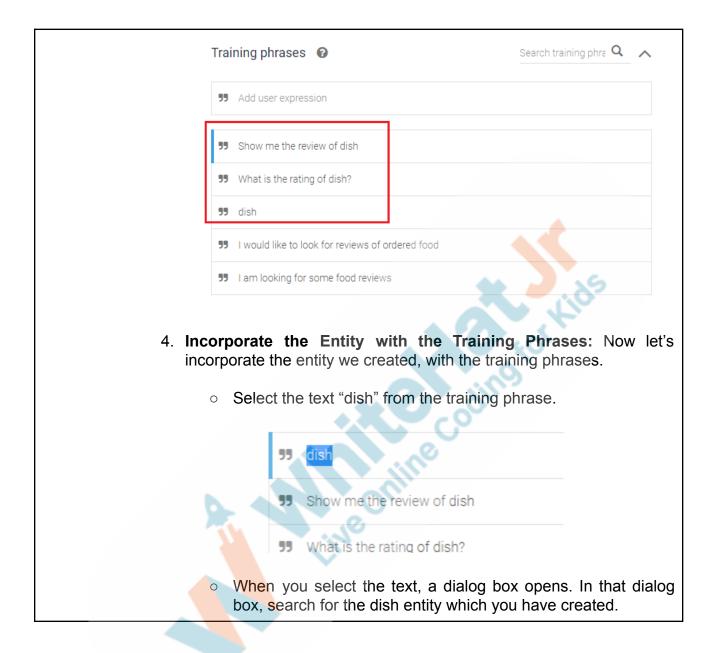
2. Click on the Review intent.



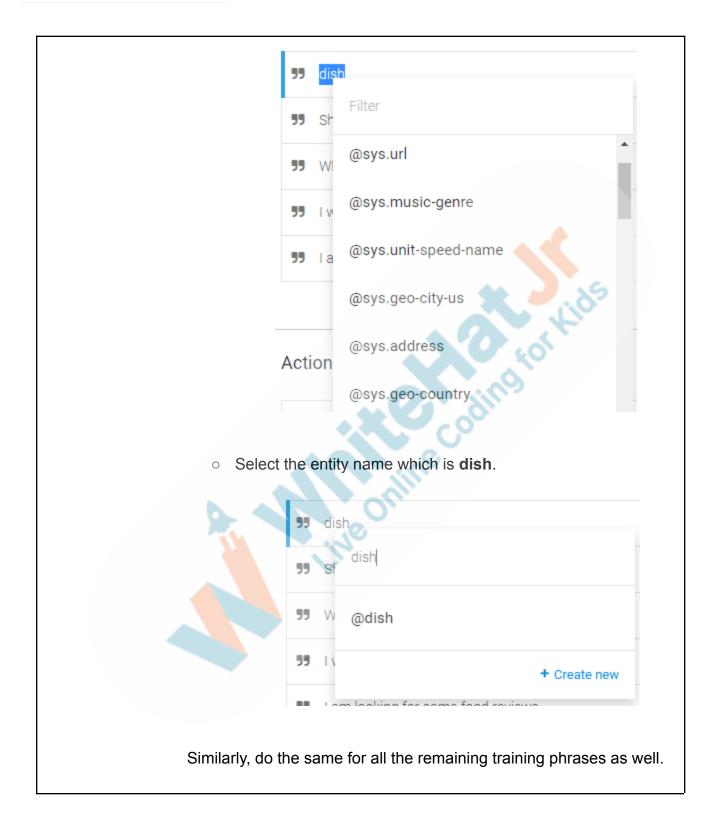
We are editing the **Review** intent so that it can respond to the food item specific questions asked by the user.

3. Add Training Phrases: Add training phrases that you think the user can ask while looking for a particular dish review. I have added 3 more training phrases for dish specific questions/training phrases. You can add more training phrases which you think the user can ask.













We had created an entity named **dish** which is stored as **@dish**. Now this entity holds a few dish names - Paneer tikka, Paneer chilli, Chicken 65, Chicken tandoori, and Veg Biryani.

So whenever the user enters any of these dish names, the bot will recognize these dishes and accept the questions that match with the training phrases from the **Review** intent and also check if there is a dish name entered by the user that is also present in the @dish entity.

This way, whenever the user enters the dish names that are present inside the entity @dish, the user-entered dish name is stored in \$dish - Here, \$dish acts as a variable by storing the user-entered dish name.

Only the dish names stored in the dish entity will be recognized and stored in \$dish by the bot.

For example: If the user asks about a sandwich, this won't be stored in \$\\$\dish, as 'sandwich' is not present in the dish entity.

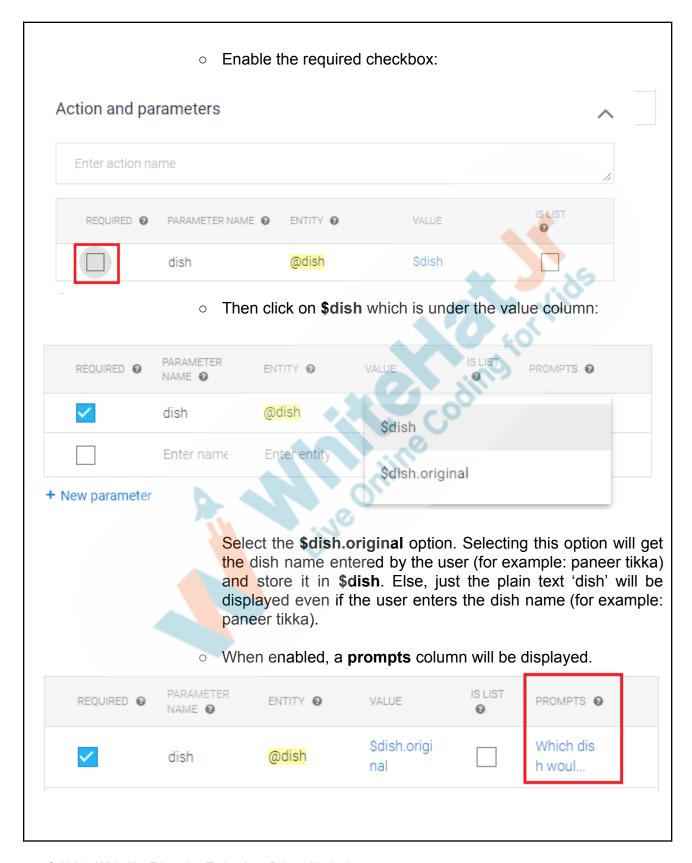


5. **Manage Parameters & Action:** Now we should ensure that the user enters the dish name, because food reviews can't be generic. The food reviews are about specific dishes. Therefore, to ensure the user enters the dish name, we need to add a constraint to make sure that the user enters the dish name which we have mentioned in the entity. Hence, for this, we will use the **Actions** and the **Parameter** sections.

# the user enters the dish name which we have mentioned in the entity. Hence, for this, we will use the **Actions** and the **Parameter** sections. Action and parameters Extract the action and parameters Parameters are specific values extracted from a user's request when entities are matched. The values captured by parameters can be used in fulfillment, or in building a response. If you mark parameters as required, Dialogflow will prompt the user if their values were not extracted from their initial request. Learn more MANAGE PARAMETERS AND ACTION You will be shown either the above dialog box (then click on Manage parameters and action) or the below section: Action and parameters IS LIST REQUIRED @ PARAMETER NAME @ VALUE ENTITY @ \$dish dish @dish

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So basically, this is a validation to check if the user enters a dish name which is not present in the bot. In that case, the bot will reply with the above response to show the user the list of dishes to be picked. This is done so that there is a smooth flow and the user is guided well.

6. Now since the user's question is food item specific, the response should also be food item/dish specific. The dish name can vary depending on the user's choice. So the bot should remember the dish name. Therefore, the bot stores the dish name in **\$dish** using which you can refer to the dish name the user is referring to. Here are a few example responses.

'\$dish has a 5 star rating and it is one of our top dishes.'

### For example:

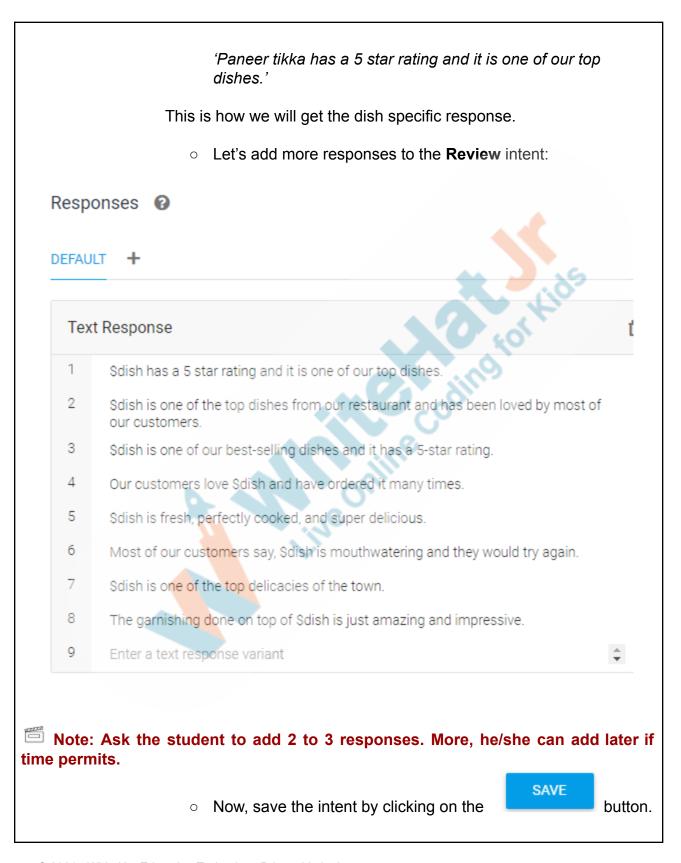
If a user wants the review of Paneer tikka, **\$dish** will hold the value "**Paneer tikka**".

And the output the bot will show is:

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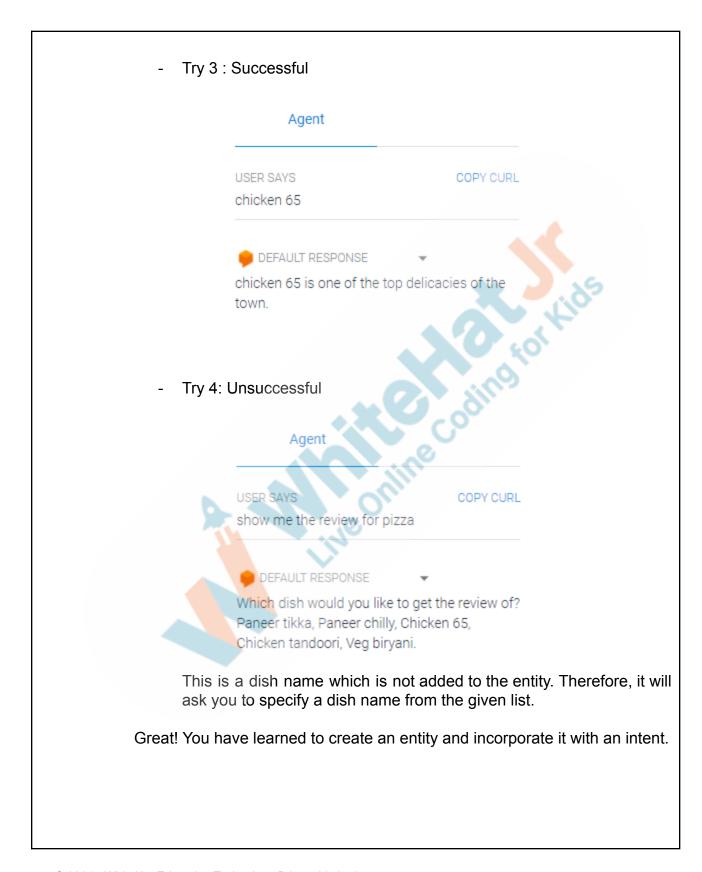
**Test the Intent:** It's time to test the bot. Type your questions and see the output.

- Try 1: Successful



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### → Part 4: Create a Followup intent for the Review intent.

Now let's add a followup intent to the Review Intent.

First, let me tell you what a followup intent means and what will it do? So if a user asks for some review and he/she gets the review. What should happen after that? How will the user know what is the next step or what more can the user ask to the chat bot? For example -

User: 'I want the review of Chicken 65.'

Bot: "Chicken 65 is the best selling dish of our restaurant with

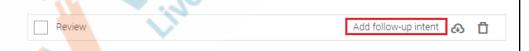
a 5 star rating."

User: 'Okay' OR 'Thanks'.

Now, the conversion has ended. How will the user know what the next step is or what more the user can ask to the chatbot?

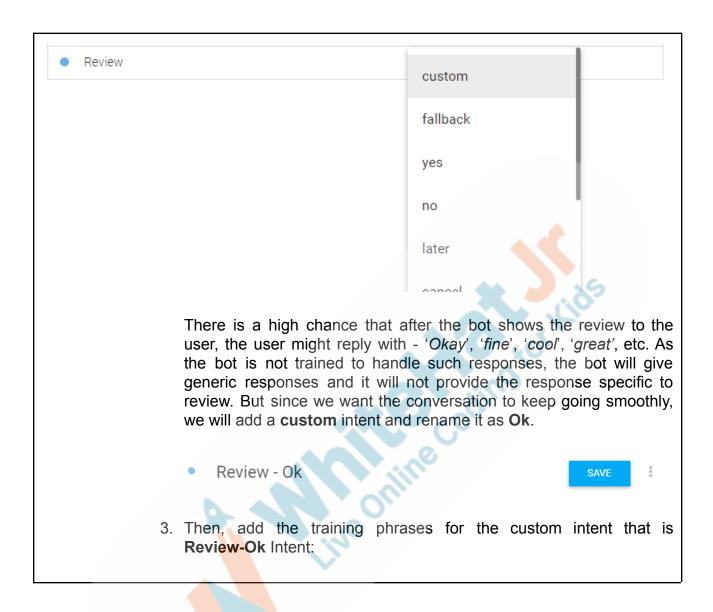
Hence, we will add a followup intent which will help the conversion going and give guidance to the user for the next step.

1. Move your mouse over the intent which you want to add a followup for and click **Add follow-up intent**.



 Select the custom followup intent. There are default followup intents available as well, but they won't be appropriate for our food reviewer bot.









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**Test the bot:** It's time to test the bot. Type your questions and see the output. First, ask about the food review and then say 'Ok' or 'fine' or 'Wow'. Test 1: Successful Agent COPY CURL USER SAYS show the review of paneer chilly DEFAULT RESPONSE paneer chilly is one of the top dishes from our restaurant and has been loved by most of our customers. COPY CURL DEFAULT RESPONSE Thank you! Would you like to know more about this dish such as its quantity, spice level, and preparation time? If you directly say 'Ok' before even asking for the review, it will reply with:



# Agent USER SAYS COPY CURL ok DEFAULT RESPONSE ▼ Great!

Hence, response to the phrase "Ok" depends on the previous intent, therefore it is important when it is being said.

We have successfully trained the bot.

### Teacher Stops Screen Share

# STUDENT ACTIVITY \_\_\_\_ - 30 mins

Now, it's your turn. Please share your screen with me.

- Ask the Student to press the ESC key to come back to the panel.
- Guide the Student to start Screen Share.
- The Teacher gets into Fullscreen.

### **Student Initiates Screen Share**

Now, login to your dailogflow by clicking Student-Activity-1 and let's make your bot smarter.

The student is expected to build the entire bot on his/her own with the teacher's guidance wherever required by making sure that the student follows the steps shown above.

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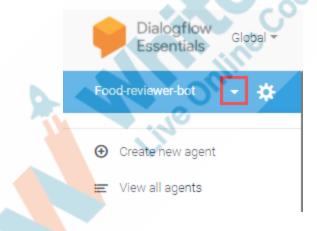


Student Activity
1-DIALOGFLOW

Remember, we are not creating another bot. We are adding Intents to the same bot that we created in the last class.

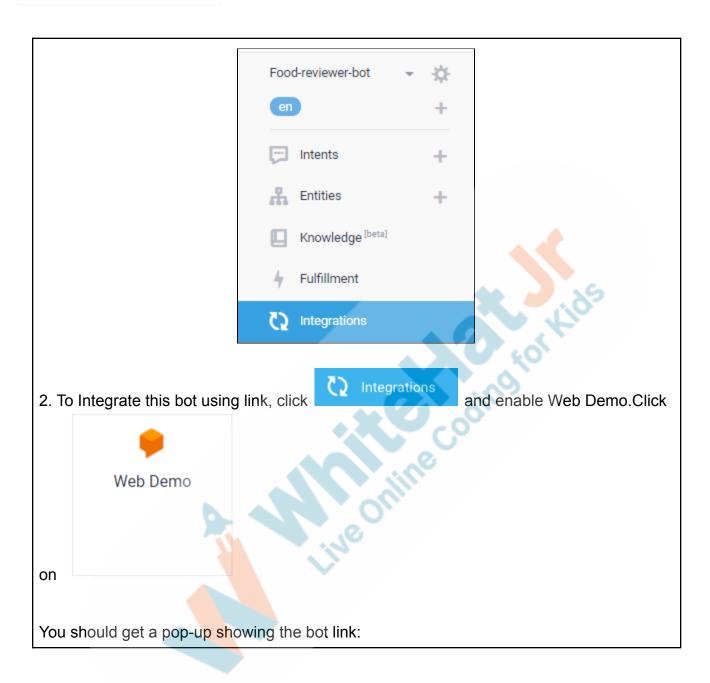
- 1. Create a Review intent.
- 2. Create an Entity.
- 3. Add the Entity to the Review intent.
- 4. Add a followup intent to the Review intent.

### Generating the Chatbot Link (Follow the steps below):

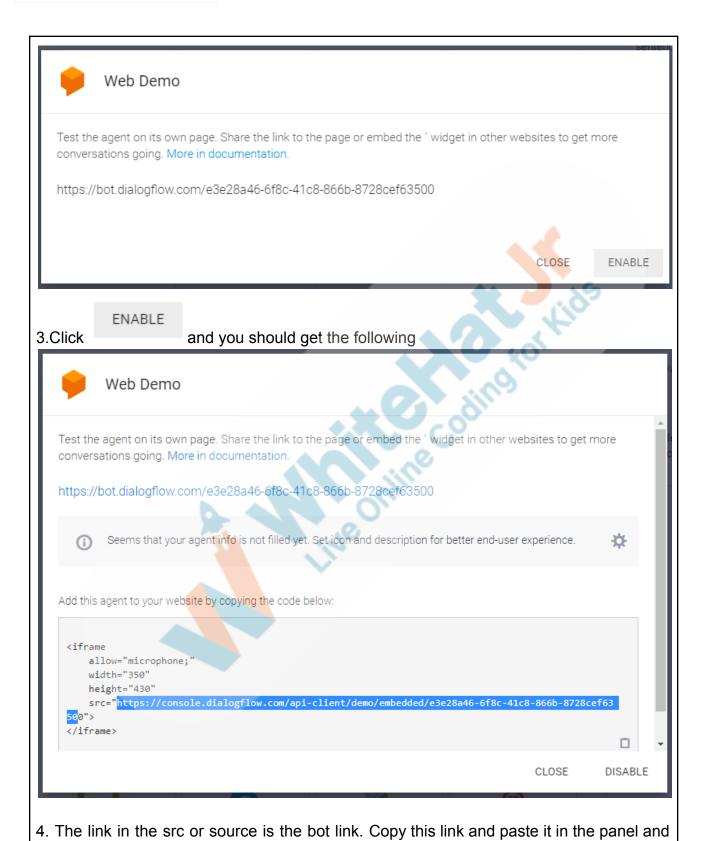


1. Choose your bot: When you click on \_\_\_\_\_, you should see the list of bots we have created in the previous classes. I am going to generate a link for Food-reviewer-bot but you can choose any bot.









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press the **Submit** button.

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You can also paste this link in another chrome tab and see how your bot looks and works in real-time.			
Great Job!			
Teacher Guides Student to Stop Scre	en Share		
Teacher Initiates Screen Shar	е		
WRAP UP SESSION - 5 mins			
Teacher starts slideshow from slides 20 to 23.  Refer to speaker notes and follow the instructions on each slide.			
PROJECT POINTERS AND CUES - 5 mins			
Teacher starts slideshow at slide 24. Refer to speaker notes and follow the instructions on each slide.			
Say	Do		
Project name: MY CITY CHATBOT  Goal of the Project: In today's class, we have learned how to create an entity and how to connect the entity with an Intent.  In this project, you will have to practice and apply what you have learned in the class and create a chatbot for your own city. Create an entity with 1 value that is your city and 3 intents. One for best places in your city, one for best	Note: You can assign the project to the student in class itself by clicking on the Assign Project button which is available under the projects tab.		

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restaurants in your city, and one for best shopping centers in your city. Story: A reputed travel company in your city is going digital. They have hired you to create a Chatbot for them. The chatbot needs to provide information about your city to the first-time travelers so they can plan their visit better. Think about all the things a traveler needs to know to make the city experience great - main attractions, eat-out places in your city, famous people, the best time to visit, etc. I am very excited to see your project solution and I know you will do really well. That's all for today. I will see you in the next class. Bye Bye! × End Class **Teacher Clicks ADDITIONAL ACTIVITY Teacher Initiates Screen Share** Teacher starts slideshow from Slide 25 to 27. STUDENT ADDITIONAL ACTIVITY Student Initiates Screen Share Add more responses to the Review Intent and the FollowUp Intent of the Review intent.

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### Note to the teacher for the Next Class C39:

- 1. Check the student's pending projects.
- 2. If the student has more than 3 pending/expired projects:
  - You can conduct the NEXT CLASS as a PROJECT COMPLETION CLASS.
  - Reach out to the concierge in advance for the same.

Activity	Activity Name	Links
Teacher Activity 1	BOT DIAGRAM	https://curriculum.whitehatjr.com/ADV+Asset/BOT+Diagram+Flow.png
Teacher Activity 2	SHOWCASE BOT	https://console.dialogflow.com/api-client/dem o/embedded/52425ab3-d3ad-4ebd-b412-33 0f2f800c2e
Teacher Activity 3	DIALOGFLOW	https://dialogflow.cloud.google.com/
Student Activity 1	DIALOGFLOW	https://dialogflow.cloud.google.com/
Project Solution	MY CITY CHATBOT	https://drive.google.com/file/d/12EAHtWjXz- 3nHSFfT_WJt8WA-GLtO6gN/view?usp=sha ring This is an example of the city mumbai. You can do it using your own city.
Teacher Reference Visual aid link	Visual aid link	https://curriculum.whitehatjr.com/Visual+Project+Asset/ADV_VA/ADV_C38_V2_withcues.html



Teacher Reference	In-class quiz	https://curriculum.whitehatjr.com/Visual+Proj
In-class quiz		ect+Asset/ADV_VA/C38+V2+Quiz.docx.pdf

