

Oracle Intelligent Bots Training

Lab 1

Create Chatbots with Intents, Entities, Utterances, and Flows

In this lab, you'll define and create a financial chatbot.

First, you'll import intent definitions with utterances. Next, you'll create an entity and associate it with your intent. You will define the flow using BotML. With these pieces in place, you'll then train the chatbot and test it.

What Do You Need?

For this lab, you'll need the following files from the `labfiles/code` directory

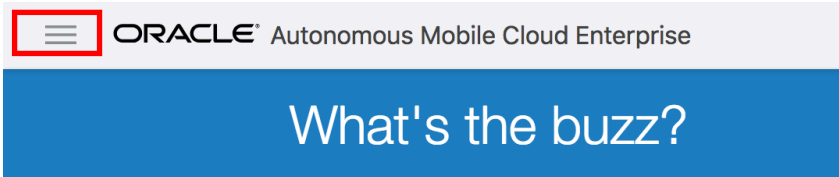
- `MasterBot-Intents.csv`

Step 1: Access your Intelligent Bots environment

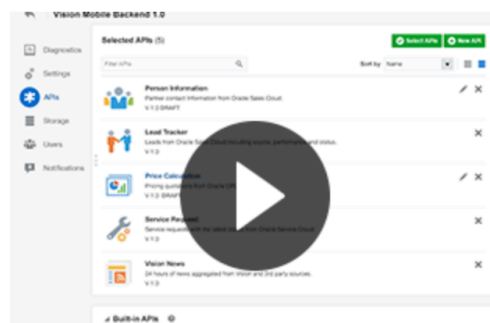
1. Go to the home page of your Oracle Mobile Cloud Enterprise environment. The url and username/password will be provided during the workshop.
2. Press the “hamburger” menu icon in the top left of the interface

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Want to learn more?



Create

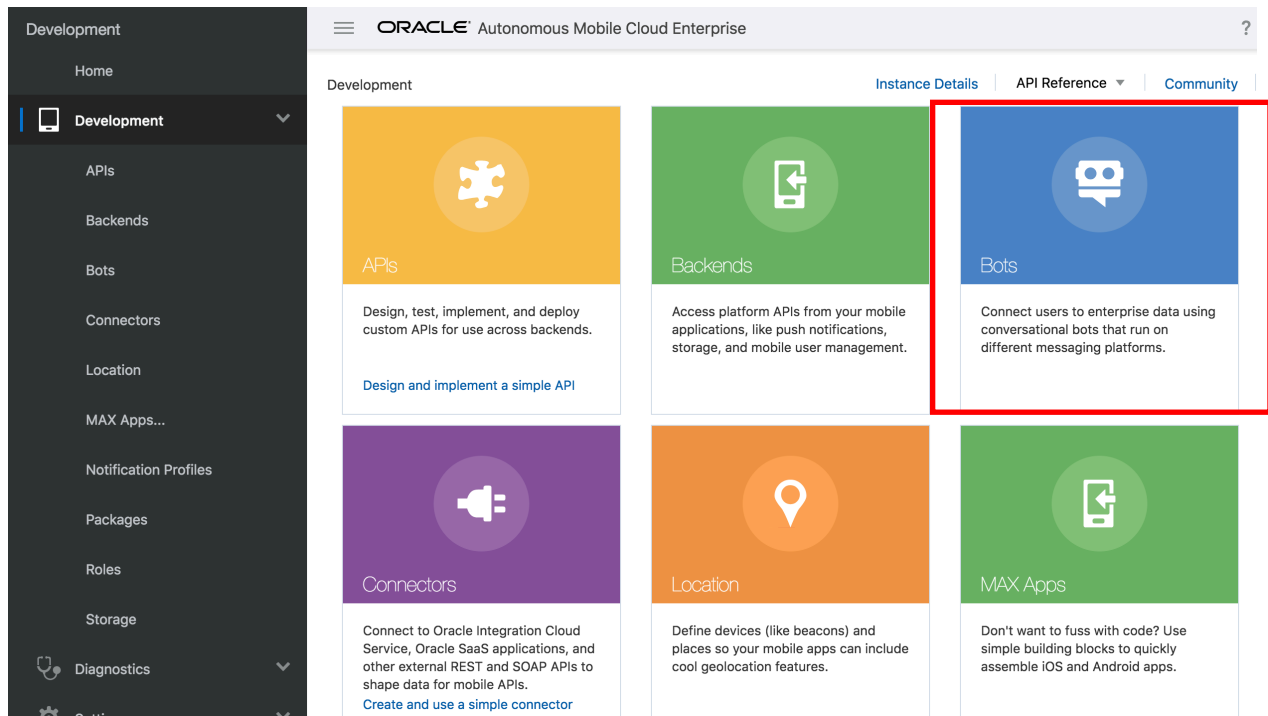
Watch
Cloud
you ne
the ser
notific:
offline
health
diagno

You now have access to all capabilities of Oracle Mobile Cloud Enterprise, such as Mobile Core, Customer Experience Analytics, MAX (Mobile Application Accelerator) and Intelligent Bots.

1. Press Development in the navigation tab and click the Bots icon

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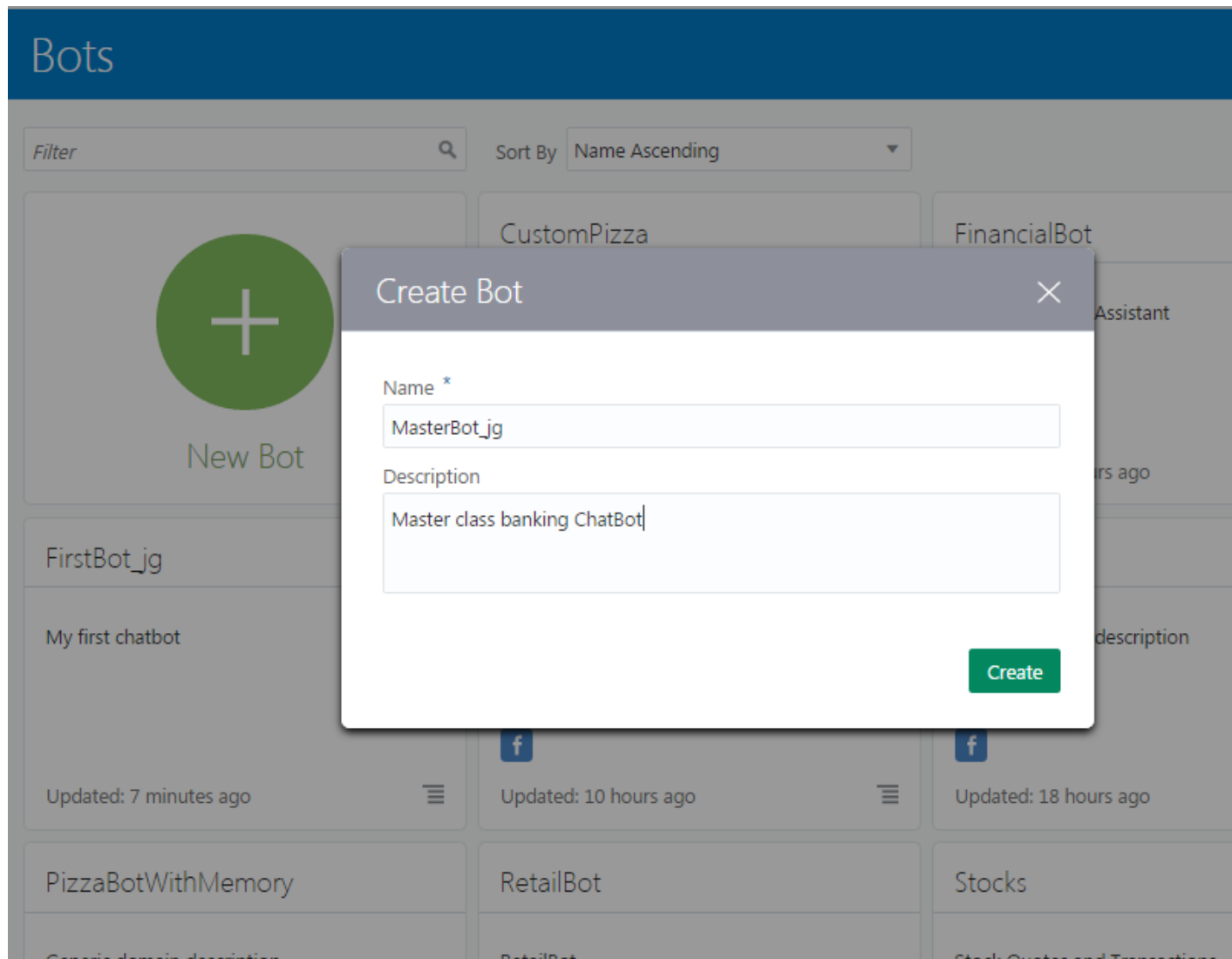
Step 2: Create a New Chatbot and Populate It with Intents and Entities

In this section, you will create a new chatbot, import some intents, and then create some entities. Next, you'll associate the entities with the intents. Don't worry about the BotML code in this section—you'll add it to the chatbot in a later lab.

2. Click the **New Bot** button. Name the chatbot *MasterBot_firstNameLastName*, where *firstNameLastName* are your first name and last name or your initials. Next add a description and then click **Create**.

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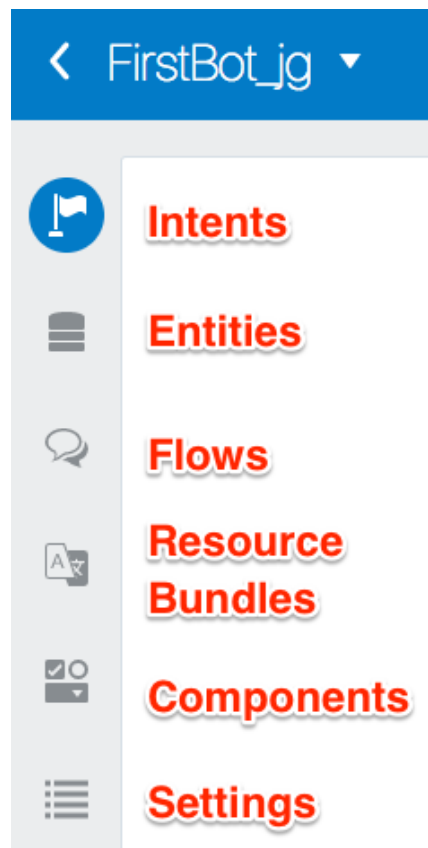
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3. Let's first take a couple of minutes to explore the user interface. In the left navbar, you can see a list of icons that you use to navigate to your intents, entities, dialog flow, components, and settings.

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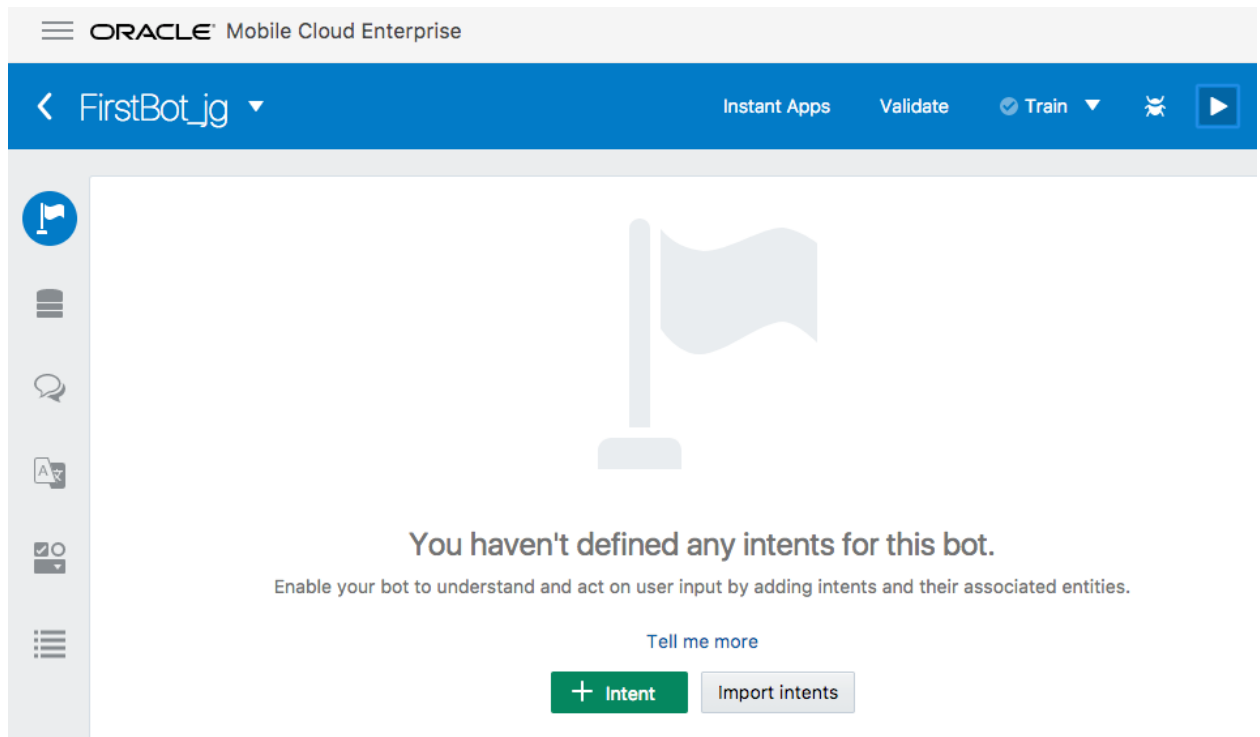
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4. By default, the Intents page is open, but as of this moment, you don't have any intents.

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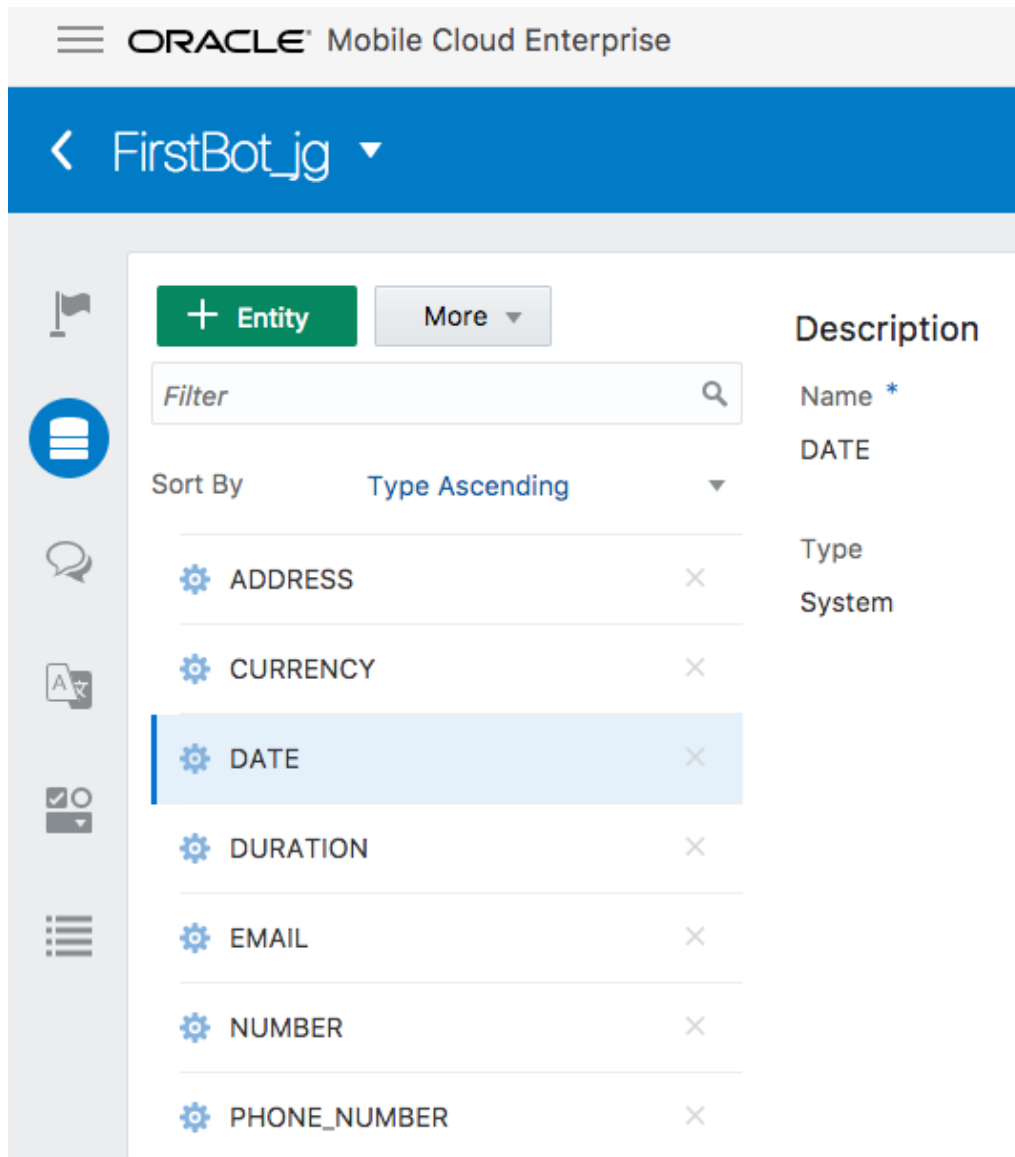
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5. Click Entities (the second icon down) and notice that it's pre-populated system entities. These are standard entities that you can use in your chatbot without having to explicitly define them.

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The screenshot shows the Oracle Mobile Cloud Enterprise interface for configuring a chatbot. The top navigation bar displays the Oracle logo and 'Mobile Cloud Enterprise'. Below this, a blue header bar shows a back arrow and the bot name 'FirstBot_jg'. On the left, a vertical sidebar contains icons for various functions: a flag, a document, a speech bubble, a document with a star, a checklist, and a list icon. The main content area is titled 'Entity' and features a '+ Entity' button and a 'More' dropdown. A search bar labeled 'Filter' is present. Below the search bar, a 'Sort By' dropdown is set to 'Type Ascending'. A list of entities is displayed, each with a gear icon and a delete 'X' icon. The 'DATE' entity is currently selected and highlighted in blue. To the right of the entity list, a 'Description' column provides details for the selected entity: 'Name *' and 'DATE'. Below this, the 'Type' is listed as 'System'.

Entity	Type	System
ADDRESS		
CURRENCY		
DATE		
DURATION		
EMAIL		
NUMBER		
PHONE_NUMBER		

- Next, click the Flow icon. Notice that it's pre-populated with code that enables the chatbot 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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The screenshot shows the Oracle Intelligent Bots training interface. At the top, there's a header with the Oracle logo and 'Mobile Cloud Enterprise'. Below that, a blue bar contains a back arrow, the bot name 'FirstBot_jg', and buttons for 'Instant Apps', 'Validate', 'Train', and a play button. On the left, there's a sidebar with icons for a flag, a list, a chat bubble, a document, a checkmark, and a menu. The main area displays a JSON flow definition for 'FirstBot_jg'.

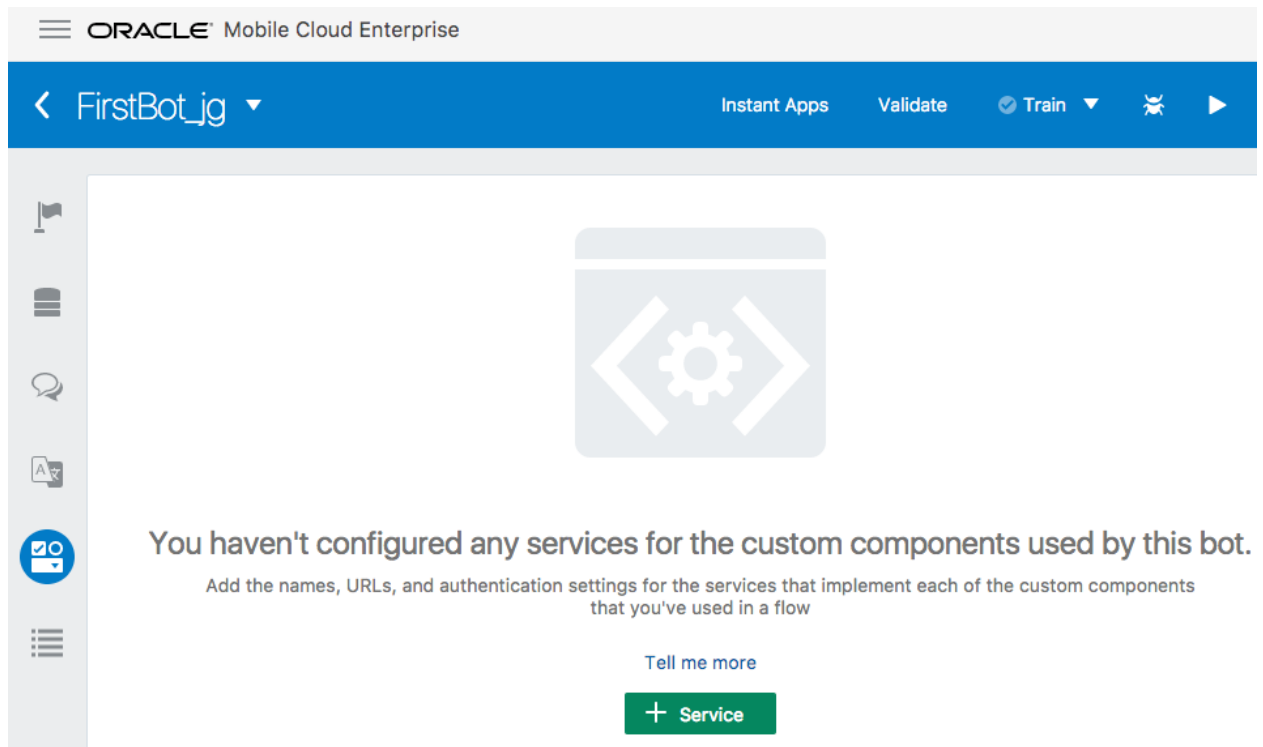
```

1 #metadata: information about the flow
2 # platformVersion: the version of the bots platform that this flow was written to work with
3 metadata:
4   platformVersion: 1.0
5 main: true
6 name: FirstBot_jg
7 #context: Define the variables which will used throughout the dialog flow here.
8 context:
9   variables:
10 #The syntax for defining the variables is variablename: "variableType".
11 # The "variableType" can be defined as a primitive type ("int", "string", "boolean"), "list", or an
12 # entity name. A variable can also hold the results returned by the Intent Engine. For these variables
13 # the "variableType" must be "nlpresult" (for example, iResult: "nlpresult").
14   greeting: "string"
15   name: "string"
16 #states is where you can define the various states within your flow.
17 # The syntax for defining a state is
18 # statename:
19 #   component:Specify the component you want to use. This can be either a Built-In or custom
20 #   component.
21 #   properties:
22 #     property1: "value" (These are the properties to the specified component
23 #     transitions: You can specify one of the following four
24 #       next: Specify the state you want to execute next after this state. By default it will execute
25 #       the state specified after this
26 #       error: Specify the state you want to execute in case the component encounters any error in
27 #       execution.
28 #   actions: You can handle various actions returned by the components here the syntax is
29 #   actionName: "statename"
30 #     action1: state1
31 #     return: "done" You can exit the flow using the return statement
32 #
33 states:
34   askGreeting:
35     component: "System.List"
36     properties:
37       options: "Hello!, Ola!, Vannakam!, Namaste!"
38       prompt: "Hi there! What would you like me to echo back?"
39       variable: "greeting"
40   askName:
41     component: "System.Text"
42     properties:
43       prompt: "What is your name?"
44       variable: "name"
45 start:
  
```

- Now, click the Components icon. Later on, you'll see your custom components that provide your chatbot with various functions and data. But since you've just started, there are no predefined services that obtain the custom components.

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

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The screenshot shows the Oracle Mobile Cloud Enterprise interface for training a chatbot. The top navigation bar includes the Oracle logo and "Mobile Cloud Enterprise". Below this, a blue header bar displays the chatbot name "FirstBot_jg" with a dropdown arrow, and action buttons for "Instant Apps", "Validate", "Train" (with a checkmark), and a play button. The main content area has a sidebar on the left with icons for various functions. The "General" tab is selected, showing the following fields:

- Name:** FirstBot_jg
- Description:** My first chatbot
- Training Model:** Trainer Ht
- Translation Service:** None

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

11. First we will create intents for our bot. We could manually add the intents, but you can also add intents quickly by importing them from a CSV file.

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```

MasterBot-Intents.csv
1 query,topIntent
2 How much money do I have in checking?,Balances
3 How much money did I save last year?,Balances
4 What's my balance?,Balances
5 How much do I owe on all my credit cards?,Balances
6 What's the current balance on my cc?,Balances
7 How much money do I have in all of my accounts?,Balances
8 What's my available credit on my Visa?,Balances
9 Pay Chase the minimum balance on the 15th of the month,Send Money
10 Send $500 to Mom from Savings every month,Send Money
11 Pay Cleo for rent on the 1st of every month using Paypal,Send Money
12 I'd like to send Sasha $20 for lunch,Send Money
13 Pay Lauren $15 for photos,Send Money
14 What was my largest concert ticket?,Track Spending
15 What was my largest Best Buy transaction?,Track Spending
16 How much did I spend eating out last week?,Track Spending
17 How much did I spend at Apple last year?,Track Spending
18 How much did I spend on clothes in June?,Track Spending
19 How much did I spend last weekend?,Track Spending
20 What was my largest hotel transaction in 2015?,Track Spending
21 What was my most expensive restaurant expense?,Track Spending
22 What did I spend on food in London last month?,Track Spending
23 How much did I spend on gas in October?,Track Spending
24 How much did I spend on June 2nd?,Track Spending
25 How much did I spend on Uber? Last month?,Track Spending
26 How much did I spend on travel in March?,Track Spending
27 How much did I spend on groceries last week?,Track Spending
28 How much have I spent on restaurants in 2016?,Track Spending

```

12. Click the Intents icon in the left navbar. In the middle of the Intents page, click the **Import Intents** button and select the `MasterBot-Intents.csv` file found in the `/labfiles/code/` directory.
13. Next, click **Open**.
14. Three intents should be imported: Balances, Send Money, and Track Spending. Each intent has its own set of utterances.
15. To get a better idea of the how the language used in these utterances differentiates each of the intents, click each intent and take a look at their respective example phrases.

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ORACLE Mobile Cloud Enterprise

MasterBot_jg

Instant Apps Validate Train

+ Intent More

Balances

Send Money

Track Spending

Page 1 of 1

Description

Name *

Balances

Description

Examples ?

Filter

Enter your example utterances.

Ascending

How much do I owe on all my credit cards?

How much money did I save last year?

How much money do I have in all of my accounts?

How much money do I have in checking?

What's my available credit on my Visa?

Intent Entities + Entity

This intent has no intent entities.

Add entities to extract the key words and phrases from the user input. You can add the predefined entities along with the ones that you've created.

Tell me more

16. Now you're going to add some custom entities. First, click the Entities icon in the left navbar and then add the AccountType entity as a value list entity. Press the green Entity button and change the name to AccountType.

17. Press the green Value button to add a value and synonym. Add these values and synonyms to the AccountType value list entity:

Entity Name	Values	Synonyms
AccountType	checking savings credit card	(no synonym) save Visa, Amex, card

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The screenshot shows the Oracle Intelligent Bots training interface. On the left, there is a sidebar with navigation icons. The main area is divided into sections:

- + Entity** (green button) and **More** (dropdown button).
- Filter** (input field with a search icon).
- Sort By** (dropdown menu set to **Type Ascending**).
- A list of entities with settings (gear icon) and delete (X icon) buttons:
 - AccountType (selected)
 - ADDRESS
 - CURRENCY
 - DATE
 - DURATION
 - EMAIL
 - NUMBER
 - PHONE_NUMBER
 - SET
 - TIME
- Description** section:
 - Name *** (input field containing 'AccountType', highlighted with a red box).
 - Description** (text area with a 'REC' button and a checkmark).
- Configuration** section:
 - Type ?** (dropdown menu set to **Value list**).
 - + Value** (green button).
 - A table of values and synonyms (highlighted with a red box):

Value	Synonyms
checking	
savings	save
credit card	card, Visa, Amex

18. Now, using the tables below, add a couple more custom Value list entities (again press the green Entity button).

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

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

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The screenshot shows the Oracle Intelligent Bots training interface. On the left, a sidebar contains icons for navigation. The main area is divided into sections:

- + Entity** and **More** buttons at the top.
- Filter** and **Sort By** (Type Ascending) options.
- A list of entities: AccountType, ToAccount (selected), ADDRESS, CURRENCY, DATE, DURATION, EMAIL, NUMBER, PHONE_NUMBER, SET, TIME, and URL.
- Description** section with a **Name *** field containing 'ToAccount' and a **Description** text area.
- Configuration** section with a **Type ?** dropdown set to 'Value list'.
- + Value** button and a table of values and synonyms.

The 'ToAccount' entity is highlighted in blue. The 'Name' field is highlighted with a red box. The 'Value list' configuration is also highlighted with a red box, showing the following data:

Value	Synonyms
Lauren	sister
Shea	daughter
Mom	mother
Chase Preferred	chase
the baby sitter	babysitter

- b. The second custom entity, TrackSpendingCategory, defines the categories used to track spending. This entity has no synonyms.

Entity Name	Values
TrackSpendingCategory	gas retail travel uber

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	restaurants
	coffee
	grocery

The screenshot shows the Oracle Intelligent Bots training interface. On the left, a sidebar contains navigation icons. The main area is divided into sections:

- Entity List:** A list of entities with 'TrackSpendingCategory' selected. Other entities include 'ToAccount', 'AccountType', 'ADDRESS', 'CURRENCY', 'DATE', 'DURATION', 'EMAIL', 'NUMBER', 'PHONE_NUMBER', 'SET', 'TIME', and 'URL'.
- Description:** A section for describing the entity. The 'Name' field is highlighted with a red box and contains the text 'TrackSpendingCategory'. The 'Description' field is empty.
- Configuration:** A section for configuring the entity. The 'Type' dropdown is set to 'Value list'.
- Value List:** A table with two columns: 'Value' and 'Synonyms'. The 'Value' column is highlighted with a red box and contains the following items: 'gas', 'retail', 'travel', 'uber', 'resturants', 'coffee', and 'grocery'.

19. Now that you have intents and entities, go back to Intents page and assign the following associations:

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- a. Use the green Add Entity button to select the entity.

Intent	Entity
Balances	AccountType

The screenshot shows the 'Intent Entities' configuration page. On the left, a list of intents includes 'Balances', 'Send Money', and 'Track Spending'. The 'Balances' intent is selected. In the center, the 'Description' section has a 'Name' field containing 'Balances'. A red arrow points from this field to the 'Intent Entities' panel on the right. In this panel, the 'AccountType' entity is listed under the 'Balances' intent. A green '+ Entity' button is visible at the top right of the panel.

- b. Now associate the Send Money intent with its entities.

Intent	Entities
Send Money	AccountType CURRENCY (system entity) ToAccount

The screenshot shows the 'Intent Entities' configuration page with the 'Send Money' intent selected. The 'Description' section has a 'Name' field containing 'Send Money'. A red arrow points from this field to the 'Intent Entities' panel on the right. In this panel, three entities are listed under the 'Send Money' intent: 'ToAccount', 'CURRENCY', and 'AccountType'. These three entities are enclosed in a red rectangular box. A green '+ Entity' button is visible at the top right of the panel.

- c. Finally, associate the Track Spending intent with its entities.

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<i>Intent</i>	<i>Entities</i>
TrackSpending	DATE (system entity) DURATION (system entity) TrackSpendingCategory

In the next section, you will train the chatbot and then test the intents.

Step 2: Test the Results

In this section, you will test the intents that you've just created.

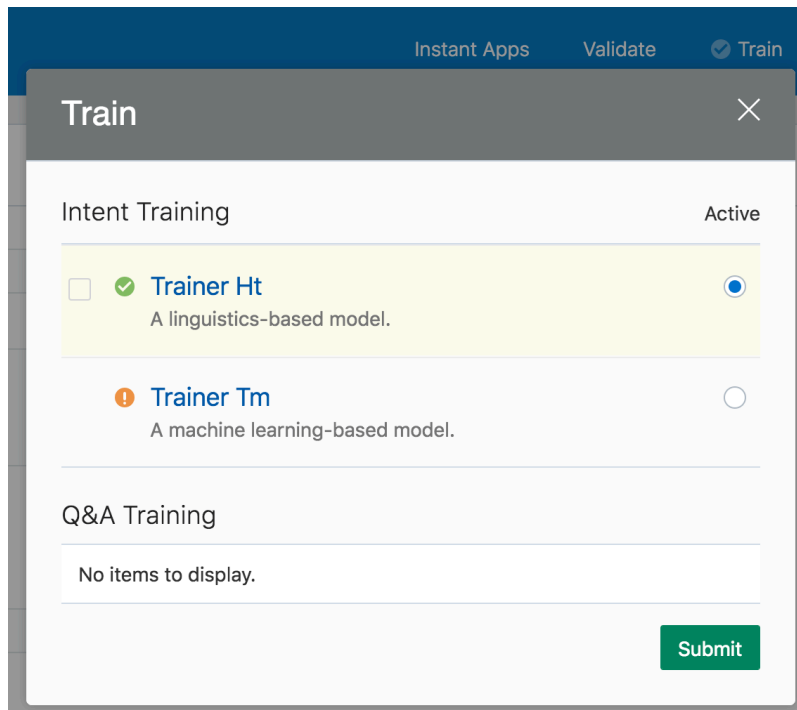
1. In the upper-right side of the page, click the **Train** button to test the chatbot.



Select Trainer Ht as the training algorithm and click Submit.

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2. Since you've added a few intents, the training process could take a couple of seconds.
3. Even though we've set up the Send Money and Track Spending intents, we are going to explore the Neural Net and Natural Language Processing (NLP) pipelines through the lens of the Balances intent instead.

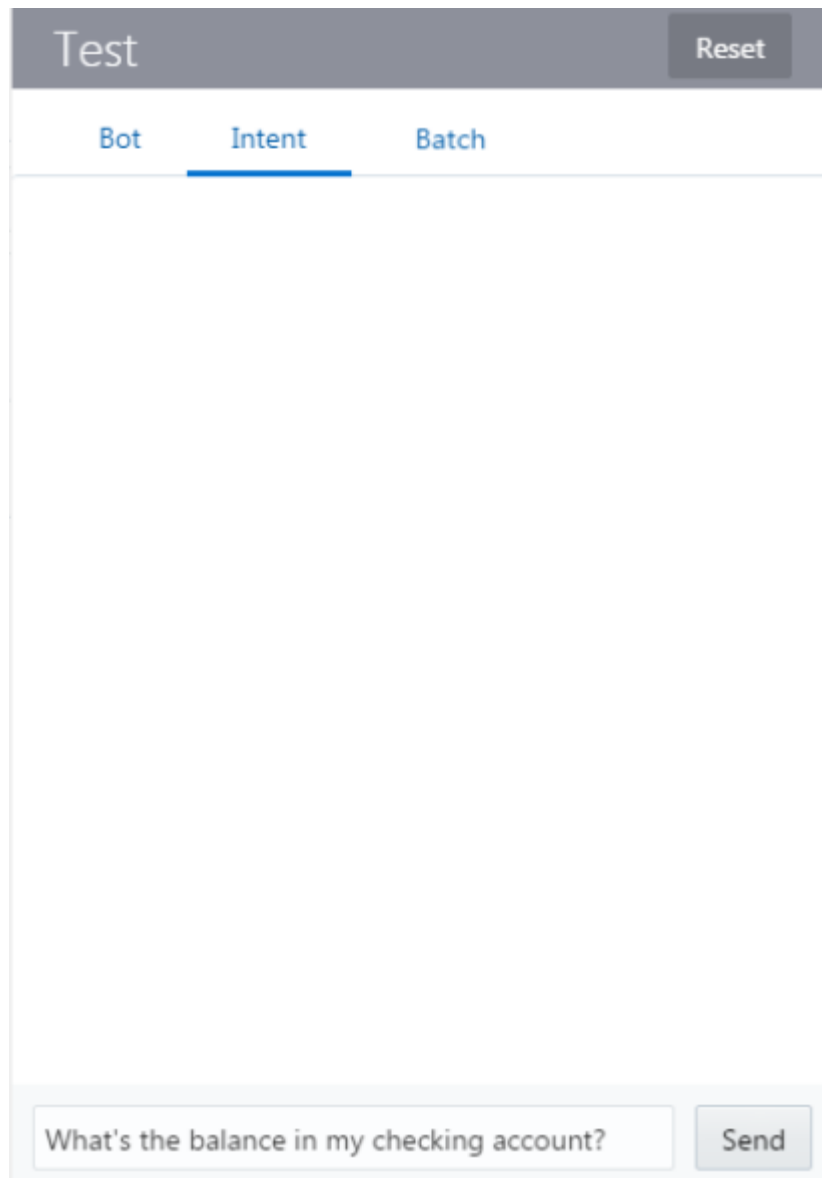
Click the **Play** icon to open the Tester.



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4. To examine how the training worked, click Intent tab in the Tester.
5. Then in the Message area, enter *What's the balance in my checking account?* and then click **Send**.



The screenshot shows the Oracle Intelligent Bots Tester interface. At the top, there is a 'Test' header with a 'Reset' button. Below the header, there are three tabs: 'Bot', 'Intent', and 'Batch'. The 'Intent' tab is currently selected. The main area of the interface is empty. At the bottom, there is a text input field containing the message 'What's the balance in my checking account?' and a 'Send' button.

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

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6. Notice how the Balances intent is first in the list of intents because the message that you just sent is specifically about balances. Don't worry if your Balances is ranked at 100% instead of below picture.

Test

Reset

Bot

Intent

Batch

What's the balance in my checking account?

Intent	Confidence
Balances	<div><div></div></div> 87.8% <input checked="" type="radio"/>
Send Money	<div><div></div></div> 79.2% <input type="radio"/>
Track Spending	<div><div></div></div> 33.3% <input type="radio"/>

Entity	Value
AccountType	checking

Add Example

► JSON

What's the balance in my checking account?

Send

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- 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.

Test

Reset

Bot

Intent

Batch

Add Example

JSON

[

{

"appId": "8CD19E6B-28B0-4820-A891-D9D0AAAAAFC"

"entityMatches": {

"AccountType": [

"checking"

]

}

"intentMatches": {

summary: [

intent: "Balances",

score: 1

intent: "Track Spending",

score: 0

intent: "Send Money",

score: 0

]

detail: {

final_norm: [

intent: "Balances",

score: 1,

sentence: []

]

- Click the **Reset** button.
- Now let's try a different message: *What's on the credit card.*
- 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

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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*.

Test

Reset

Bot

Intent

Batch

What's on the credit card

Intent	Confidence
Balances	<div> <div></div> <div>76.7%</div> <div></div> </div> <input checked="" type="radio"/>
Track Spending	<div> <div></div> <div>36.0%</div> <div></div> </div> <input type="radio"/>
Send Money	<div> <div></div> <div>10.6%</div> <div></div> </div> <input type="radio"/>

Entity	Value
AccountType	credit card

Add Example

JSON

What's on the credit card

Send

- 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.

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

12. Next, train your chatbot again with this new example phrase. **Press the Train button again.**

Test Reset

Bot Intent Batch

What's on the credit card

Intent	Confidence	
Balances	76.7%	<input type="radio"/>
Track Spending	36.0%	<input checked="" type="radio"/>
Send Money	10.6%	<input type="radio"/>

Add Example

► JSON

What's on the credit card Send

13. 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 chatbot. By testing it with additional values, you

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can increase the pool of example utterances that your intent uses, making it more accurate.

Test

Reset

Bot

Intent

Batch

What's on the credit card

Intent	Confidence
Track Spending	<div><div></div></div> 100.0% <input checked="" type="radio"/>
Balances	<div><div></div></div> 0.0% <input type="radio"/>
Send Money	<div><div></div></div> 0.0% <input type="radio"/>

Add Example

► JSON

What's on the credit card

Send

You're done with your first lab! Good job!