CS 410/510: Voice Assistants

Homework 2 - Alexa Skills

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Use Case 3: Book a flight

Step 1 - Invocation Name

Answer : *flight trip planner*

Step 2 - Intents

1. **Intent** : *SearchCheapestFlightIntent*

Description : User wants to search for the cheapest flight from a city to another city. Based on the source and destination city, the intent will provide details of a flight which is the cheapest.

2. **Intent** : *WhereToGoVacationIntent*

Description : User wants to know where he/she can travel from a source destination. The intent will provide a list of cities, where travel is possible via flight from the user given source city. We get a list, also we can limit the list by giving the number of cities, or number of days we can be on vacation and a custom slot of duration like short trip or long vacation.

Step 3 - Sample Utterances

Intent : SearchCheapestFlightIntent

1. I want to travel to {ToCity} from {FromCity}
2. I would like to travel from {FromCity} to {ToCity}
3. Plan my trip from {FromCity} to {ToCity}
4. Search for flights from {FromCity} to {ToCity}
5. Check flights from {FromCity} to {ToCity}
6. Are any flights available from {FromCity} to {ToCity}
7. What is the cheapest flight to {ToCity} from {FromCity}
8. Please check whether any flights are available from {FromCity} to {ToCity}
9. Tell me the cheapest flight to {ToCity} from {FromCity}
10. Plan a flight trip to {ToCity} from {FromCity}
11. Take me to {ToCity} from {FromCity}
12. I'd like to fly out of {FromCity} to {ToCity}
13. from {FromCity} to {ToCity}
14. to {ToCity} from {FromCity}

Intent : WhereToGoVacationIntent

1. Where can I go on a vacation from {FromCity} Tell me {NumCities} cities
2. Plan my vacation from {FromCity} I need a {NumDays} day trip
3. Take me away from {FromCity} on a {DurationAmount} trip
4. When should I go for a family trip from {FromCity} I have {NumDays} days of leave
5. I need a {DurationAmount} trip Plan it from {FromCity}
6. Which are the possible destinations I can go to from {FromCity}
7. Where can I go from {FromCity}
8. Let me know the places to visit via {FromCity}
9. Let me know any {NumCities} places to visit via {FromCity}
10. What are the places to visit from {FromCity}

Step 4 - Slots and Slot Types

"*name*": "ToCity"
"*type*": "AMAZON.US_CITY"

"*name*": "FromCity"
"*type*": "AMAZON.US_CITY"

"*name*": "NumCities"
"*type*": "AMAZON.NUMBER"

"*name*": "NumDays"
"*type*": "AMAZON.NUMBER"

"*name*": "DurationAmount"
"*type*": "Custom Slot"
"*values*": "short","long","brief"

Step 5 - Logic for Each Intent

I have maintained a flight-data.json file which contains a list of flight details to
destination under source city index, one inside another.

```
"new york": {
    "los angeles":
    {
        "cost": "450",
        "time": "12 pm",
        "airline": "Hippogriff Air Lines",
        "departureAirport": "JFK",
        "arrivalAirport": "LAX",
        "departureTime": "12:00 PM EST",
        "arrivalTime": "14:55 PM PST"
    },{...}
}
```

SearchCheapestFlightIntent

The slots are FromCity and ToCity.
If the above two cities contain flight values ex. **FLIGHT_DATA**[FromCity][ToCity] is not blank from the above json. Then we return the details like cost, airline etc. The values are unique ex. there cannot be two los angeles indexes inside a source new york.

User wants to search for the cheapest flight from one city to another city. Based on the source and destination city, the intent will provide details of a flight which is the cheapest.

WhereToGoVacationIntent

The slots are FromCity, NumCities, NumDays and DurationAmount. User wants to know where he/she can travel from a source destination. The intent will provide a list of cities, where travel is possible via flight from the user given source city. We get a list, also we can limit the list by giving the number of cities, or number of days we can be on vacation and a custom slot of duration like short trip or long vacation.

FLIGHT_DATA[FromCity] will give a list, we can only pick the indexes which are possible destinations and limit that list of cities by the above mentioned slots.

If NumCities is present
      If (City list size > NumCities)
            City list size = NumCities

Else If NumDays is present
      If (City list size > NumDays)
            City list size = NumDays

Else If DurationAmount is present
      If DurationAmount == "short"
            City list size = 1
      Else
            City list size = complete list

Step 6 - Build the Alexa Skill

Shared the code in zip

Step 7 - Test the Alexa Skill

1. Ask flight trip planner
2. Ask flight trip planner hello
3. ask flight trip planner help
4. Ask flight trip planner, Take me to seattle from boston
5. Ask flight trip planner, Plan a flight trip to chicago from san francisco
6. Ask flight trip planner, Tell me the cheapest flight to los angeles from las vegas
7. Ask flight trip planner, Please check whether any flights are available from new york to seattle
8. Ask flight trip planner, I'd like to fly out of new york to chicago
9. Ask flight trip planner, Where can I go on a vacation from new york Tell me 2 cities
10. Ask flight trip planner, Plan my vacation from new york I need a 3 day trip
11. Ask flight trip planner, Take me away from new york on a short trip
12. Ask flight trip planner, What are the places to visit from new york
13. Ask flight trip planner bye
14. Ask flight trip planner something random

Step 8 - Review and Reflection

Impressions: *What was your overall impression of building with the Alexa Skill Console? What was the most enjoyable part? What was the least enjoyable part? What was the hardest part?*

Answer : Overall impression of building with the Alexa Skill Console was very nice! I learnt a new skill. Feeling Great! I read through all the documents given in Module 3 and lecture videos. It was fun learning all the concepts, design rules, various ways users can try the system, mistakes not to make, what to expect from the user, and how to engage them. Most enjoyable part was testing, when I could see the queries being fulfilled. The least enjoyable part was writing the utterances. The various ways users can ask the skill for the same intent. The hardest part was actually understanding all the terminologies and going through all the materials, deciding the intent and utterances.

Success: *How would you evaluate the success of the skill you built?*

Answer : The flight trip planner skill is working fine. I have added two custom intents SearchCheapestFlightIntent and WhereToGoVacationIntent both are giving desired results. SearchCheapestFlightIntent is giving cheapest flight details for source and destination city, and a sorry response of flights not found if the data is not available.

I have also updated the LaunchIntent, HelloIntent, FallBack Intent, HelpIntent Stop and Cancel Intent. One thing that I find problematic is that it frequently forgets the skill, and starts giving results irrelevant to my skill. So I need to add the launch word and invocation name before every utterance. I need to find out the solution for this. Currently I have added only the following city names in json files : new york, los angeles, las vegas, seattle, boston, chicago, san francisco, there is no data for other cities. So, no flight details will be given to the user, as if no flights are scheduled.

Testing: *How long did you spend testing the skill? What did you learn through the testing process? Have you learned anything that would help you build a better Alexa Skill in the future?*

Answer : I tested the code in phrases of my development process. I first check before writing any intent, whether my launch word is working fine or not. Then before writing any intent logic, I verified that my custom intents are getting picked with a default speakOut response. Then I started implementing the logic, tested each intent one by one. So I tested and developed in the Alexa developer console in a span of 2 days.

I learned through the testing process that very frequently the test systems forgets the skill, and starts giving results irrelevant to my skill. So I added the launch word and invocation name before every utterance. So that the deployment returns results relevant to my skill only.

Currently I am using data stored in a json file for displaying flight details for source and destination cities, but for future I would like to use an external API, but I have still not found an example API for flight details.
I got https://app.goflightlabs.com/dashboard#flights link, but response was not according to my purpose, so I need to explore more.