Intelligent Bot: mãos à obra!

Create a Bot with Intents, Entities, Flows, Components and Channels

In this hands on workshop, you'll create a simple financial Bot, configure its artifacts, test it and deploy it to a sample web application.

You will create intents (you can think of an intent as the meaning behind what the user wants to do), add utterances (sample phrases to help your bot reference intents when it parses the user input), add entities (extra content to enable your bot to complete a user request), configure system components (built-in components that allow you to perform typical interactions with the users, control the flow, perform language detection and manipulate variables) and custom components (REST services that allow the Bot to interface with external APIs) and finally configure messaging channels where you enable a messaging platform to use your bot.

The Oracle Intelligent Bots platform has many other capabilities but we won't be able to explore all of them during this lab.

What do You Need?

For this lab, you'll need the following files from the `labfiles.zip` provided:

- `FirstBotYAML.txt`
- `FirstBot-Intents.csv`
- `CustomComponentURL.txt`
- `CustomPrintBalance.txt`
- `CustomStartPayment.txt`
- `CustomTrackSpending.txt`

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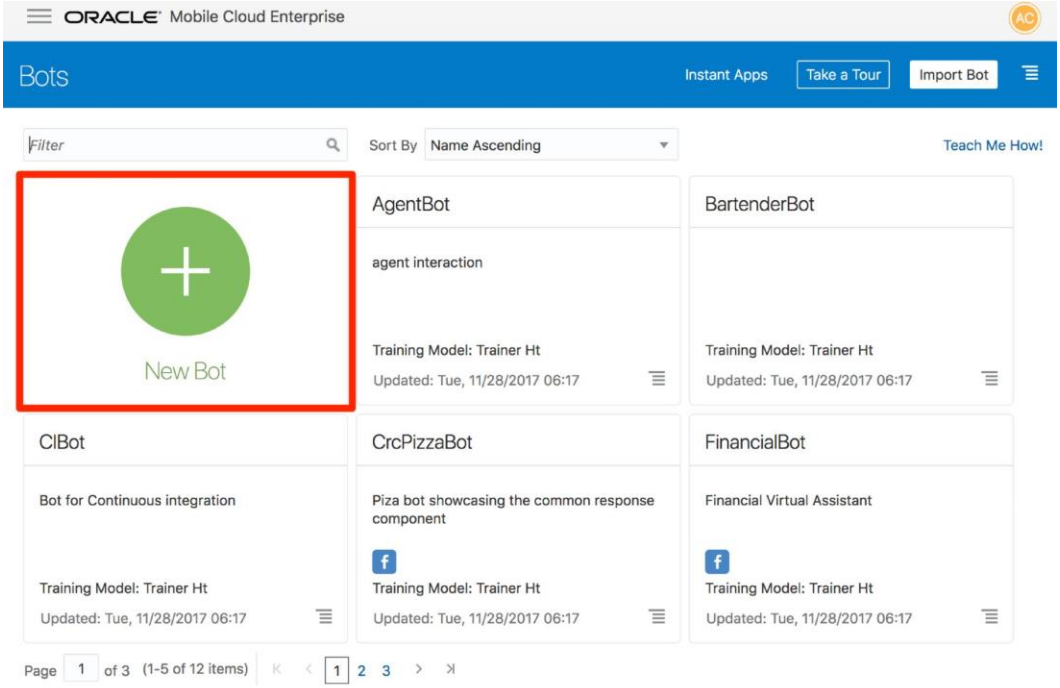
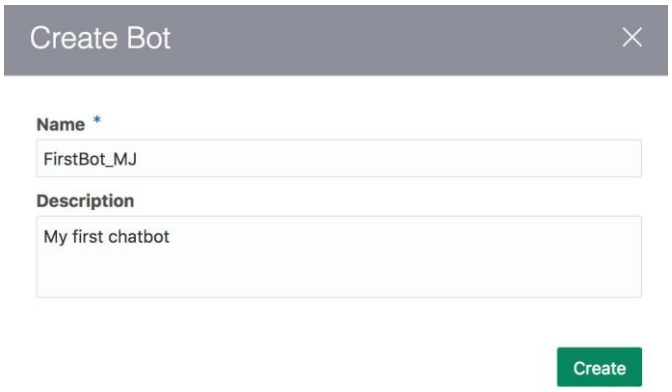
Lab 1: Create a Simple Banking Bot

In this section, you create a simple banking Bot and examine the main artifact types.

1. Log in to your instance of Oracle Intelligent Bots and then click **New Bot**.



2. In the Create Bot dialog, enter *FirstBot_XX*, where *XX* are your initials. Next, add a description and then click **Create**.



3. In the left navbar, you can see a list of icons that you use to navigate to your intents, entities, flows, resource bundles, components, settings and quality

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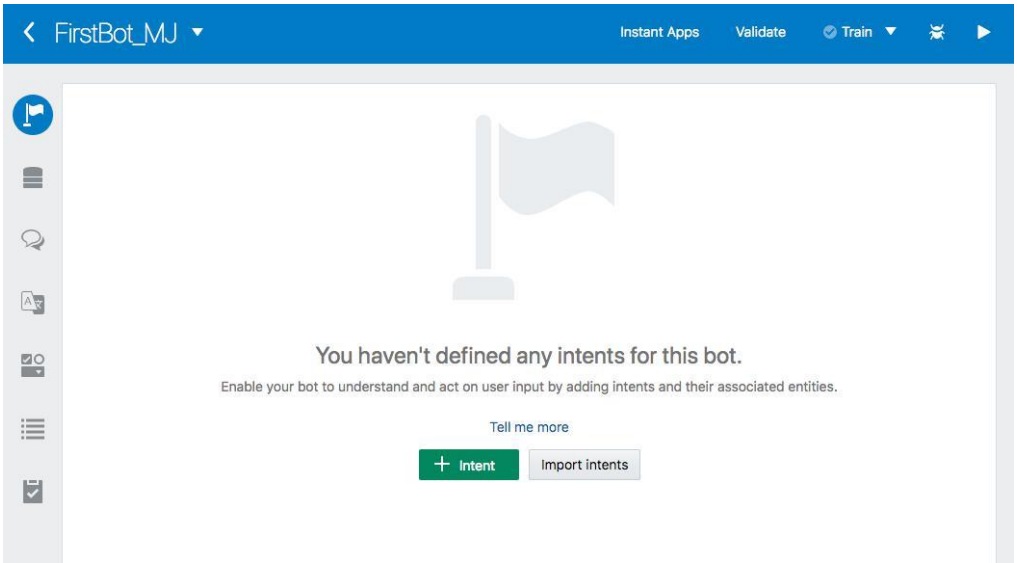
reports. The left navbar is what you are going to use to navigate through the Bots UI during the labs.

4. By default, the Intents page is open, but as of this moment, you don't have any intents.



5. Click Entities (the second icon down) and notice that it's pre-populated system entities. These are standard entities that you can use in your Bot without having to explicitly define them.

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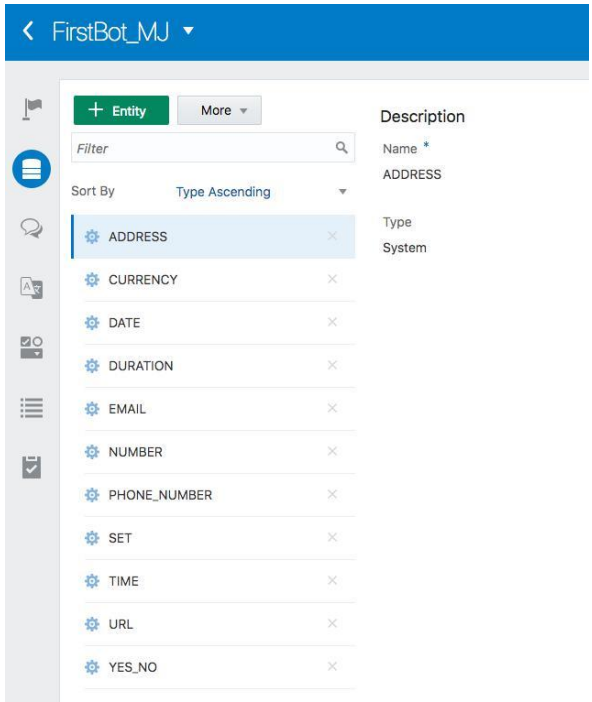
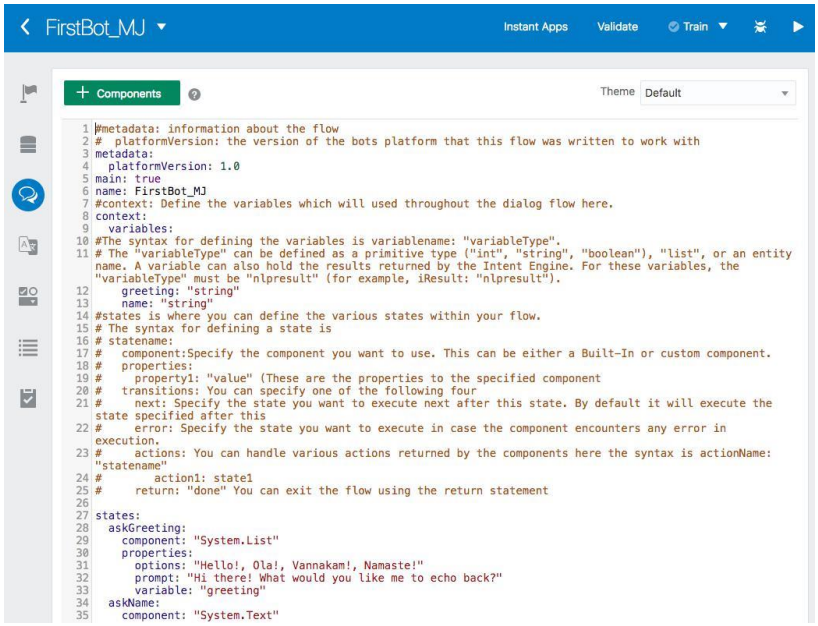


6. Next, click the Flows icon. Notice that it's pre-populated with code that enables the Bot to output a "hello" message. Don't worry about the code for the flow right now -- you'll make modifications to it later.



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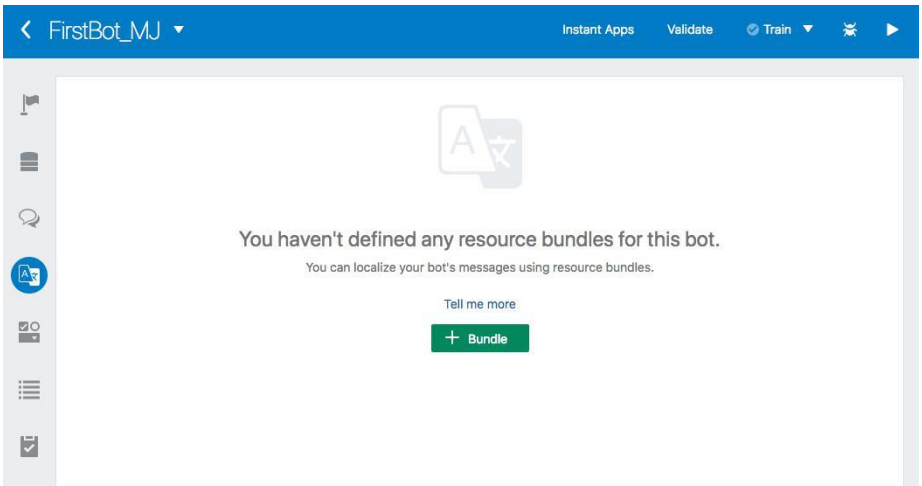
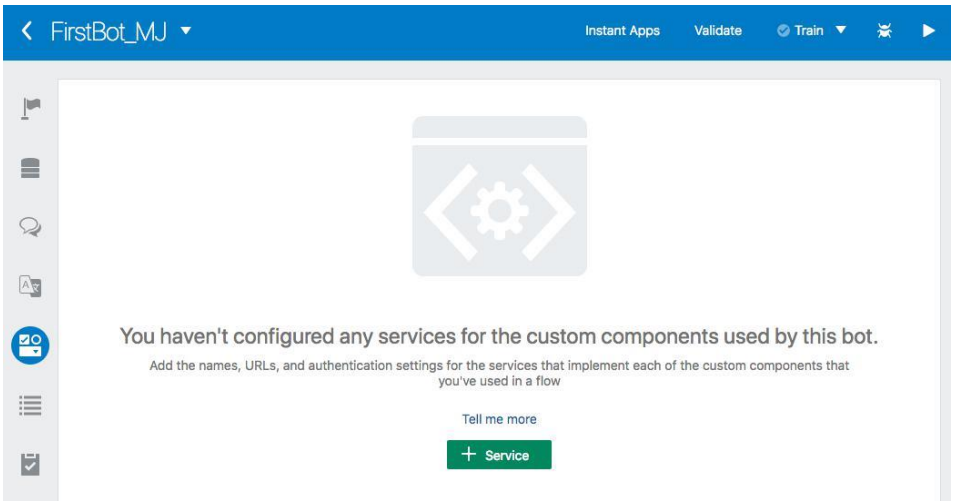
7. The next option on the list is the Resource Bundles. Resource Bundles are used to localize your Bot based on the language set for the messaging channel currently in use.



8. Now, click the Components icon. Components is the area where you configure external REST services for your Bot to interact with.



9. Finally, click the Settings icon. Notice its tabs: General and Channels.
10. The General tab contains general details about the Bot and some properties that influence how the Bot is trained. You'll find out more about that later. The Channels tab is where you'll publicize your bot by hooking it up to the Web Messenger. That too is something that you'll do later in the lab.

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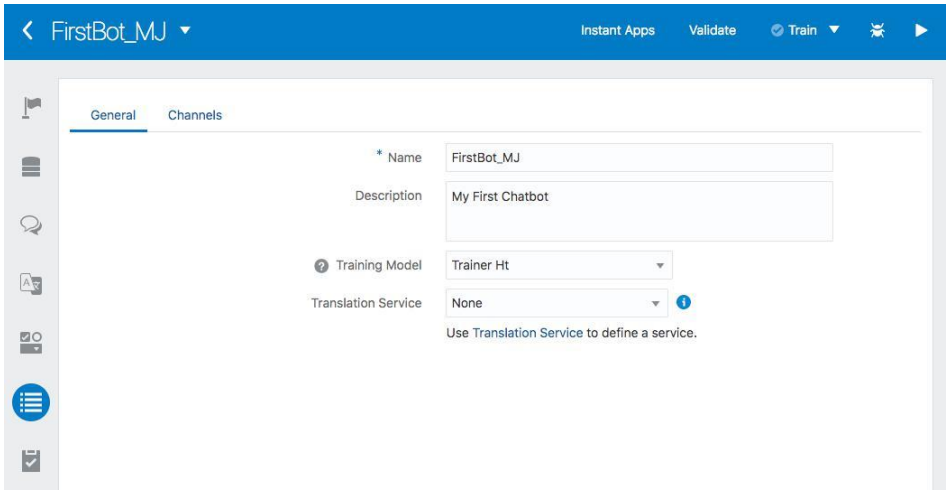

In the next section, you will add artifacts to make the Bot work.

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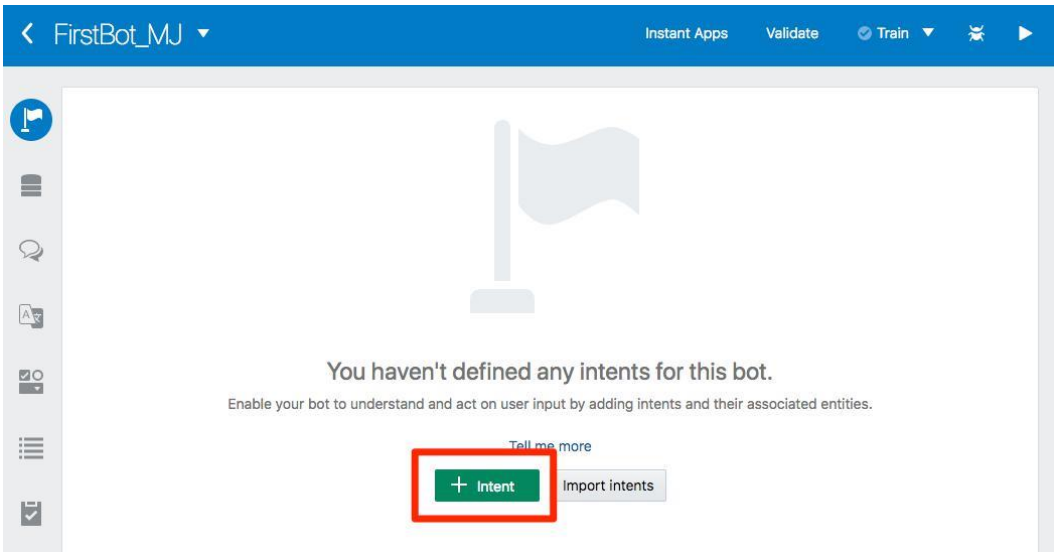
Lab 2: Adding Intents and Entities to Your Bot

In this lab, you will create intents and add utterances to them. Then, you will create and add entities to the intents.

1. Click the Intent icon in the left navbar and then and then click the green **Add Intent** button.



2. This intent will be used to find out your banking balance, so replace `Intent1` in the Name field with `Balances` and then provide a description (i.e. `Query my account balance`). These values are saved automatically, so you do not need to explicitly save them. As you create artifacts, you may notice a message in the lower right corner that tells you that your work has been saved.

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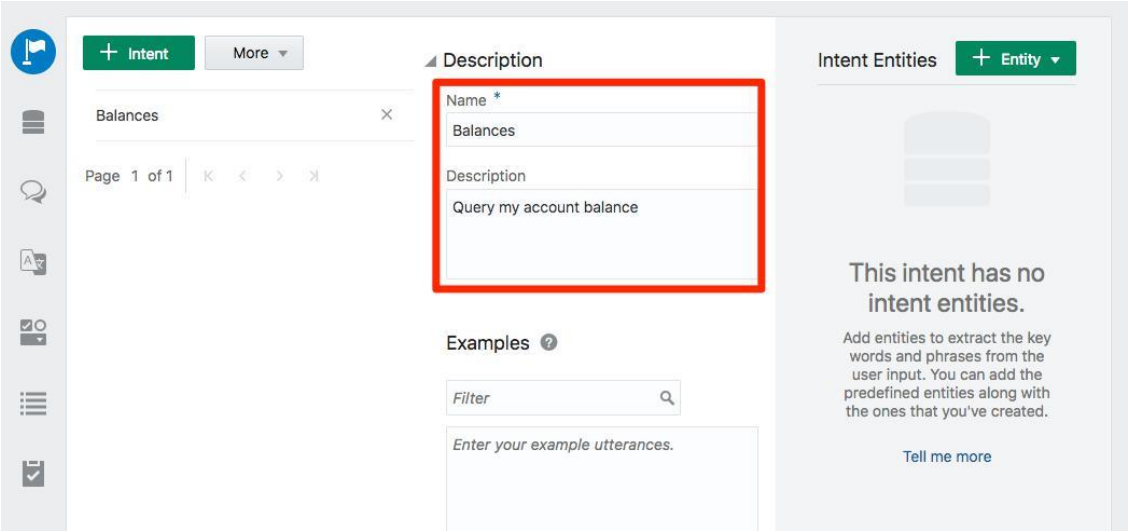
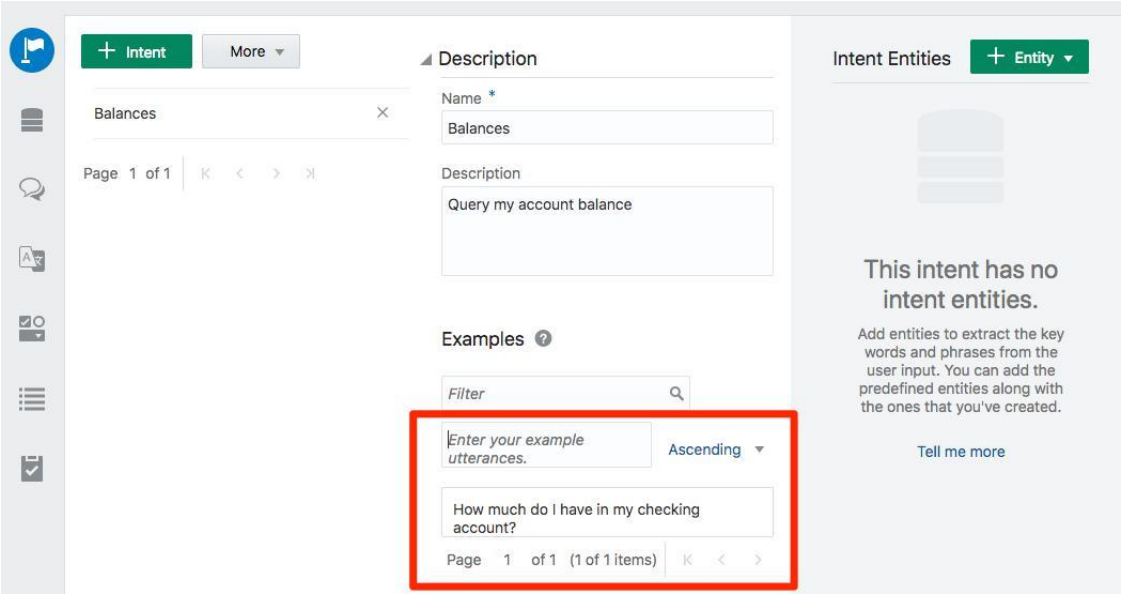


3. Now that you have an intent, you need some example phrases, or utterances, that express what a checking balance means. In the `Examples` area add the following text: *`How much money do I have in my checking account?`* and then press Return.



4. Add the following list of utterances to your intent, each followed by a return. Keep in mind that the examples don't need to be in the form of a question; they can be a statement.

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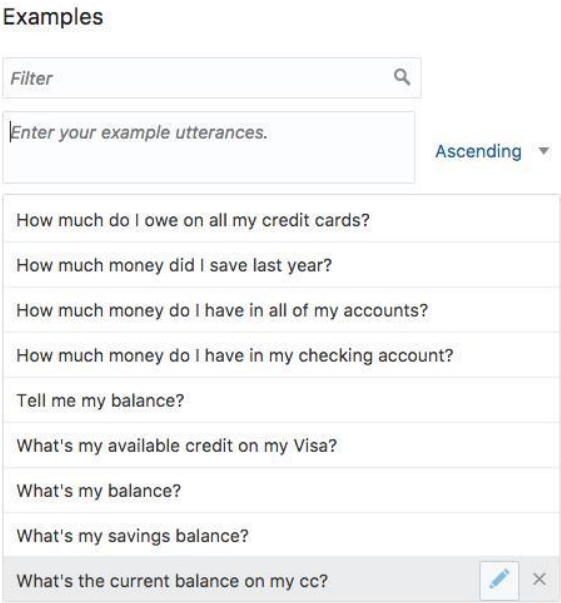
- How much do I owe on all of my credit cards?
- How much money did I save last year?
- How much money do I have in all of my accounts?
- What's my savings balance?
- What’s my available credit on my Visa?
- What’s my balance?
- What’s the current balance on my cc?



5. While you can manually add the intents like you did in the previous step, you can also add intents quickly by importing them from a CSV file. Here is how to do it. In the middle of the Intents page, click **More** and then **Import Intents** button. Select the `FirstBot-Intents.csv` file found in the `labfiles` directory.
6. Next, click **Open**.
7. Three intents should be imported or updated: `Balances`, `Send Money`, and `Track Spending`. Each intent has its own set of utterances.

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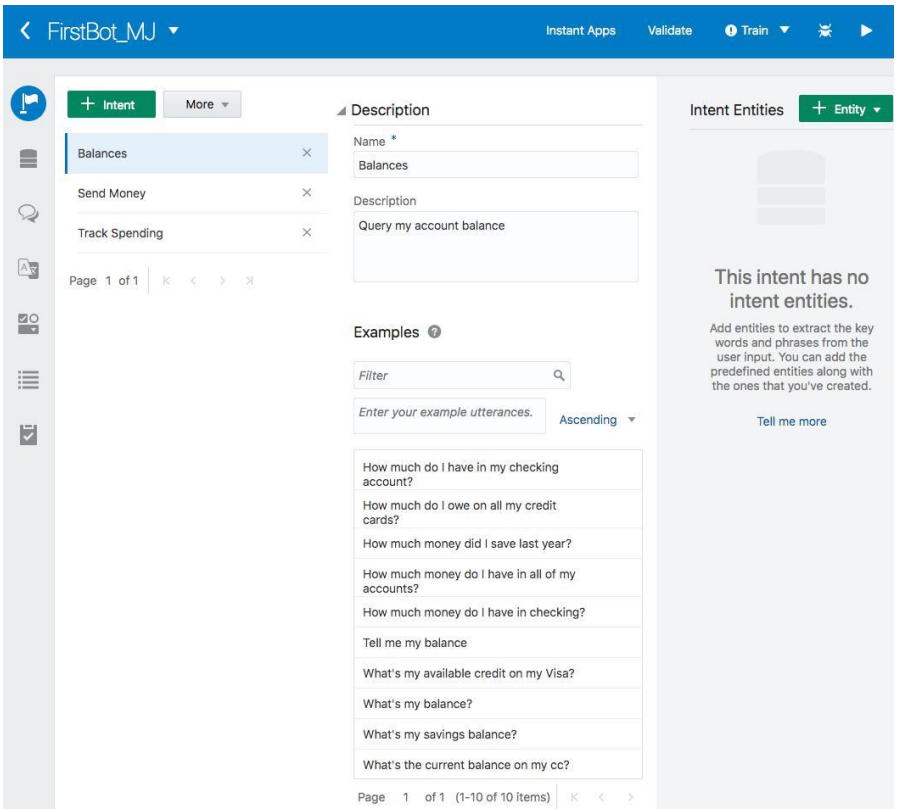
8. To get a better idea of the how the language used in these utterances differentiates each of the intents, click each intent (Balances, Send Money and Track Spending) and take a look at their respective example phrases.



9. Now that you've created all the intents for your Bot, you can add Entities to it. Entities are special pieces of information that help the Bot break the user's sentence apart and extract the relevant parts of it.

   For example, if you want to request the balance of an account, you would probably need to know the kind of account that returns that balance (i.e. checking, savings, etc). To extract that information, you would use an entity that defines different types of accounts.

10. Click the **Entities** icon in the left navbar. Click the green **Add Entity** button, replace *Entity1* in the Name field with `AccountType` and then add a short description (i.e. `The type of bank account to be used`).

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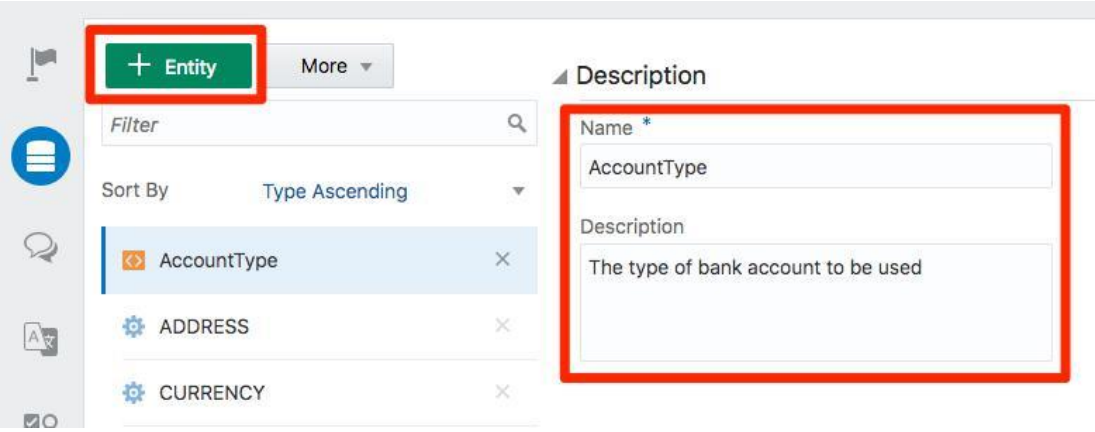
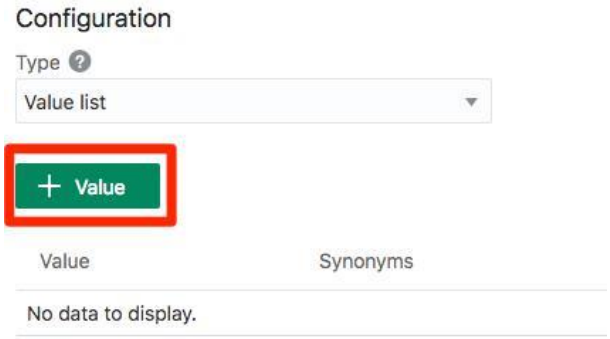


11. Now that you have an entity, you need to provide some values that it will use to identify key words from the user input. In the case of the account type, you need to add values that represent the various types of accounts that you could query for a balance.
12. In the Configuration area, be sure that the Type property is set to **Value List** and then click the green **Add Value** button.



13. In the popup dialog, enter *checking* as the value and *check* as a synonym. Press return/Enter. Make sure you use lowercase values here.
14. Click **Create**.

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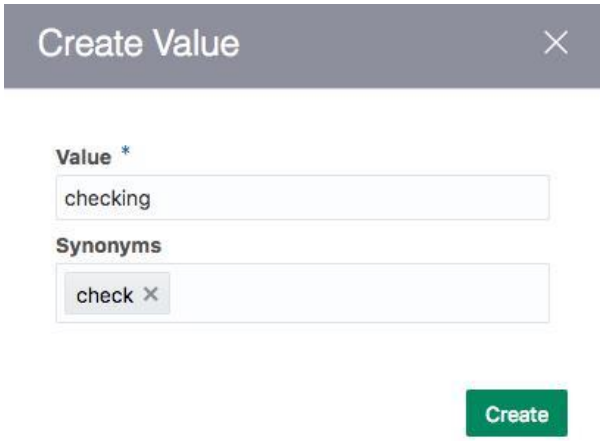
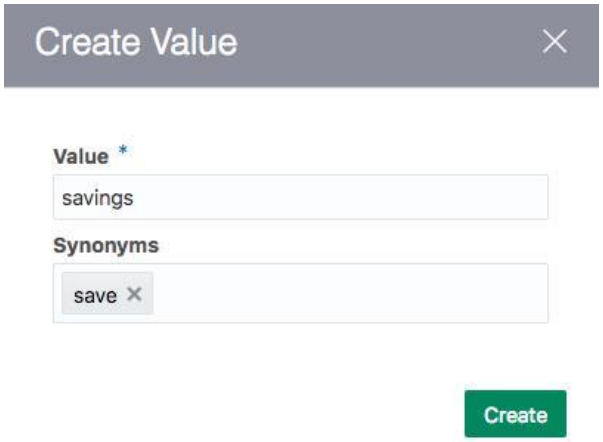


15. Next, add a second value called *savings* and then add *save* as the synonym. Don't forget to press return/Enter.



16. Finally, add a third value named *credit card*. Enter *AMEX*, *Visa*, and *card* as its synonyms. When you've finished, your entity definition should look like the image below.

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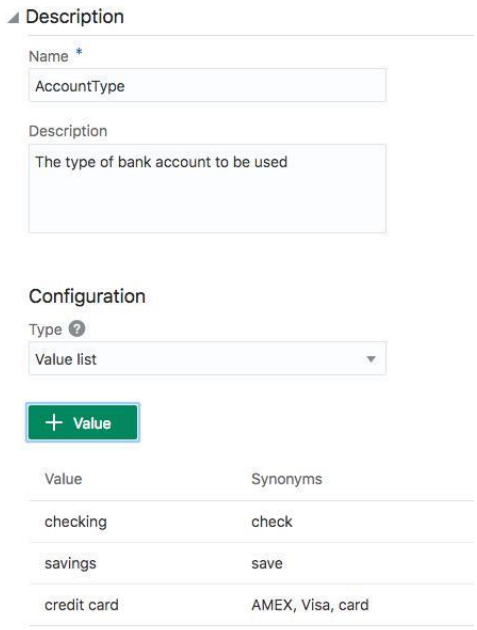

17. Now, using the tables below, add a couple more custom entities.

a. The first one, `ToAccount`, is for the recipients of money transfers.

Entity Name	***Values***	***Synonyms***
ToAccount	Lauren	sister
	Shea	daughter
	Mom	mother
	Chase Preferred	Chase
	the baby sitter	babysitter

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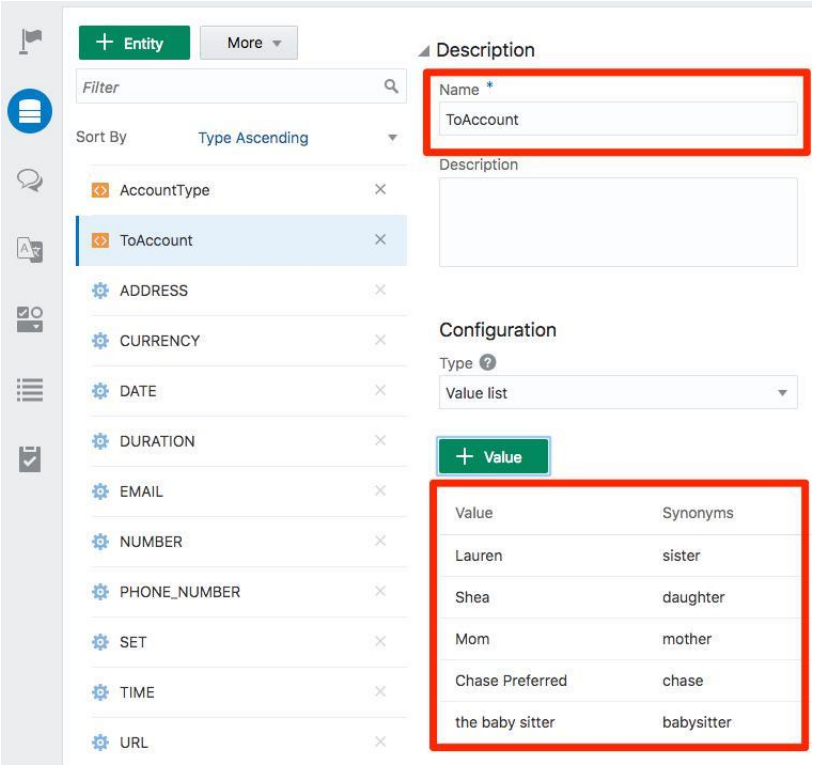

b. The second custom entity, `TrackSpendingCategory`, defines the categories used to track spending. The values on this entity have no synonyms.

Entity Name	***Values***
TrackSpendingCategory	gas retail travel uber restaurants coffee grocery

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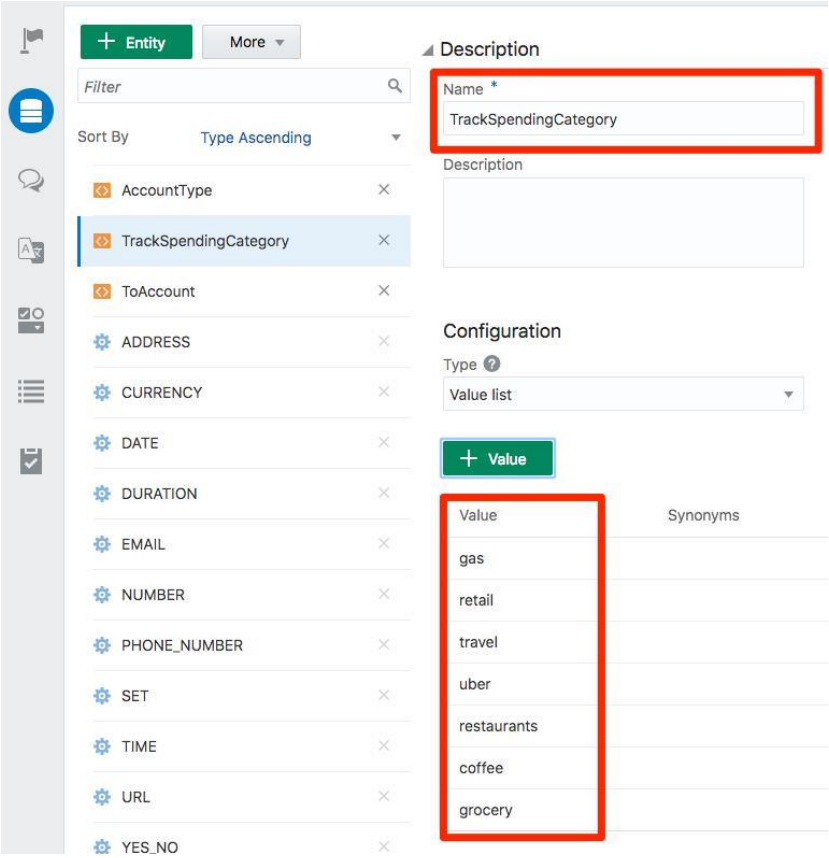

18. Now that you've got all required Intents and the Entities they will work with, you need to associate them. Don't worry – it's easy!

a. Click the Intents icon in the left navbar. Select the **Balances** intent. Locate the Intent Entities area at the right of the page.

b. Click the green **Add Entity** button and then select **AccountType** from the list.

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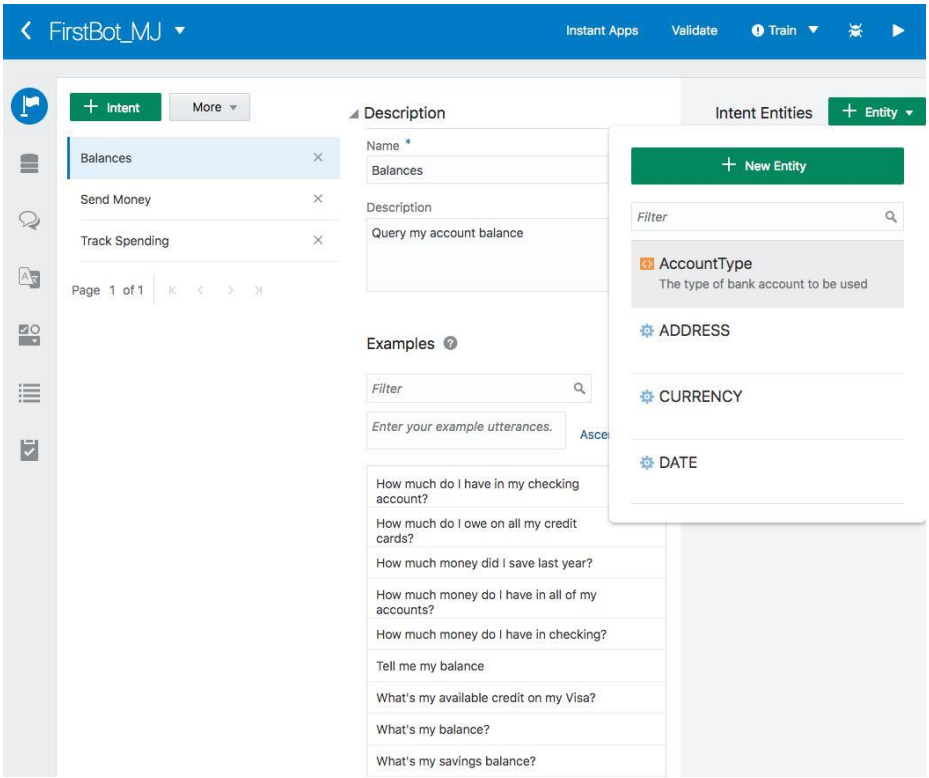

c. Now, select the **Send Money** intent. Use the green `Add Entity` button to select the entity and associate the `Send Money` intent with its entities according to the table below.

Intent	***Entities***
Send Money	AccountType CURRENCY (system entity) ToAccount

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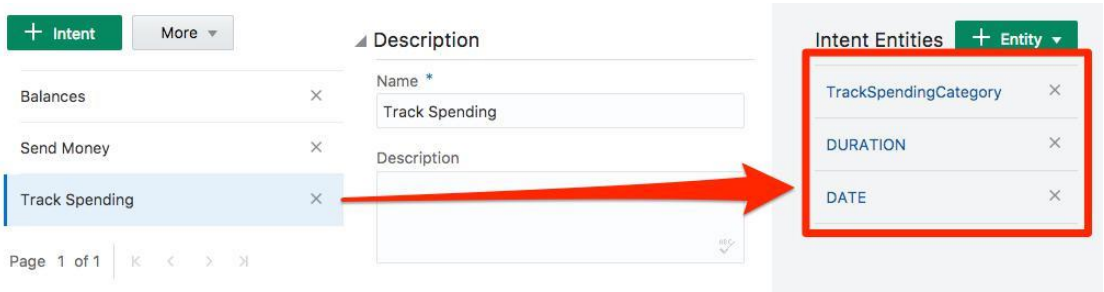
d. Finally, associate the Track Spending intent with its entities according to the table below.

Intent	***Entities***
TrackSpending	DATE (system entity) DURATION (system entity) TrackSpendingCategory



In the next section, you will customize the Bot dialog flow code.

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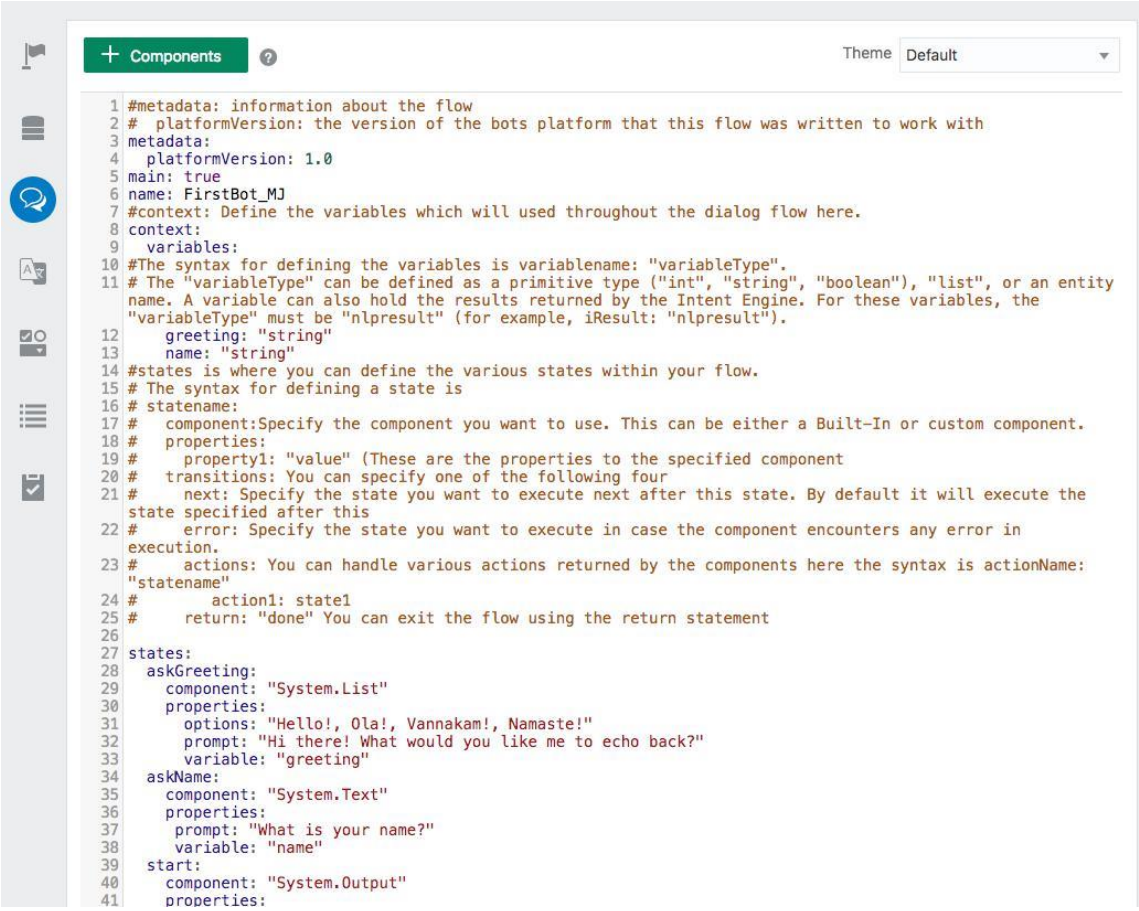
Lab 3: Customizing the Bot Dialog Flow

In this section, you will customize the Bot code, called BotML, and make it ready to respond to user's requests.

1. Click in the **Flows** icon on the left navbar.
2. There's BotML code in the editor that displays "hello" when you run the Bot. However, we're not going to use this code. Instead we're going to add our own flow.



3. From the `labfiles` directory in your system, open the `FirstBotYAML.txt` file in your text editor of choice.
4. Take a look at the BotML code. Under the `context` node near the top, notice that this flow definition names the AccountType entity as a variable (`accountType`) and further down in the intent state, names your intent (Balances) as one of the actions. Because flow definition includes the `accountType` variable in the `startBalances`

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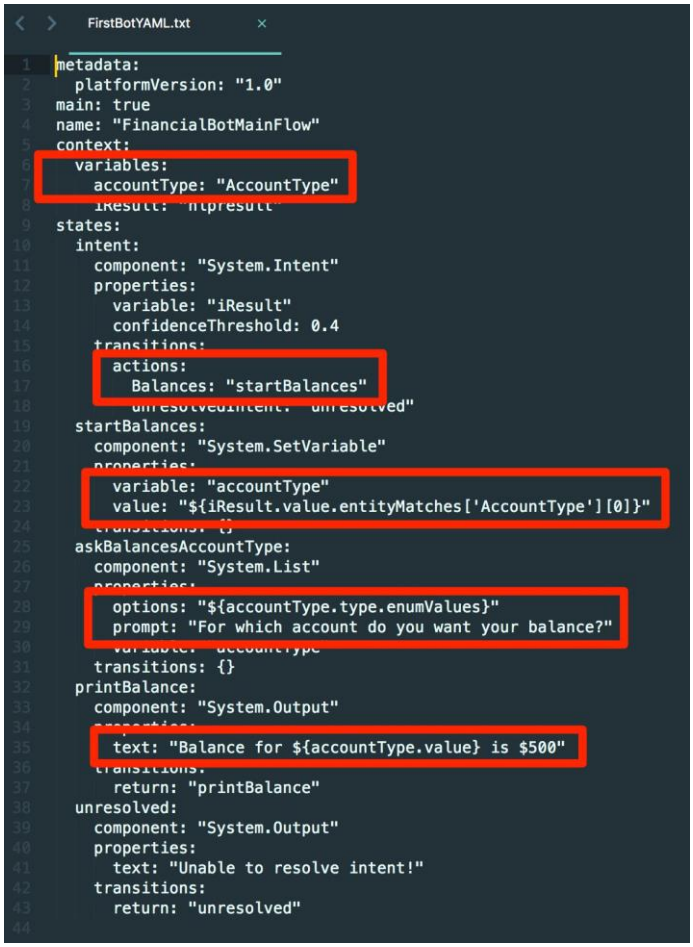
state, the conversation flow proceeds to `askBalancesAccountType` and then finally onto the `printBalance` state, which displays the balance. When the `accountType` variable is not set, then the `askBalancesAccountType` state will prompt you for the account type using the value list values that belong to the AccountType entity. It then moves to the `printBalance` state.



5. Copy the contents from the `FirstBotYAML.txt` file into the Bot Flow editor, replacing all of the code. To prevent YAML formatting issues, paste any code from the beginning on Column 1.

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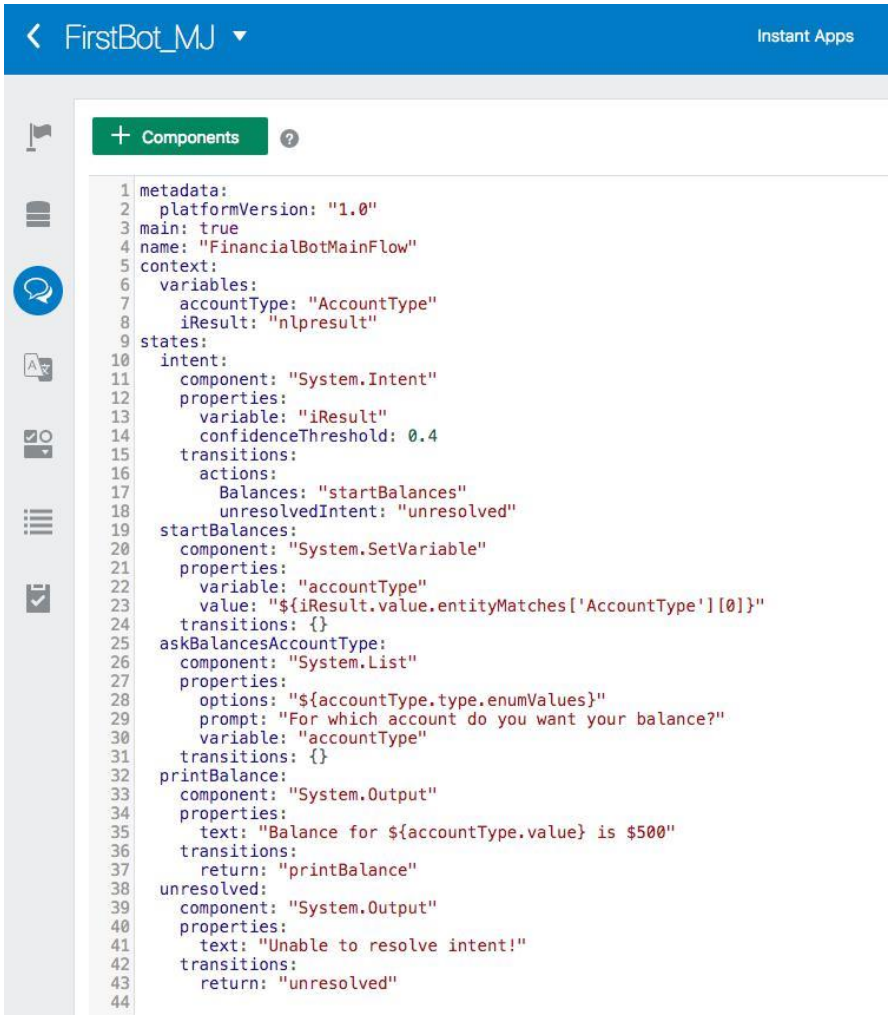
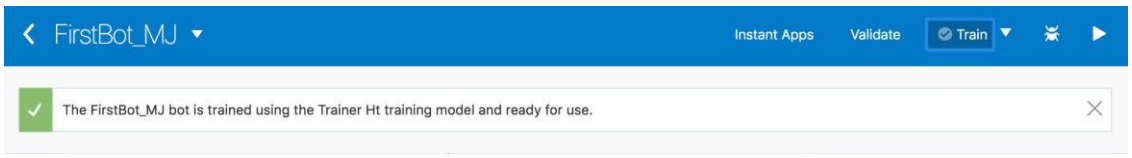


6. Finally, click the **Validate** button in the upper right. You should see a message that there were no problems found in your Bot. Just in case your BotML doesn't get validated, click on the bug icon in the top right corner of the screen. The line number and the error message and the will be displayed to you in the lower panel.



Next, let's train and test the Bot with what you have done so far.

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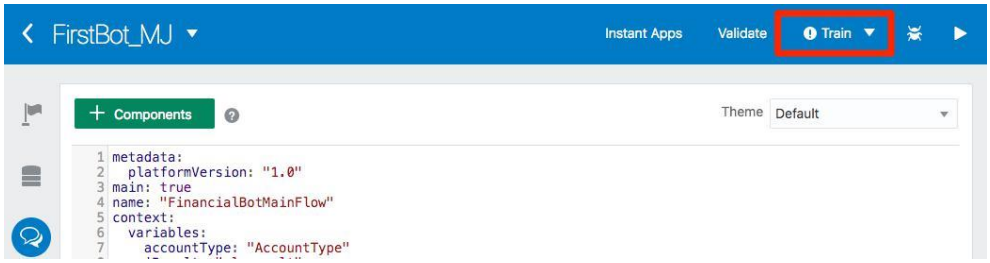
Lab 4: Train and Test Your Bot

In this lab, you will use the training tool on the Bot. Training your Bot enables it to understand phrases other than the utterances that you've defined for its intents. In other words, training allows your Bot to understand user input that's similar to the utterances, but not exactly the same.

1. In the upper right, click the **Train** button. This will kick off a process that will run an algorithm that takes your example utterances and builds the model that will be used to ascertain the intents and entities. Whenever the Bots platform recognizes that your Bot needs to be trained or re-trained, it will display an exclamation point in the train button. The training process may take a few minutes, so be patient. Once the training is complete, the exclamation point is grayed out.



7. To test the Bot, click the **Play** icon in the upper right of the page. This opens the Tester where you can see two tabs: Bot and Intent.

8. Click the Bot tab in the Tester to test the Bot. Remember that what you type into the Message area is what gets sent to the Bot when you click the **Send** button.

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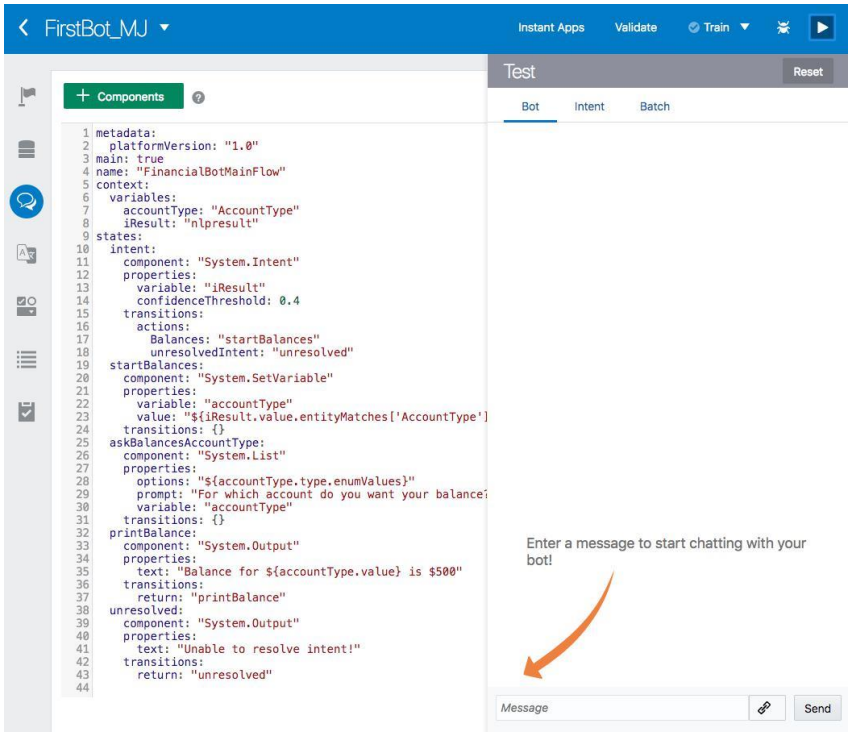

9. Let's start out simple to test the Bot:

a. In the Message area, type in *What's my balance?* and then click the **Send** button.

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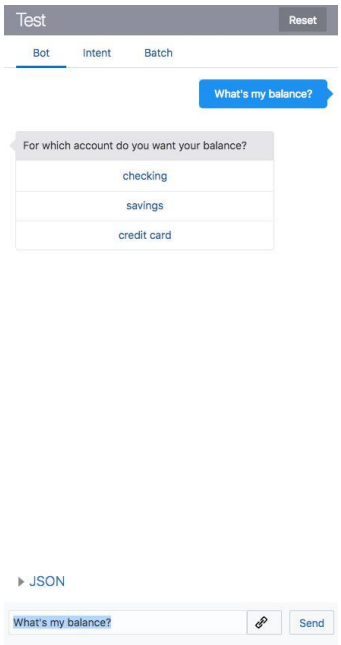
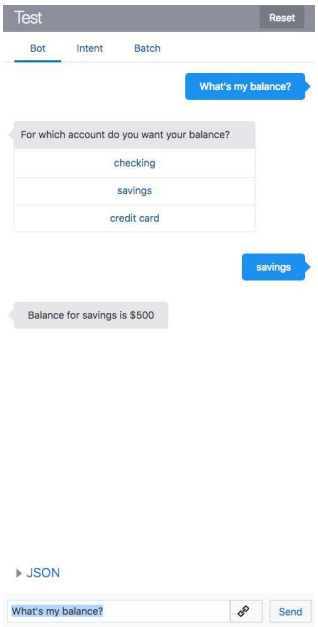
b. Since the account type wasn't specified, the Bot presents you with three options: checking, savings, credit card.



c. Click one of the three options. The Bot outputs text showing the chosen account and its balance.



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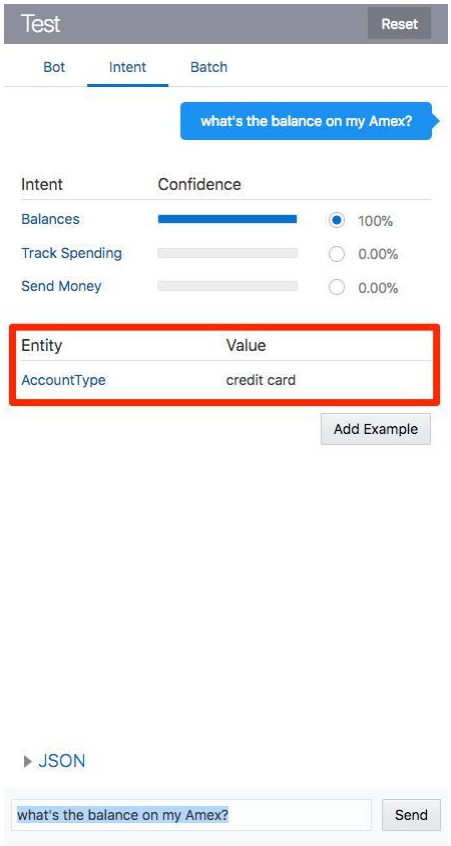
10. Now let's try a message that includes the account type. In the Tester, click the `Intent` tab.

11. In the message area, type in *What is the balance on my Amex?* and then click **Send**.



The Tester displays the level of confidence, expressed as a percentage, that the intent can resolve the user input. You also see that the Account Type entity is recognized as a credit card.

> **Important**: To avoid the confusion that can arise from an incomplete flow from a previous session by completing each round of requests and responses, or start a new session by clicking the **Reset** button.

In the previous labs, you've created a Bot, added an intent, an entity (and its values) and validated the BotML code. You also trained your Bot and tested it. It’s time for you to test the intent resolution.

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Lab 5: Test the Intent Resolution

In this lab, you will test the intents that you've just created and adjust the intent resolution of your Bot.

1. Click the Play icon to open the Tester (if it's not open yet). Click the Intent tab in the Tester. Click **Reset** if it's already open.
2. Then in the Message area, enter *What's the balance in my checking account?* and then click **Send**.

The Tester displays a list of all of the intents that you've added, each with a confidence percentage.

3. Notice how the Balances intent is first in the list of intents because the message that you just sent is specifically about balances.

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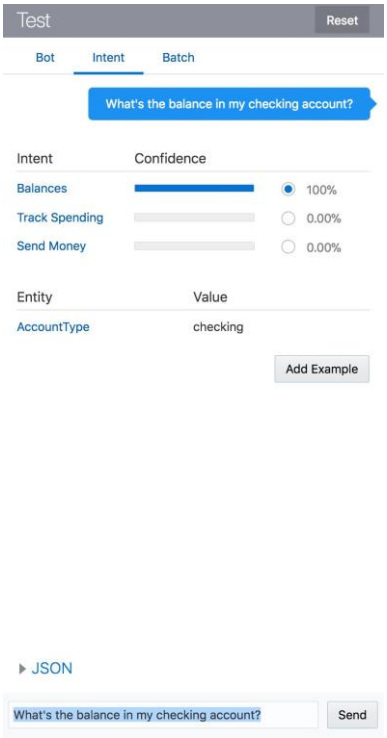
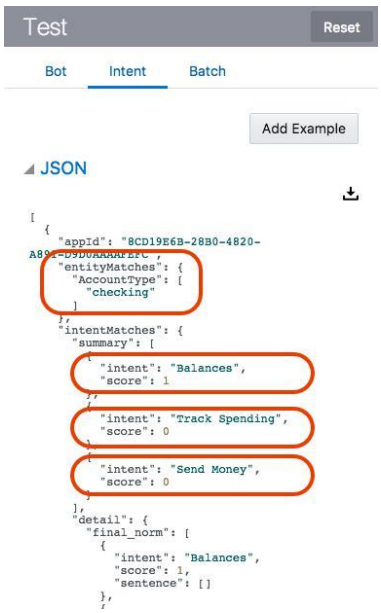


4. Now, click **JSON** (located above the message area) to see what has been returned by the algorithms. Using the slider bar to scroll down, you can see the account type and intent matches.



5. Click the **Reset** button.

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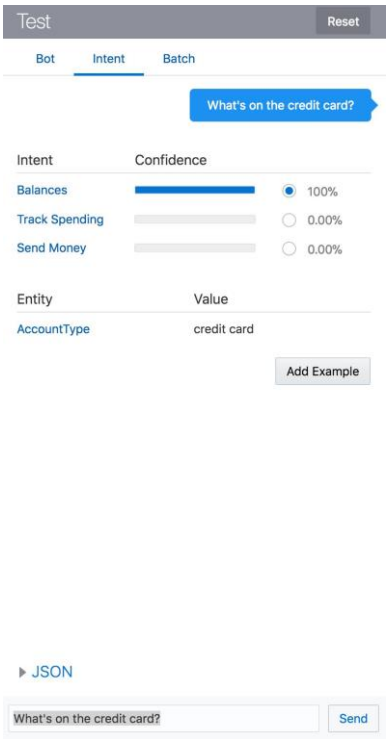
6. Now let's try a different message: *What's on the credit card*.
7. Now at this point, you may actually encounter an issue where the A.I. engine identifies an intent that you didn't expect as the more likely candidate to resolve the input. For example, in the following image, you can see that the Balances intent is rated higher than the Track Spending intent for the input, *What's on the credit card*.



8. When this happens, you can increase the confidence level and the intent accuracy by first selecting the radio button by the correct intent and then by clicking the **Add Example** button. Doing this adds the text from the Message area as an utterance for the selected intent (Notice you might see different results in the confidence level while testing the intents).

   Be sure that the radio button by the **Track Spending** intent is selected and then click the **Add Example** button.

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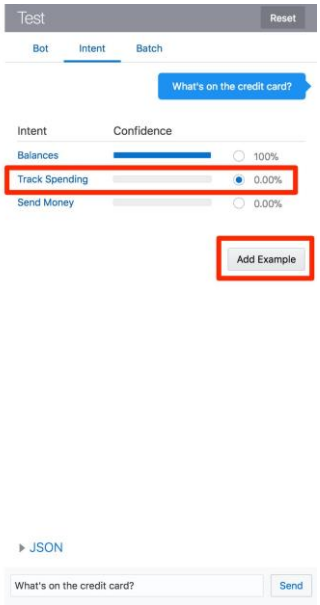

9. Next, train your Bot again with this new example phrase.

10. Click **Reset** and then enter the same statement (*What's on the credit card*) again.

Click **Send**.

The Track Spending intent should now be at the top of list because you added the new utterance and retrained the Bot. By testing it with additional values, you can increase the pool of example utterances that your intent uses, making it more accurate.

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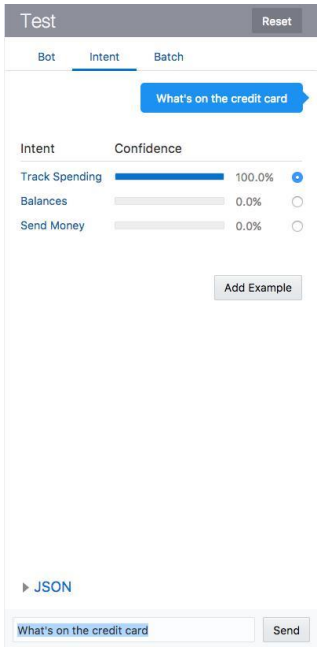

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Lab 6: Setup and Run Your Client Application

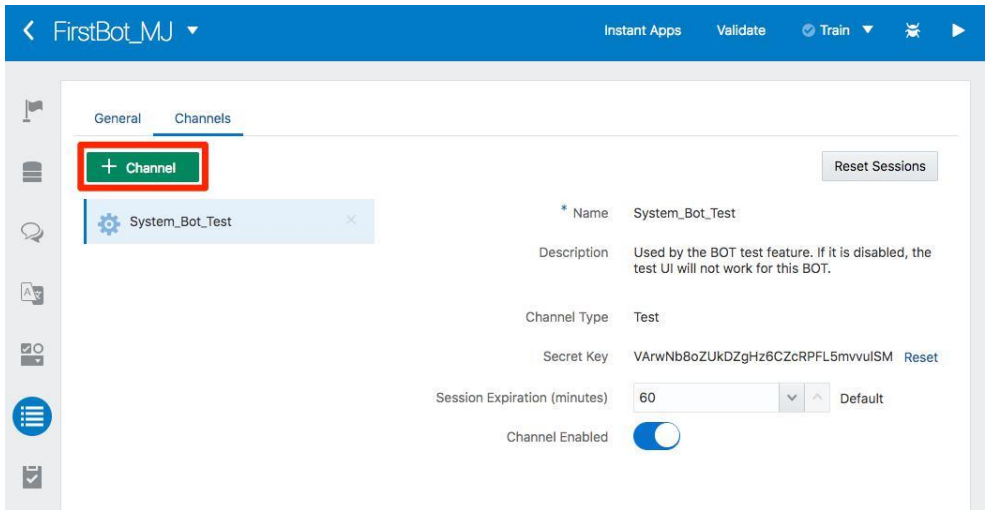
In this lab, you will configure and publish your Bot through a Web channel, download and install the sample client application, run and test it against your own Bot. Because this allows users to access your Bot through a Web page, it's within easy reach of a multitude of users.

Before You Begin

To complete this lab, make sure you have Node.js (https://nodejs.org) downloaded and installed on your machine.

To start this lab, configure a new Web channel for your Bot.

1. In the Oracle Intelligent Bots UI, click the Settings icon in the left navbar and then click the Channels tab. Click **Add Channel**.



2. In the Create Channel dialog, give the channel a name and a short description.
3. Select **Web** as the Channel Type.
4. Switch on the **Channel Enabled** toggle and then click **Create**.

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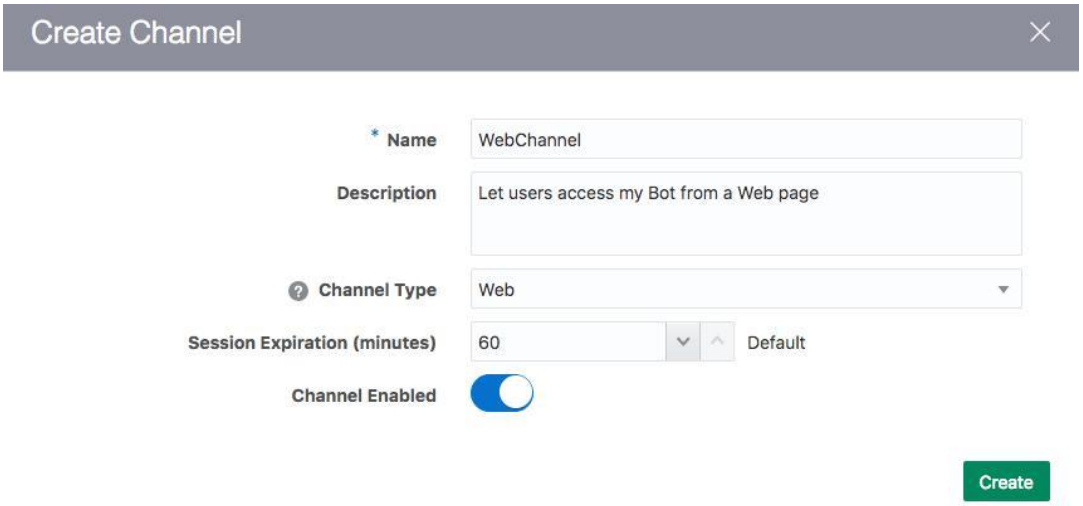
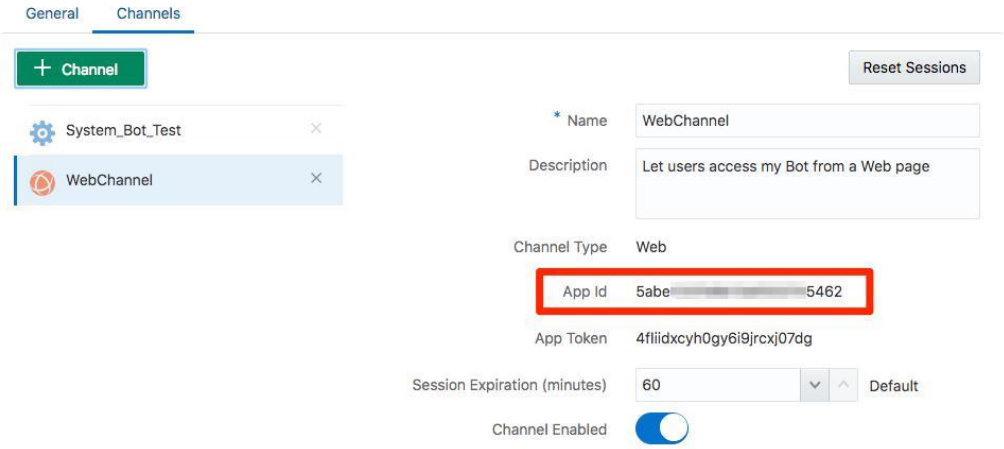


5. In the Channel definition screen, copy the **App Id** to a text file. You'll use it later on this lab while running the sample client application.



6. Navigate to https://bit.ly/2Jg1EbU (which is a short URL for the Oracle Mobile Cloud Enterprise downloads page - http://www.oracle.com/technetwork/topics/cloud/downloads/mobile-suite-3636471.html) and accept the Oracle Technology Network license agreement before proceeding to download the **OMCe Bots Client Samples for JavaScript v18.1.1.0** to your machine.

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BOTS CLIENT SDKS

Module	Download	What's New
OMCe Bots Client SDK for Android v18.1.1.0 01/29/2018	bots-client-sdk-android-18.1.1.0.zip	• First release
OMCe Bots Client samples for Android v18.1.1.0 01/29/2018	bots-client-sdk-android-samples-18.1.1.0.zip	• First release
OMCe Bots Client SDK for iOS v18.1.1.0 01/29/2018	bots-client-sdk-ios-18.1.1.0.zip	• First release
OMCe Bots Client samples for iOS v18.1.1.0 01/29/2018	bots-client-sdk-ios-samples-18.1.1.0.zip	• First release
OMCe Bots Client SDK for JavaScript v18.1.1.0 01/29/2018	bots-client-sdk-js-18.1.1.0.zip	• First release
OMCe Bots Client samples for JavaScript v18.1.1.0 01/29/2018	bots-client-sdk-js-samples-18.1.1.0.zip	• First release

7. Extract the zip file and open a terminal / command prompt session in the ChatSample directory.
8. Run the following command:

   ```
   npm install
   ```

9. To start the sample ChatSample app, run the following command:

   ```
   node server.js
   ```

   If your server starts correctly, you should see a message indicating that the server is `listening on port 3000`
10. Open a new browser window and navigate to '`http://localhost:3000`'
11. Enter the **App Id** generated when you created a new Web channel.

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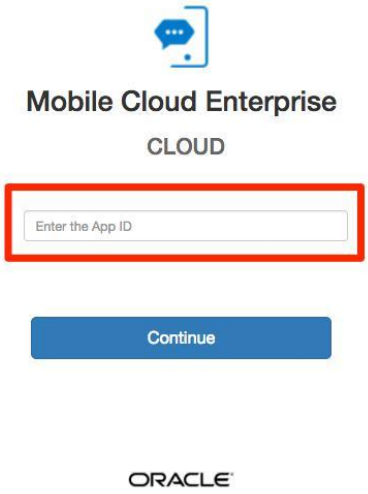
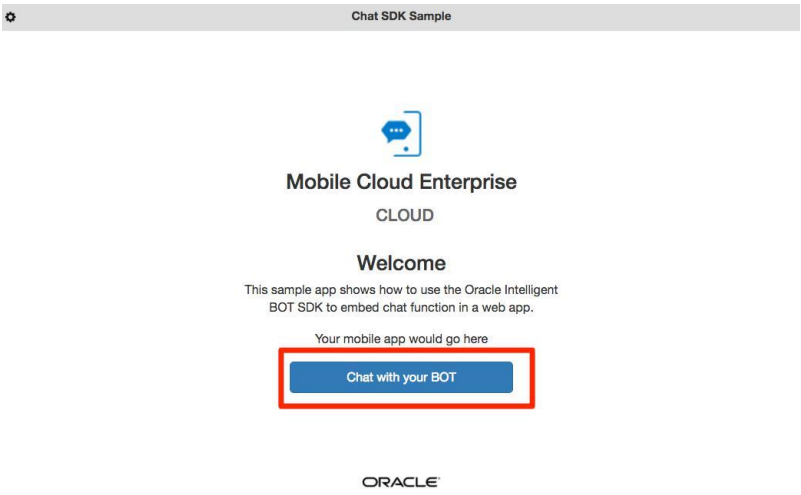


12. In the next screen, click the '**Chat with your Bot'** button.



13. The Web Messenger widget should appear in the right lower corner of your web browser window.

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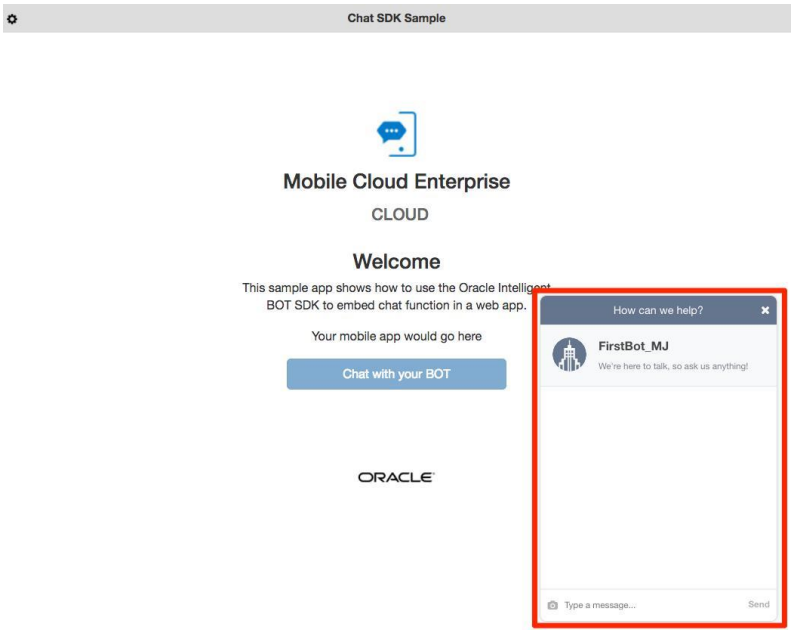
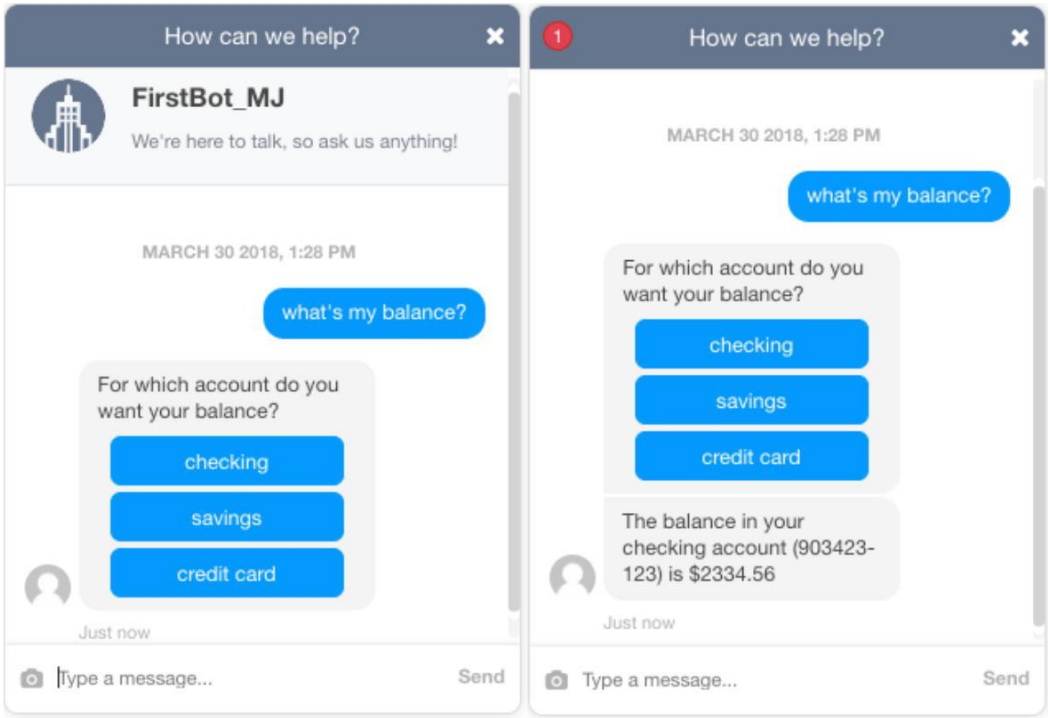


14. You can now send messages to your Bot using the chat window. You can ask it about balance information, track spending and money transfer.



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Feel free to test the Send Money and Track Spending intents by sending other messages to your Bot (i.e. `I'd like to send money` or `How much did I spend on travel?`) Hooray! You have now introduced your Bot to its public by hooking it up to a web interface. Even more impressive -- you've completed the lab!