VOICE ASSISTANTS
FINAL PROJECT- WINTER 2024
SAI SINDHU MUPPANENI
PSU ID: 972008825

❑ Step1-Describe the Application:

I created a planets voice application and named it Chandler using Dialogflow agent. I was just curious about our solar system. I made a total of three intents for this application which are: PlanetOverviewIntent, GravityIntent and PlanetpositionIntent. The application provides information about celestial bodies, particularly planets, focusing on their characteristics, gravitational pull, and positions within the solar system.

❑ Step2-Interaction Model:

Intents Description and Training phrases:

1. PlanetOverviewIntent:

This part of the application responds when you ask for details about a specific planet, like its temperature, mass, orbital period (how long it takes to orbit the Sun), distance from the Sun, or its radius (how big it is). It uses an external source of information, like a database accessed via a web link, to find the data you're asking for. If you ask about a planet or a detail that the application doesn't recognize, it will tell you it doesn't have that information.

2. GravityIntent:

This part of the application is all about gravity on different planets. It's like PlanetOverviewIntent because it also gets information from an external source. It tells you about the gravity on a planet compared to Earth's gravity. For example, if you weigh 100 pounds on Earth, it might tell you that you'd weigh on a different planet. Like before, if you ask about a planet that the application doesn't know, it will let you know**.**

3. PlanetpositionIntent:

- This part of the application answers questions about where planets are in relation to the Sun. It tells you which order the planets come in from the Sun, like Mercury being the closest and Neptune being the farthest. If you ask about a position that it doesn't understand, it will say it doesn't get what you're asking.

PlanetOverviewIntent

- ✓ How far away is Earth from the Sun?
- ✓ Give me the distance of Neptune in million kilometers.
- ✓ Explain the significance of Mars' mass.
- ✓ Can you provide the radius of Venus?
- ✓ "I'm curious about the average temperature on Saturn.
- ✓ How long is the orbital period of Venus?
- ✓ What is the mass of Neptune?
- ✓ What does the mass of Mars tell us?
- ✓ How far does it take for Venus to orbit the Sun?
- ✓ Can you tell me about the temperature conditions on Uranus?
- ✓ What's the distance of Jupiter from the Sun?
- ✓ Give me the radius of Saturn.
- ✓ Tell me the mass of Mars
- ✓ What is the temperature of Neptune?
- ✓ What is the radius of Jupiter?

GravityIntent

- ✓ What is the gravitational force on Jupiter's moon Io?
- ✓ Calculate the gravity on Saturn.
- ✓ Tell me about the gravitational pull on Jupiter
- ✓ What is the gravity like on Uranus
- ✓ Give me information about the gravity on Saturn
- ✓ How does gravity vary on Mercury ?
- ✓ What is the gravitational field strength on Venus?
- ✓ I just want to know the gravity on Earth's?
- ✓ Tell me about the gravity on Pluto.
- ✓ What's the gravitational acceleration on Neptune?
- ✓ What is the gravity like on Uranus?
- ✓ How strong is gravity on Saturn?
- ✓ What's the gravitational force on Mercury?
- ✓ Can you tell me the gravity on Venus?
- ✓ What is the gravity on jupiter?

PlanetpositionIntent

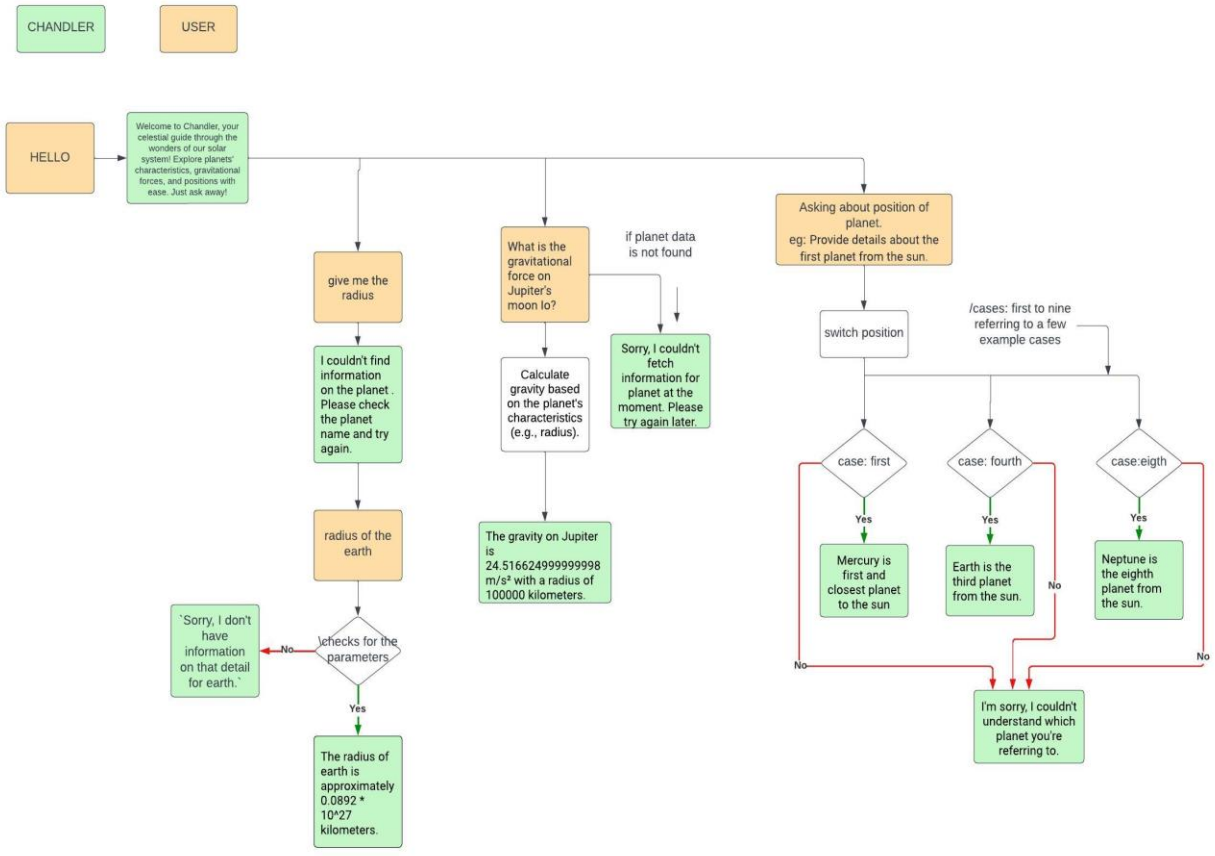
- ✓ Tell me about the fourth planet from the sun.
- ✓ Which planet ranks second from the sun?
- ✓ Provide details about the first planet from the sun.
- ✓ What's the eleventh planet from the sun?
- ✓ Can you tell me about the tenth planet from the sun?
- ✓ I want to know about the ninth planet from the sun.
- ✓ Which planet ranks eighth from the sun?
- ✓ Describe the seventh planet from the sun.

- ✓ Identify the sixth planet from the sun.
- ✓ What's the fifth planet from the sun?
- ✓ Give me information about the fourth planet from the sun.
- ✓ Which planet comes third from the sun?
- ✓ Tell me about the second planet from the sun.
- ✓ What's the ninth planet from the sun?
- ✓ What's the first planet from the sun?

Entities:

- @Planetname → placeholder representing the name of a celestial body, such as Earth or Jupiter.
- @Details → specific characteristics or attributes associated with a celestial body, such as its mass or radius.
- @pos → indicates the position or rank of a celestial body in a particular context, such as being the first or second planet in a solar system or a list.

❑ Step3-Conversational Flow Diagram



❑ **Step4-Fulfillment**

Intent 1: PlanetOverviewIntent

Input: Planet name and specific detail requested (e.g., temperature, mass).

Logic:

- Initialize that both the planet name and the detail requested are provided. If not, request the missing information.
- Use the planet name to construct an API URL to fetch relevant data about the planet.
- Send a GET request to the API to retrieve data.
- Upon successful data retrieval:
- Check if the requested detail is available in the data.
- If available, construct a response with the requested information.
- If not available, respond with a message indicating the detail is not found.

If the planet data is not found, respond with a message indicating that the planet information is not available.

Intent 2: GravityIntent

Input: Planet name.

Logic:

- Initialize the input of the planet name. If missing, request it.
- Construct an API URL using the planet name to fetch relevant data.
- Send a GET request to the API to retrieve data.
- Upon successful data retrieval:
- Calculate gravity based on the planet's characteristics (e.g., radius).
- Adjust gravity values for specific conditions or planets (e.g., Earth, Jupiter, Mercury).
- Formulate a response with the calculated gravity and any additional relevant information.

If the planet data is not found, respond with a message indicating that the planet information is not available.

Intent 3: PlanetpositionIntent

Input: Position of the planet in the solar system (e.g., first, second).

Logic:

- Initialize the input of the planet's position. If unclear, request clarification.
- Based on the provided position:
- Define specific responses for each position corresponding to the planets' positions in the solar system.
- Formulate a response indicating the planet's name and its position relative to the sun.

If the provided position is not recognized, respond with a message indicating that the input is not understood.

❑ **Step5-User Testing**

❑ **Part 1 - Usability Testing:**

Task	**Time to Complete**	**User 1 - Done?**	**User 1 - Time**	**User 2- Done?**	**User 2 - TIme**
Task 1- What's the gravitational acceleration on Neptune?	45 sec	Yes	32 sec	yes	40 sec
Task 2 Give me information about the gravity on Saturn	50 sec	yes	42 sec	Yes	38 sec
Task 3 Give me the distance of Neptune in million kilometers.	40 sec	yes	33 sec	yes	37 sec
Task 4 "I'm curious about the average temperature on Saturn.	55 sec	yes	50 sec	yes	48 sec
Task 5 Provide details about the first planet from the sun.	30 sec	yes	28 sec	yes	25 sec

Part 2 - Likert Scale Testing:

Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The voice application Chandler is easy to navigate and interact with.					Yes
The information provided by Chandler about planets is accurate and reliable.				Yes	
Chandler responds promptly to queries without significant delays.				Yes	
Chandler offers comprehensive details for each planet, including temperature, mass, and orbital period.			Yes		
The explanations of gravitational differences between planets are clear and understandable.					Yes
When asking about a planet or detail not recognized by Chandler, the error messages are helpful and guide me on what to do next.				Yes	
I learned something new about our solar system while using Chandler.				Yes	

Overall, I am satisfied with the experience of using Chandler to learn about planets.					Yes
The information provided by Chandler about the position of planets in the solar system is relevant and interesting.			Yes		
I would recommend Chandler to others interested in learning about our solar system.				Yes	

❑ **Part 3 - Open-ended questions:**

1. **After interacting with Chandler, which features or aspects of the application did you find most useful or engaging, and why?**

➔ The most engaging aspect of Chandler was its ability to provide detailed information about the characteristics of different planets, such as temperature, mass, and distance from the Sun. This feature was particularly useful because it allowed me to deepen my understanding of each planet's unique attributes, making the learning experience both informative and interactive.

2. **After interacting with Chandler, which features or aspects of the application did you find most useful or engaging, and why?**

➔ The GravityIntent feature stood out to me as highly engaging. Learning about the gravity on various planets and how it compares to Earth's gravity added a fascinating perspective to my understanding of the solar system. This feature made the information more relatable by providing a tangible way to imagine being on different planets, enhancing the overall educational experience.

3. **Thinking about future enhancements, what additional functionalities or information would you like Chandler to offer related to the solar system or celestial bodies?**

➔ For future enhancements, I would love it if Chandler could include more interactive visual content, such as 3D models or simulations of the planets and their orbits. Additionally, incorporating information about significant space missions, historical milestones, and future exploration plans would greatly enrich the app's content, providing a more comprehensive view of our solar system and humanity's quest to explore it.

❑ Step6-Review and Reflection

General Impressions:

I was so confused choosing my project at first, half of the time I started building music application. I switched so many projects at first from Alexa skills to dialogflow. And at last I do go on with Dialogflow as I found it easier to use and I watched a lot of YouTube classes as I do not have prior knowledge in node.js. I really enjoyed the class and I have learned so many new things about voice application. Throughout the class I really enjoy the testing part. I just want to make more projects and learn more about API integrations.

Working on this project was enjoyable and educational. Creating Chandler, the Dialogflow agent, was the most satisfying part. The organized approach, from planning to testing, helped me stay on track. While the conversational flow was good, there's room to make it even better. Adding more topics besides planets could make Chandler more useful.

Time:

This project took quite a bit of time, spread out over several days. Developing the conversational flow and logic took the most time, making sure each response flowed smoothly. Despite the time it took, it was essential for making Chandler user-friendly.

Testing:

Testing how users interacted with Chandler was crucial. It helped me see where the app needed improvement. Tasks focusing on different questions showed where Chandler struggled. Feedback from users through Likert scale testing was also helpful. More testing in the future will make Chandler even better.

Future Work:

There's still a lot we can do to improve Chandler. Adding visuals like 3D models could make learning more fun. Including more topics beyond just planets would make Chandler more versatile. Continuous testing and user feedback will be vital for making Chandler even better. Improving how Chandler understands and responds to users will also be important.

❑ Step7-Demo and Presentation:

Demo Link- https://bot.dialogflow.com/e46ba9fb-005c-4201-ab57-fb1f3a98d7e1
Presentation Link: https://media.pdx.edu/media/t/1_8hgp6lve/335477932