

Chatbot Deployment With IBM Cloud Watson Assistant

Phase 3: Development Part 1

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Chatbot Persona:

- **Persona Name: "TravelBuddy"**
- **Persona Description: A friendly and knowledgeable travel assistant that helps users plan their vacations.**

Conversation Flow:

1. Greeting

- **Welcomes the user and asks how it can assist.**

2. User Intent Detection

- **Utilize intents to identify the user's primary goal, e.g., "Plan a trip," "Find a hotel," "Flight booking."**

3. Handle User Queries

- **For each identified intent, create specific dialog nodes to handle related queries. For instance:**

- **Intent: "Plan a trip"**

- **Ask about destination, dates, and preferences.**
- **Provide recommendations based on user input.**

- **Intent: "Find a hotel"**

- **Inquire about the city and dates.**
- **Offer hotel options and their details.**

- **Intent: "Flight booking"**

- **Ask for departure and arrival cities, travel dates, and class preferences.**
- **Display flight options and prices.**

4. Entity Recognition

- Use entities to extract specific details from user input, such as dates, locations, or travel class.

5. Confirmation and Feedback

- After providing information or options, ask the user if they need anything else or if they want to proceed with a booking.

6. Handling User's Decision

- If the user chooses to proceed, initiate the appropriate booking process.
- If the user has more questions, return to the relevant intent-based dialog node.

7. Handling "Small Talk"

- Create nodes for handling casual conversations or user comments that don't fit a specific intent.

8. Closing

- Thank the user for using the chatbot's services and offer assistance for future inquiries.

Dialog Nodes:

- Each dialog node corresponds to a specific step in the conversation flow. They trigger based on intents, entities, or specific user input.
- You can set conditions for when a node should trigger, define responses, and provide suggestions to guide the conversation.

Entities:

- **Define entities for extracting specific information, e.g., @location, @date, @travel_class.**
- **Configure them to identify relevant values from user input.**

Intents:

- **Define intents to recognize the user's primary goals, e.g., "Book a flight," "Find a hotel," "Ask for travel advice."**
- **Train the chatbot with sample user queries for each intent to improve recognition.**

Step 1: Create a Watson Assistant Service

- 1. Log in to your IBM Cloud account or create one if you don't have an account.**
- 2. Navigate to the IBM Cloud dashboard and create a new Watson Assistant service.**

Step 2: Define the Chatbot's Persona

- 1. Once you've created the Watson Assistant service, click on it to open the Watson Assistant tool.**
- 2. In the Watson Assistant tool, you can define the chatbot's persona. This includes its name, description, and the tone or style it should use in interactions. For example:**
 - **Persona Name: "TravelBuddy"**

- **Persona Description:** A friendly and knowledgeable travel assistant that helps users plan their vacations.
- **Tone:** Helpful and conversational.

Step 3: Design the Conversation Flow

1. In Watson Assistant, use the "Skills" tab to create a new skill or edit an existing one.

2. Create a dialog flow that represents the conversation between the chatbot and the user. Design the flow using a tree structure where each node corresponds to a specific part of the conversation. For example:

- **Node 1: Greeting**
 - Respond with a friendly greeting and ask how you can assist.
- **Node 2: User Intent Detection**
 - Utilize intents to identify the user's primary goal, e.g., "Plan a trip," "Find a hotel," "Flight booking."
- **Node 3: Handle User Queries**
 - Create nodes for each identified intent to handle related queries, including asking for specific information and providing responses.
- **Node 4: Entity Recognition**
 - Use entities to extract specific details from user input, such as dates, locations, or travel class.
- **Node 5: Confirmation and Feedback**
 - After providing information or options, ask the user if they need anything else or if they want to proceed with a booking.
- **Node 6: Handling User's Decision**

- If the user chooses to proceed, initiate the appropriate booking process or provide more details.

- **Node 7: Handling "Small Talk"**

- Create nodes for handling casual conversations or user comments that don't fit a specific intent.

- **Node 8: Closing**

- Thank the user for using the chatbot's services and offer assistance for future inquiries.

Step 4: Configure Intents, Entities, and Dialog Nodes

1. In the "Skills" tab, navigate to the "Intents" section to define intents, e.g., "Book a flight," "Find a hotel," "Ask for travel advice." Train the chatbot with sample user queries for each intent to improve recognition.

2. In the "Entities" section, define entities to extract specific information, e.g., @location, @date, @travel_class. Configure them to identify relevant values from user input.

3. In the "Dialog" section, create dialog nodes for each part of the conversation flow. Set conditions for when a node should trigger, define responses, and provide suggestions to guide the conversation.

Step 1: Set Up Your Environment

Make sure you have the necessary Python libraries installed and have an IBM Cloud API key.

python

```
import requests
```

```
# Replace with your IBM Cloud API key and Watson Assistant workspace ID
```

```
api_key = 'YOUR_API_KEY'
```

```
workspace_id = 'YOUR_WORKSPACE_ID'
```

Step 2: Define Intents

You can define intents and provide examples to train your chatbot.

```
python
```

```
intents = [
```

```
{
```

```
    "intent": "greeting",
```

```
    "examples": ["Hello", "Hi", "Hey"]
```

```
},
```

```
{
```

```
    "intent": "book_flight",
```

```
    "examples": ["Book a flight", "I want to fly somewhere"]
```

```
},
```

```
# Add more intents and examples as needed
```

```
]
```

Step 3: Create Entities

Entities help extract specific information from user input.

python

```
entities = [  
    {  
        "entity": "location",  
        "values": [  
            {  
                "value": "New York",  
                "type": "synonyms",  
                "synonyms": ["NYC", "the Big Apple"]  
            },  
            {  
                "value": "Los Angeles",  
                "type": "synonyms",  
                "synonyms": ["LA", "City of Angels"]  
            }  
        ]  
    },  
    # Add more entities and values as needed  
]
```


Step 4: Define Dialog Nodes

Create dialog nodes to structure the conversation.

python

```
dialog_nodes = [  
    {  
        "type": "standard",  
        "title": "Greeting",  
        "output": {  
            "text": "Hello! How can I assist you today?"  
        },  
        "conditions": "#greeting"  
    },  
    {  
        "type": "standard",  
        "title": "Book Flight",  
        "output": {  
            "text": "Sure, I can help you book a flight. Where do you want to fly?"  
        },  
        "conditions": "#book_flight"  
    },  
]
```

Add more dialog nodes as needed

]

Step 5: Send Configuration to Watson Assistant

Use the API to send the configuration data to Watson Assistant.

```
```python
```

```
headers = {
```

```
 'Content-Type': 'application/json',
```

```
 'Authorization': 'Bearer ' + api_key
```

```
}
```

```
url = f'https://api.us-
```

```
south.assistant.watson.cloud.ibm.com/instances/YOUR_INSTANCE_ID/workspaces/{workspace_id}/intents?version=2021-09-16'
```

```
Send intents configuration
```

```
for intent in intents:
```

```
 response = requests.post(url, headers=headers, json=intent)
```

```
 print(f'Intent "{intent["intent"]}" created. Status code: {response.status_code}')
```

```
url = f'https://api.us-
```

```
south.assistant.watson.cloud.ibm.com/instances/YOUR_INSTANCE_ID/workspaces/{workspace_id}/entities?version=2021-09-16'
```

**# Send entities configuration**

**for entity in entities:**

**response = requests.post(url, headers=headers, json=entity)**

**print(f'Entity "{entity["entity"]}" created. Status code: {response.status\_code}')**

**url = f'https://api.us-**

**south.assistant.watson.cloud.ibm.com/instances/YOUR\_INSTANCE\_ID/workspaces/{workspace\_id}/dialog\_nodes?version=2**