

Dialogflow

α

(3

Points)

Experience Prototyping Conversational Interactions

In this assignment, you will start your work toward designing and developing your Module 3 deliverable. We discussed in class that designing conversational interfaces has unique challenges and that ideation and prototyping methods that work very well in other design problems do not work well here. The good news is that we are also subject matter experts in conversation, but the bad news is that our expertise is encoded in our brains and is not readily available for us to use, what we called *tacit knowledge*. This is where *experience prototyping* comes into the picture: by simulating the social and/or the physical setting for the interaction and acting out the interactions using methods such as *bodystorming*, we unlock our expert knowledge and apply it to the design problem.

In this assignment, you will engage in experience prototyping for a *conversational shopping assistant*, which will serve as the basis for developing the intents and entities for the first prototype of your Dialogflow implementation. Specifically, the Dialogflow β tasks provided below should inform the development of the scenarios in Part 1, and the bodystorming of these tasks in Part 1 should be the basis for the specification of the intents, entities, and responses in Part 2.

Part 1. Experience Prototyping (1.5 Points). The first part of the assignment will involve engaging in *bodystorming* to generate ideas and specifications for your shopping assistant.

Part 2. Agent Specification (1.5 points). In the second part of the assignment, you will build on the outcome of your experience prototyping activity to develop specifications for the agent you will build in Dialogflow.

Submission Details

You will submit a completed version of this document in PDF format to Canvas.

Part 1. Experience Prototyping (1.5 Points). In this step, you will follow a process very similar to the process we followed for the in-class activity on experience prototyping, paying particular attention to *bodystorming* for idea generation. In the context of designing a shopping assistant robot, follow the steps below:

1. *Define context* — This is given to you: users interacting with a conversational shopping assistant embedded within a clothing retail website. There is no deliverable for this step.
2. *Develop scenarios* — Think about how the shopping assistant will help users. What are some tasks the shopping assistant can help users with? Develop 3 scenarios. The tasks from Dialogflow β (provided below) should be the basis of these scenarios. Reviewing the [WiscShop API readme](#) will also be helpful in developing your scenarios.
3. *Identify design goals* — Determine what the shopping assistants can do to assist in these tasks. Consider aspects of the task where the assistant can bring added value. Our goal is not designing a fully autonomous assistant that could take care of everything with minimal input from the user, but what is called a *mixed-initiative design* where the assistant does what it's good at and the user does what the user is good at.
4. *Setup environment* — You can use the retail store provided with Module 3 starter code and/or another clothing retail store as your environment or prop during your acting.
5. *Act out interaction* — Ask a friend, family member, or another student in class to help you bodystorm user interactions with the shopping assistant to develop ideas and to more concretely define user and system behavior and interactions with the environment. Act out and record a transcript on at least one interaction for each scenario.
6. *Develop insight* — Capture the conversations from your bodystorming session and any other insight you have gained from the previous step in notes and translate them into a flowchart representation of the interaction.

Tasks that your Dialogflow β agent should support are listed below:

- **Login**
 - User is able to login with username and password. You do not need to handle account creation.
 - **NOTE:** It is sufficient if the user enters this information as a text query (typing), in case the username and/or password is hard to parse. It should still be english, e.g. "Log in with username <username> and password <password>."
- **Queries**
 - *Categories:* User should be able to query about the types of products offered.
 - *Tags:* User should be able to inquire about the types of tags for a specific category.
 - *Cart:* User should be able to request information about what is in their cart (e.g. total number and type of items, total cost, etc.).
 - *Product Info:* User should be able to request information about a product. If the product has reviews, they should be able to inquire about reviews and average ratings.
- **Actions**

- *Tags*: User should be able to narrow down the search results within a category by specifying tags, e.g. "Show me all the red ones".
- *Cart*: User should be able to add/remove items (or multiple of an item) to/from your cart. They should also be able to clear their cart.
- *Cart Confirm*: User should be able to review, then confirm their cart.
- **Navigation**
 - User should be able to navigate through the application with the voice assistant using natural language, e.g., "Take me to the home page" or "Show me the hats".
 - For a full breakdown of the various routes in the application, see the WiscShop readme.

Your deliverables will be the scenarios and design goals you have focused on, the transcripts of the bodystorming sessions, and a flowchart representation of the conversational capabilities suggested by your experience prototyping through your 3 scenarios. Your flowcharts can be in the form of a graph where the nodes are system behaviors and arrows are user behaviors. To generate flowcharts, you can use [SmartDraw](#) (using your NetID login) or free versions of other tools, such as [LucidChart](#) or [Creatly](#).

<scenarios-and-design-goals>

Scenarios

- Find the product that meet the preferences
- Review and modify the cart
- Confirm cart to check out

Design Goals

- Help the user login
- Help the user narrow down products with tags
- Help the user retrieve list of products and detailed information about specific product
- Help the user retrieve and modify queries of the shopping cart
- Help user confirm the cart

<bodystorming-transcripts>

Acting out interaction

Find the product that meet the preferences

Shopping assistants: Hi, welcome to the WiscShop. How can I help you for today?

User: I want to find some t-shirts

Shopping assistants: Sounds good. I find 150 t-shirts. What color do you want?

User: Red.

Shopping assistants: Okay. There are 23 red t-shirts in our store. Do you want one for man or woman?

User: Woman.

Shopping assistants: Cool. I find 14 red t-shirts for women. What size do you want? We have sizes ranging from double extra small to double extra large.

User: I want a large one.

Shopping assistants: Got it. I find 4 red t-shirts for women with large size available. Do you have a specific usage for the t-shirt?

User: Yes, it will be used for football season.

Shopping assistants: Sound good! There is on specific red large t-shirt for women and is good for the football season.

User: Are there more detail about it?

Shopping assistants: Yes, there is. It is the Jump Around Shirt. You will be ready for football season with this Jump Around t-shirt! The red tee features 'Jump Around' with a printed Wisconsin motion W and an Under Armour logo across the front. The soft shirt feels great and wicks away sweat on hot days.

User: Cool, thanks.

Shopping assistants: Are there anything else that I can help with?

User: No, that's it.

Shopping assistants: Okay, have a good day.

User: Have a good day.

Review and modify the cart

Shopping assistants: Hi, welcome to the WiscShop. How can I help you for today?

User: Hi, I want to check my cart

Shopping assistants: Okay. Could I have you type your username and password in the chat box with format <username>;<password>?

User: Sure (type the username and password)

Shopping assistants: Got it. There is one blue Jump Around Shirt with size large for women. The total would be 30 dollars. Shipping fee and tax is not included yet. Are you ready for checking out the cart?

User: hmmm. I want the red one instead.

Shopping assistants: Okay, should I replace the blue Jump Around Shirt with size large for women with a red Jump Around Shirt with size large for women

User: Yes

Shopping assistants: Okay, your cart is updated. There is a red Jump Around Shirt with size large for women in your cart. The total would be 30 dollars. Shipping fee and tax is not included yet.

User: Cool.

Shopping assistants: Are there anything else that I can help with?

User: No, that's it.

Shopping assistants: Okay, have a good day.

User: Have a good day.

Confirm cart to check out

Shopping assistants: Hi, welcome to the WiscShop. How can I help you for today?

User: I want to check out.

Shopping assistants: Okay. Let's log in first. Could I have you type your username and password in the chat box with format <username>;<password>?

User: Sure (type the username and password)

Shopping assistants: Got it. There is red Jump Around Shirt with size large for women in your cart. The total would be 30 dollars. Shipping fee and tax are not included yet. Are you ready for checking out the cart?

User: Yes.

Shopping assistants: Okay! As your order is over 20 dollars, you are eligible for free shipping! The total is 31.65 dollars with tax. Do you want it to be shipping to your address at the state street or pick it up at our store?

User: How long will it take for the shipping.

Shopping assistants: Usually, it will take 3 – 5 business day.

User: I will pick it up at the store.

Shopping assistants: Cool. Do you want to pay it now or pay it when you pick it up?

User: I will pay it then.

Shopping assistants: Sounds good. Let's confirm that you want to purchase a red Jump Around Shirt with size large for women and pick it up at the store. You will pay for it when you pick it up. Is that correct?

User: Yes.

Shopping assistants: Okay, your order is confirmed. Thanks for shopping at Wiscshop!

User: Okay.

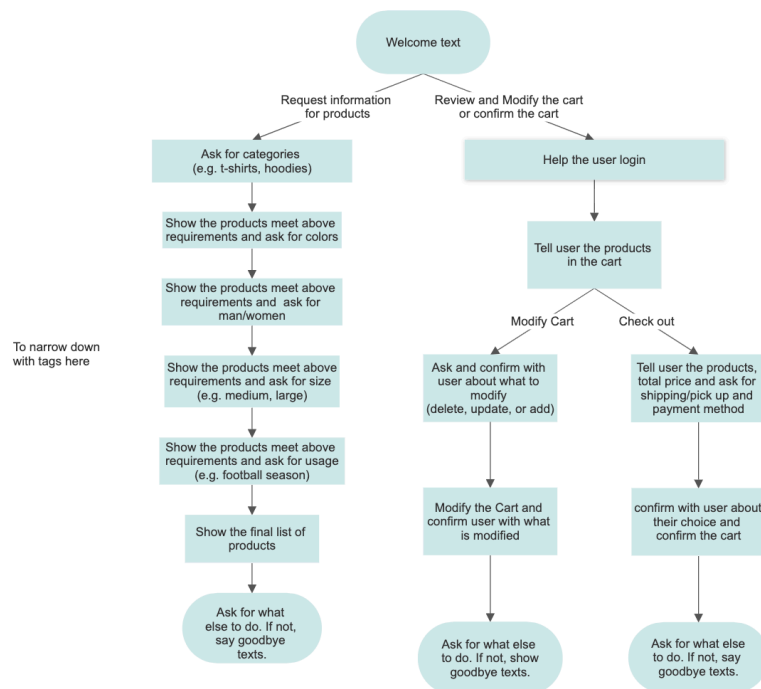
Shopping assistants: Are there anything else that I can help with?

User: No, that's it.

Shopping assistants: Okay, have a good day.

User: Have a good day.

<flowchart>



If there is something else that users want to do. Will go to the specific part of the flowchart based on what users want

- When user requests for info. Need to ask for different categories of tags (color, man/women, size, etc.) in sequence to narrow down the search
- For any scenarios else than general checking the products in the store, need user to sign in first. (scenarios like involving the info about their shipping cart)
- After each scenario completed, need to ask user whether there are more scenarios that they want to do and perform corresponding actions instead of directly stopping the conversation and say goodbye words.
- When user is making some important decisions (e.g. confirm cart), it would be better to reconfirm to make sure that everything is correct.
- In any step, user should be able to redo the last step and go back. Also, user need to redo if there is an error, e.g. login fail.

Part 2. Agent Specification (1.5 Points). In this step, you will apply what you learned in your experience prototyping activity to the design of the agent you will be creating. More specifically, you will draw on the outcome of your bodystorming session to determine the *intents* and *entities* that your agent will utilize in its conversation, and consider how you will use them and server data to provide responses.

If a particular intent or response is infeasible to implement the way you imagined in your bodystorming session, explain why, and propose an intent or family of intents which can be realistically implemented using the Dialogflow framework that will support the same functionality.

In this part, you will provide three main deliverables:

1. A list of all *intents* you will use (provide 10 training examples for each intent).
2. A list of all *entities* (provide at least five examples for each entity) you will be using with your agent.
3. For each *intent*, develop agent responses, specifically what it will *say in reply* (at least three responses to avoid repetition) and what it will *do* to change the GUI.

For a full description of what the GUI can do, and the requirements of the agent, see the Dialogflow β assignment details and the [WiscShop API readme](#).

<intents-and-training-examples>

Intent:

login

Request info for product, category, tag, cart

Narrow down with tag

add/remove cart, confirm cart

navigate

Training examples:

- login

1. Help me login
2. I want to login
3. Let's login first
4. Login to account testuser
5. Login with username testuser and password password
6. Can I login to my account
7. Login to review purchase history
8. Can you help me with login?
9. Please let me login
10. How about login to my account first?

- **request_product_info**

1. Tell me more about the Jump Around Shirt.
2. How does Jump Around Shirt looks like?
3. I want to know more about Jump Around Shirt.
4. What is Jump Around Shirt?
5. What is the description for Jump Around Shirt?
6. How much is the Jump Around Shirt?
7. What is the price for the Jump Around Shirt?
8. What are the reviews for the Jump Around Shirt?
9. What size does the Jump Around Shirt have?
10. I want to check the details for the Jump Around Shirt.

- **request_category_info**

1. What categories do you have?
2. What types of products do you have?
3. What products do you have?
4. What cloths do you have?
5. I want to have the information about your categories.
6. I want to know your types of the products.
7. Show me the types of your products.
8. Tell me the categories.
9. Let me know the type of your cloths.
10. What kinds of products do you have?

- **request_tag_info**

1. What tags do you have for t-shirts?
2. What colors do you have for t-shirts?
3. What sizes do you have for t-shirts?
4. What kinds of t-shirts do you have?
5. What types of t-shirts do you have?
6. What are the tags for the t-shirts?
7. Tell me about the tags for the t-shirts.

8. I want to know the tags for the t-shirts.
9. Show me the tags for the t-shirts.
10. I want to know what kinds of t-shirts you have.

- **filter_with_tag**

1. I want the red ones.
2. I will go with the red ones.
3. Show me the red ones.
4. Are there any red ones?
5. Do you have any red t-shirts?
6. Narrow down with red ones.
7. Show me the products with the red ones
8. What about the red ones?
9. What red t-shirts do you have?
10. Continue with the red t-shirts.

- **request_cart_info**

1. What are in my cart?
2. Show me the products in my cart.
3. What are the products in my cart?
4. I want to know what is in my cart.
5. Tell me what is in my cart.
6. What did I put into my cart?
7. What are the total prices of products in my cart?
8. How much do the products in my cart cost?
9. Did I put this t-shirt into my cart before?
10. Products in my cart.

- **add_to_cart**

1. Add this to my cart.
2. I want to purchase this
3. Put this t-shirt into my cart
4. I want to buy this t-shirt
5. Can I add this to my cart?
6. Please help me add this to my cart
7. Let's purchase this.
8. This is what I want.
9. Could I have you help me add this to my cart?
10. I want this one.

- **remove_from_cart**

1. Remove this from my cart.
2. I do not want it.
3. Clean my cart.

4. I will purchase it later
5. Can it remove it from my cart?
6. Please help me remove this.
7. I no longer want this.
8. Please remove all the products in my cart.
9. Can I remove this Jump Around Shirt?
10. Help me get rid of this Jump Around Shirt.

- **confirm_cart**

1. I want to check out
2. Can I confirm my cart?
3. I am ready to purchase
4. Let's purchase this.
5. Confirm my cart.
6. What about checking out?
7. Please help me check out my cart
8. I do not want to make more changes, confirm it.
9. Let's go to the next step and check out.
10. I want to pay for the products in my cart.

- **Navigate**

1. Go back
2. Take me back to the home page
3. Navigate me back to the home page
4. Let's go back to the home page
5. Show me the home page.
6. How about going back?
7. Redirect me to the main menu
8. I want to see the home page
9. Could I view my cart?
10. Switch the app to the home page

<entities-and-examples>

Category: t-shirt, dress, jean, skirt, sweater

Tags : red, white, fluffy, cotton, badger, bucky, w figure

Object: price, product_name, category, count, description, image

Action: remove, add, confirm, navigate, request

Page (for navigation): home page, cart page, t-shirt page, jean page, confirm page, review page

<intent-responses-and-procedures>

- **Login**

It will ask for user's username and password to log in and then wait for user's response if the user does not provide username or password. It will help the user log in if username and passwords are provided, ask for what user want to do and then wait for the response.

1. I am glad to help! Can I have your username and password in format <username>;<password> to help you log in?
2. Okay. I need your username and password to help you log in. Could I have them in format <username>;<password>
3. Sounds good. Please provide me with your username and password so that I can help you log in! It would be better if you could type them in the format <username>;<password>
4. Okay, you are login now. Are there anything that I can help you with today?
5. Definitely, I get you log in now. What brings you here today?
6. I am glad to help. You log in to the account testuser. Are there a specific product that you are looking for?

- **request_product_info**

It will find the product based on user's input and then tell user the name, description, and price of the product. Then, it ask for whether the information is what the user want or further information and wait for user's response.

It will prompt user to try again if it does not find the product.

1. Okay! The description of Jump Around Shirt is that you will be ready for football season with this Jump Around t-shirt! The red tee features 'Jump Around' with a printed Wisconsin motion W and an Under Armour logo across the front. The soft shirt feels great and wicks away sweat on hot days. The price of it is 30 dollars without tax. Are there any more details that I can provide?
2. Sure! The Jump Around Shirt is 30 dollars without tax. You will be ready for football season with this Jump Around t-shirt! The red tee features 'Jump Around' with a printed Wisconsin motion W and an Under Armour logo across the front (description). Are there more information that I can provide?
3. Got it. This is the description of Jump Around Shirt that I find. You will be ready for football season with this Jump Around t-shirt! The red tee features 'Jump Around' with a printed Wisconsin motion W and an Under Armour logo across the front. It will cost you 30 dollars without tax. Is this information what you are looking for?
4. Hmm. I did not find the product <product>. Can you try again?
5. Sorry, I did not understand what product you want to look for. Could you try again?
6. Sorry, the product <product> seems not to be provided by our store. What about giving another try?

- **request_category_info**

It retrieves the lists of categories and tells user the categories and subcategories. Then it asks for user whether the user want to look into a specific category and wait for user's response.

1. Okay. We provide a wide variety of items from cloths, such as t-shirts, dresses, and jeans, to kitchen aids, bathroom needs, <categories>, <categories>.... Are there a specific category of product that you are looking for?

2. I am glad to help you. Our categories are cloths, kitchen aids, bathroom accessories, <categories>, <categories>.... There are also sub-categories, such as t-shirts, dresses, jeans. Are there a specific category that I can find more information for you?
3. Got it! We offer a wide variety of products. If you are looking into narrower categories, we have t-shirts, dresses, jeans, mugs.... Or you can also explore broader categories like cloths, kitchen aids, bathroom needs...(more categories).... Do you want me to look into a specific category for you?

- **request_tag_info**

It retrieve the list of tags and gives user a list of tag associated to the categories that user provide. It then asks user whether to narrow down the search based on tags and wait for user's response.

It will prompt user to ask again if the category is not found.

1. Sure. Here is what I found. Tags for t-shirts are male, female, fluffy, badger, adult, child... Do you want to narrow down your search by looking at a specific tag or tags?
2. Got it. Our tags for t-shirts are male, female, fluffy, badger, adult, child...I can filter the search with some specific tags that you provide. Do you want me to do so?
3. Okay. There are several tags for the t-shirt. They are male, female, fluffy, badger, adult, child... If you want to narrow down your search with specific tags, please tell me and I am glad to help you with that!
4. Hmm, I did not find the category <category> Could you try again?
5. Sorry, it seems like we do not have the category <category>. Do you want to give another try?
6. I am sorry that I am not able to understand the category you want to search tags for. Please try again.

- **filter_with_tag**

It filters the product list based on what user give. More specifically, it tells user how many products meets the search criteria. Then, it ask whether user want to narrow down the search and prompt user for tags if there are more than 1 product under the search or tell the user the information about the product that it found if there is only 1 product under the search and ask whether this meet users' search criteria.

It will prompt user to try again if the tag is not valid (not in the database)

1. Cool. I find 150 red t-shirts. It still seems to be a lot. Do you want me to help you narrow it down? You can tell me some tags such as what color, size, or texture you are looking for.
2. I am glad to help! There is 150 red t-shirts. If you want to keep narrowing it down, you could provide me with what color, size, or textures you are looking for and I would be glad to help you filter the search!
3. Sounds good. I find the Jump Around t-shirt, which is a blue large t-shirt for women. It costs 30 dollars, and the description is you will be ready for football season with this Jump Around t-shirt! The red tee features 'Jump Around' with a printed Wisconsin motion W and an Under Armour logo across the front. Is this t-shirt meet your requirement?
4. Sure! There is a blue large t-shirt for women. It is the Jump Around t-shirt. The price of it is 30 dollars. I find its description as you will be ready for football season with this Jump Around t-

shirt! The red tee features 'Jump Around' with a printed Wisconsin motion W and an Under Armour logo across the front. Is this what you are looking for?

5. Sorry, it seems like the tag <tag> is not in our database. Would you try again?
6. Hmm, I think we do not have that tag. Please try again.
7. Sorry, there seems to be no product that have the tag <tab>. Do you want to try again?

- **request_cart_info**

If the user does not log in before, it will prompt user to log in with responses in login intent without username and password (just add to review your cart after to login)

If the user is log in, it will give responses as follow. More specifically, it will retrieve user's cart information and tell users what is in the cart and the total prices of the products in the cart. Then, it asks what user want to do next and wait for the response.

1. Okay, there is a blue large Jump Around t-shirt for women and it cost 30 dollars. Are you ready to check out or are there other products that you want to look at?
2. Thanks for shopping with us. Now, there is one product in your cart. It is a blue large Jump Around t-shirt for women. The total prices of products in your cart is 30 dollars. Are there anything else that I can do for you?
3. I am glad to help! Currently, there is one product in your cart and the total price is 30 dollars. The product is a blue large Jump Around t-shirt for women. Let me know if there is more thing I can do for you.

- **add_to_cart**

If the user does not log in before, it will prompt user to log in with responses in login intent without username and password (add "to add the product your cart" after to login).

If the user log in before, it add the products to the cart and tell user that the product is added and the current products in the cart with total price. Then, it asks what user wants to do next and wait for response.

1. Sounds great, thanks for shopping with us. The blue large Jump Around t-shirt for women is added to your cart. Now, there is one blue large Jump Around t-shirt for women and one red large Jump Around t-shirt for women in your cart. The total price is 60 dollars without tax. Do you want me to help you add more products to your cart or are you ready to check out?
2. Definitely. I added the blue large Jump Around t-shirt for women to your cart. Currently, there are two products in your cart and the total price is 60 dollars without tax. The products are one blue large Jump Around t-shirt for women and one red large Jump Around t-shirt for women. Let me know if there is anything else that I can do for you!
3. Got it. The blue large Jump Around t-shirt for women is in your cart now. Currently, the total price of your cart is 60 dollars without tax. There are two products: the blue large Jump Around t-shirt for women and the red large Jump Around t-shirt for women. If you need further help with anything, just let me know and I would be really glad to help!

- **remove_from_cart**

If the user does not log in before, it will prompt user to log in with responses in login intent without username and password (add "to remove the product your cart" after to login).

If the user login before, it remove the product from the cart, tell user what is in the cart now and the total price. Then, it asks what user want to do next and wait for the response.

1. Okay. I removed the rad large Jump Around t-shirt for women from your cart. Now, there is a blue large Jump Around t-shirt for women and it cost 30 dollars. Are you ready to check out or are there other products that you want to look at?
2. Definitely. The rad large Jump Around t-shirt for women is removed from your cart. I find that there is a blue large Jump Around t-shirt for women in your cart and it cost 30 dollars. Are there any other t-shirts that you are looking for or are you ready to check out?
3. Sure. I delete the rad large Jump Around t-shirt for women from your cart. Currently, you have a blue large Jump Around t-shirt for women in the cart. The total price of products in your cart is 30 dollars without tax. Do you want to keep shopping or are you ready to check out?

- **confirm_cart**

If the user does not log in before, it will prompt user to log in with responses in login intent without username and password (add “to confirm your cart” after to login).

If the user login before, the assistant will reconfirm with user about the products to checkout and the total price with tax. Then, it ask whether user want to check out with those products and wait for the response.

1. Okay! Thanks for shopping with us. There is one product in your cart to be check out. It is one rad large Jump Around t-shirt for women. The total is 31.65 with tax. Is everything correct?
2. Sounds great. It is so cool that you find everything you want. The product in your cart is one rad large Jump Around t-shirt for women. The total is 31.65 with tax. Is that what you want to check out?
3. I am glad to help you! Hope you have a good time shopping with us. The products in your cart costs 31.65 with tax. The product is one rad large Jump Around t-shirt for women. Do you want to continue to the payment?

- **Navigate**

It will navigate to the page that user want to navigate to (if exist). Then, it tells user what page the user is at, ask for what other help that the assistant can provide and wait for the response.

If the page is not exist, it will prompt user to ask again.

1. Sure! We are now on the home page! Are there anything else that I can do for you?
2. Definitely. Here is the home page. Do you want to search for a specific category?
3. I am glad to help you! There is the home page. Let me know if there is anything else that I can do for you.
4. Hmm, it seems like the page <page> does not exist. Could you try again?
5. Sorry, I am not able to find the page <page> to navigate to. Please try again.
6. Sorry. We do not have the page <page> in our online store. Did I understand you wrongly? Please try again.