CSC PROJECT :- VOICE COMMAND ENGINE

Working

1. Wake Word & Speech Recognition:

You trigger the device by saying a wake word, like "Alexa" or "Echo." The device's

microphone picks up your entire question or command.

Locally on the device, there's some basic wake word detection to ensure only relevant audio is processed further.

2. Uploading the Recording (Utterance) to Amazon's Cloud:

The part of your speech after the wake word is converted into a digital format.

This digital audio file (utterance) is encrypted for security.

An internet connection is required as the utterance is uploaded to Amazon's secure cloud servers.

3. Automatic Speech Recognition (ASR) in the Cloud:

Amazon's Automatic Speech Recognition (ASR) service takes over.

ASR uses complex algorithms to convert the sounds you spoke into text.

It accounts for background noise, accents, and different speaking styles.

4. Natural Language Understanding (NLU) in the Cloud:

The transcribed text from ASR enters the Natural Language Understanding (NLU) stage.

NLU analyzes the text to understand the intent behind your question or command.

It identifies key terms, removes irrelevant information, and considers the context of the conversation (if any).

5. Dialog Management in the Cloud:

The Dialog Management component takes the output from NLU and decides what action to take.

It determines if you're asking a question, giving a command, or something else.

It may also consider your preferences and past interactions to personalize the response.

6. **Skill Selection or Actioning Built-in Functions:**

There are two main possibilities here:

Skills: If your request involves a specific functionality offered by a third-party app (called a Skill), Dialog Management will identify the relevant Skill and send the request to it.

Built-in Functions: If your request relates to something Alexa can do directly (like playing music, setting timers), Dialog Management will use Alexa's built-in functions to handle it.

7. **Skill Processing or Alexa Action (on Cloud or Device):**

Skills: The Skill you invoked is processed in the cloud by the Skill provider's servers. They access relevant data and services to complete your request. The results are then sent back to Alexa.

Built-in Functions: Alexa uses its built-in capabilities on the cloud or the device itself (depending on the complexity) to complete tasks like playing music or controlling smart home devices.

8. **Response Generation in the Cloud:**

Once Alexa has everything it needs (from Skills or built-in functions), it formulates a response that addresses your request.

This response may involve text, audio clips, or instructions to control smart home devices.

9. **Sending the Response Back to the Device:**

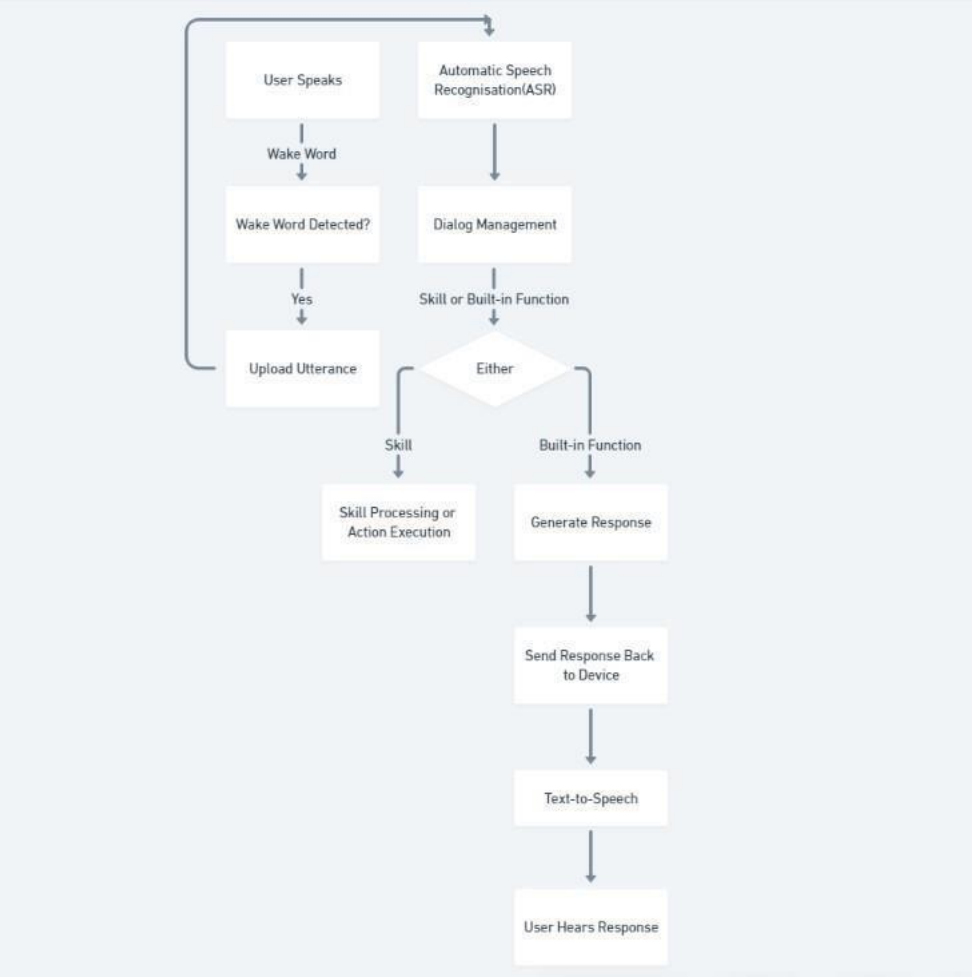
The formulated response is sent back over the internet to your Alexa device.

10. **Text-to-Speech (TTS) and Audio Output:**

The Alexa device receives the response and converts it into an audio format using Text-to-Speech (TTS).

The device's speaker plays the audio response back to you, letting you know the results.

FlowChart


User Speaks
Automatic Speech Recognisation(ASR)
Wake Word
Wake Word Detected?
Dialog Management
Yes
Skill or Built-in Function
Upload Utterance
Either
Skill
Built-in Function
Skill Processing or Action Execution
Generate Response
Send Response Back to Device
Text-to-Speech
User Hears Response

user asks a question

device sends

utterance

to alexa service

o/p

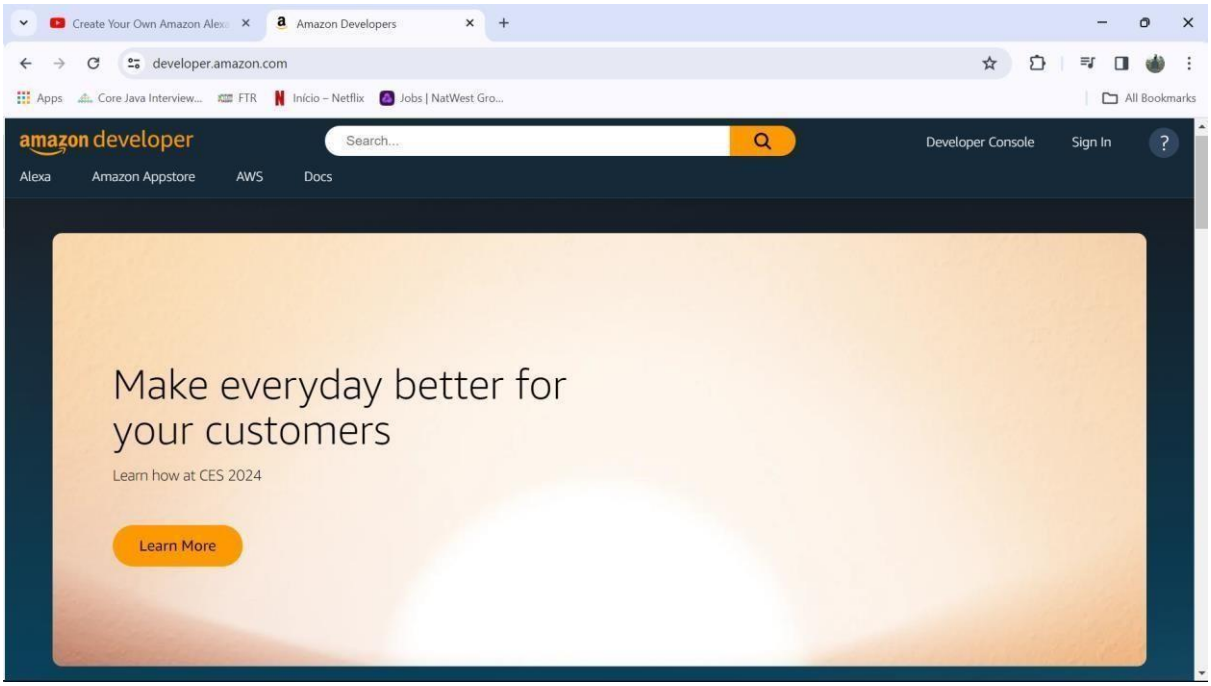
alexa sends json request

to lambda

alexa process data

lambda sends

Json response to alexa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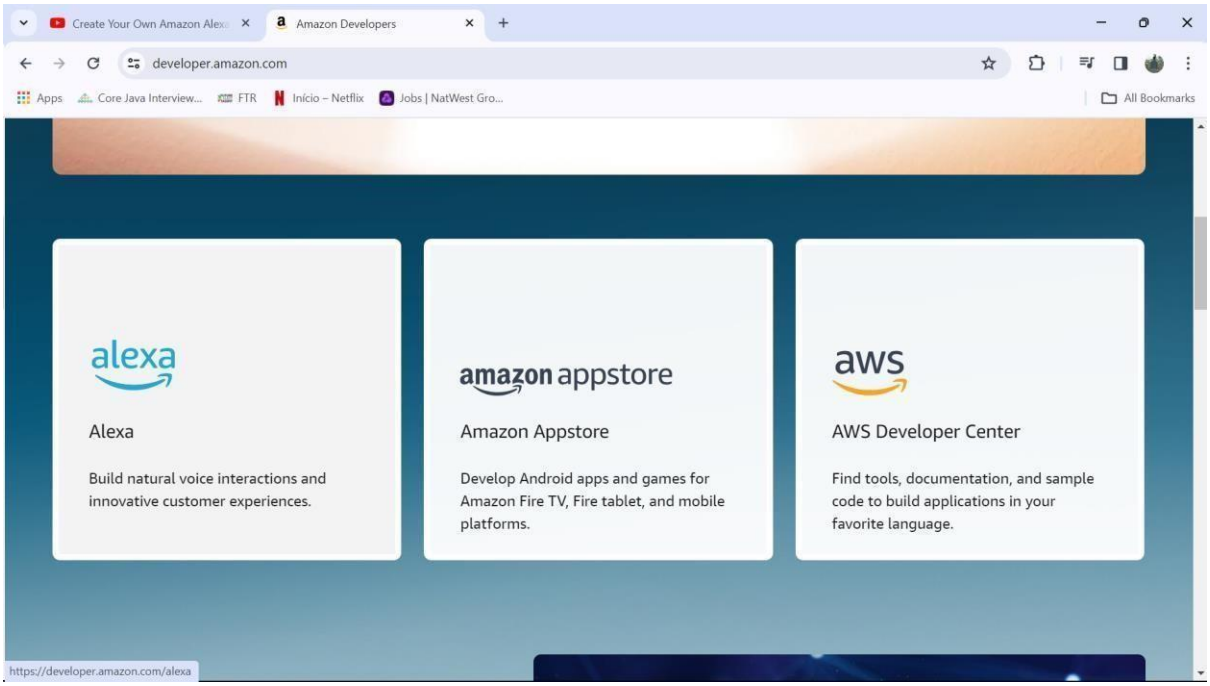
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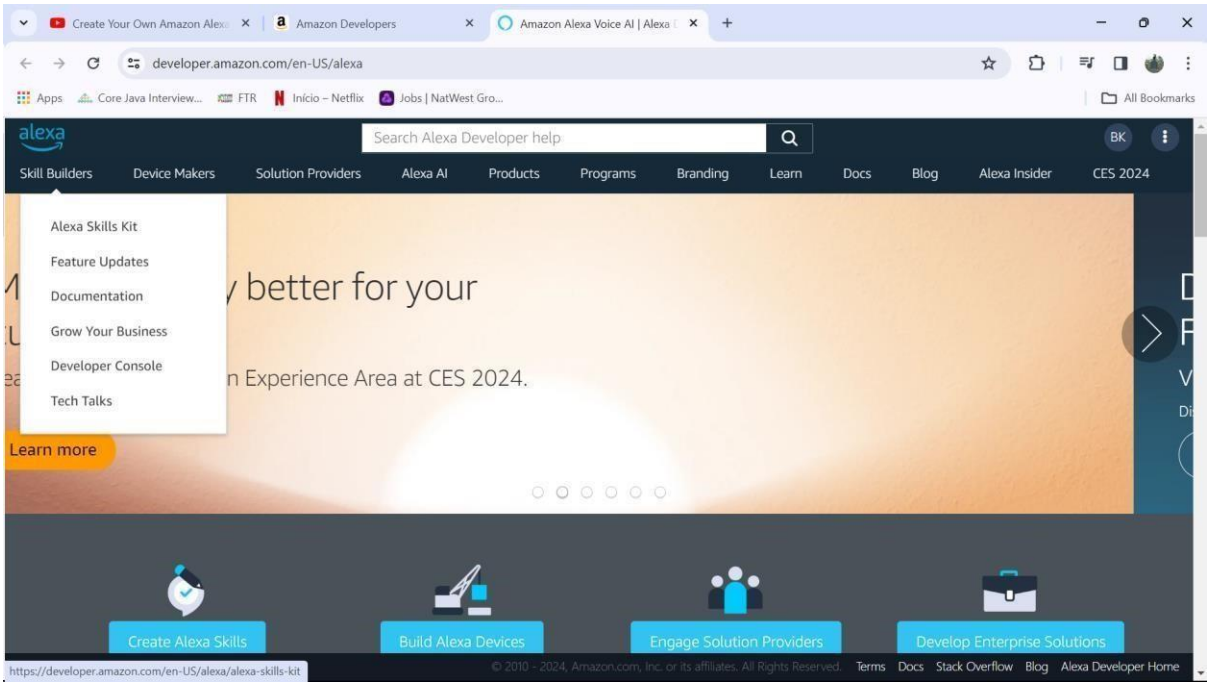
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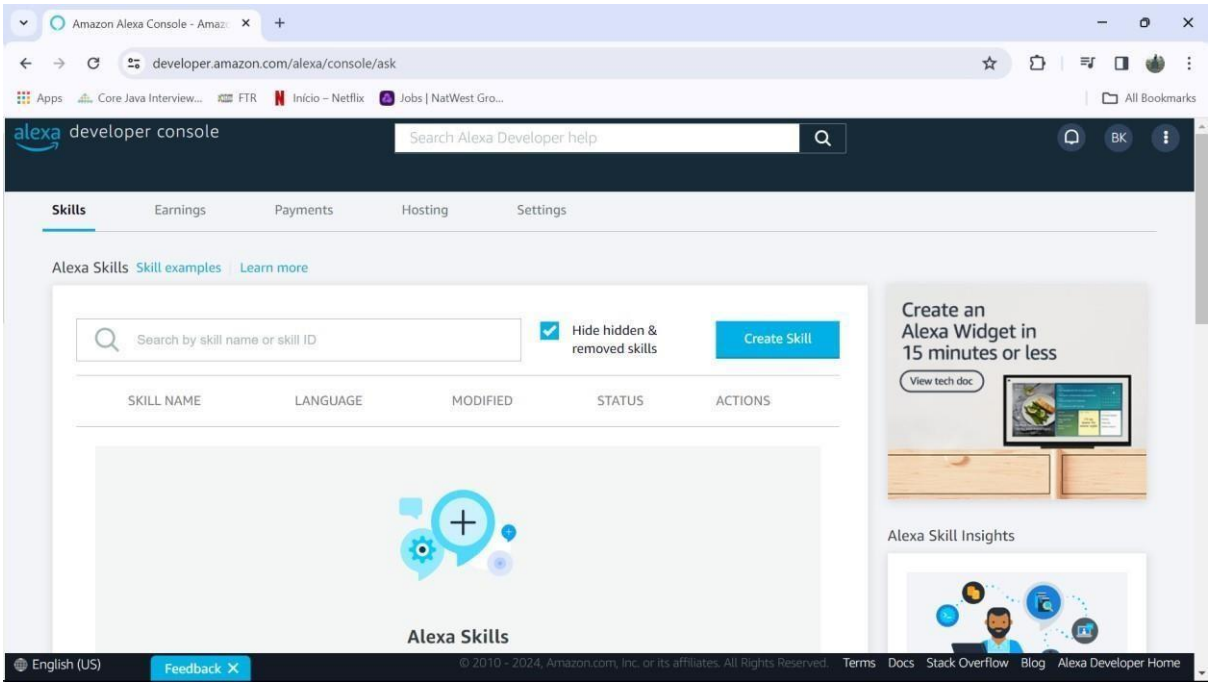
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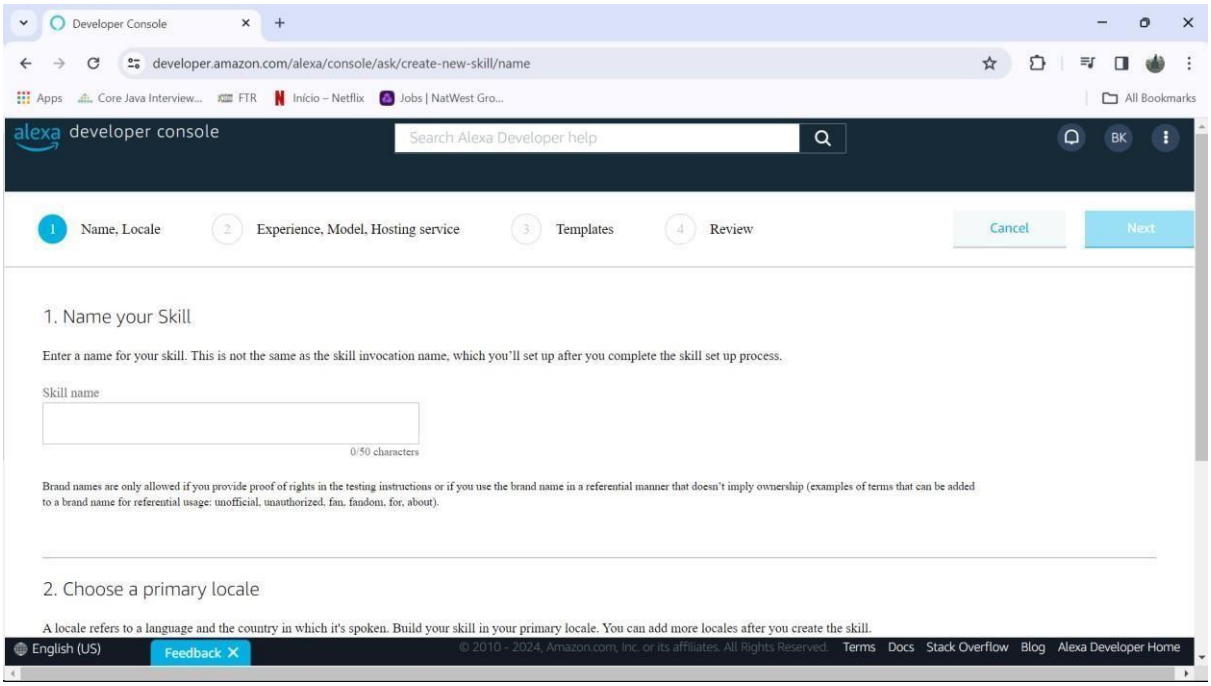
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BK
1 Name, Locale
2 Experience, Model, Hosting service
3 Templates
4 Review
Cancel
Next
1. Name your Skill
Enter a name for your skill. This is not the same as the skill invocation name, which you'll set up after you complete the skill set up process.
Skill name
0/50 characters
Brand names are only allowed if you provide proof of rights in the testing instructions or if you use the brand name in a referential manner that doesn't imply ownership (examples of terms that can be added to a brand name for referential usage: unofficial, unauthorized, fan, fandom, for, about).
2. Choose a primary locale
A locale refers to a language and the country in which it's spoken. Build your skill in your primary locale. You can add more locales after you create the skill.
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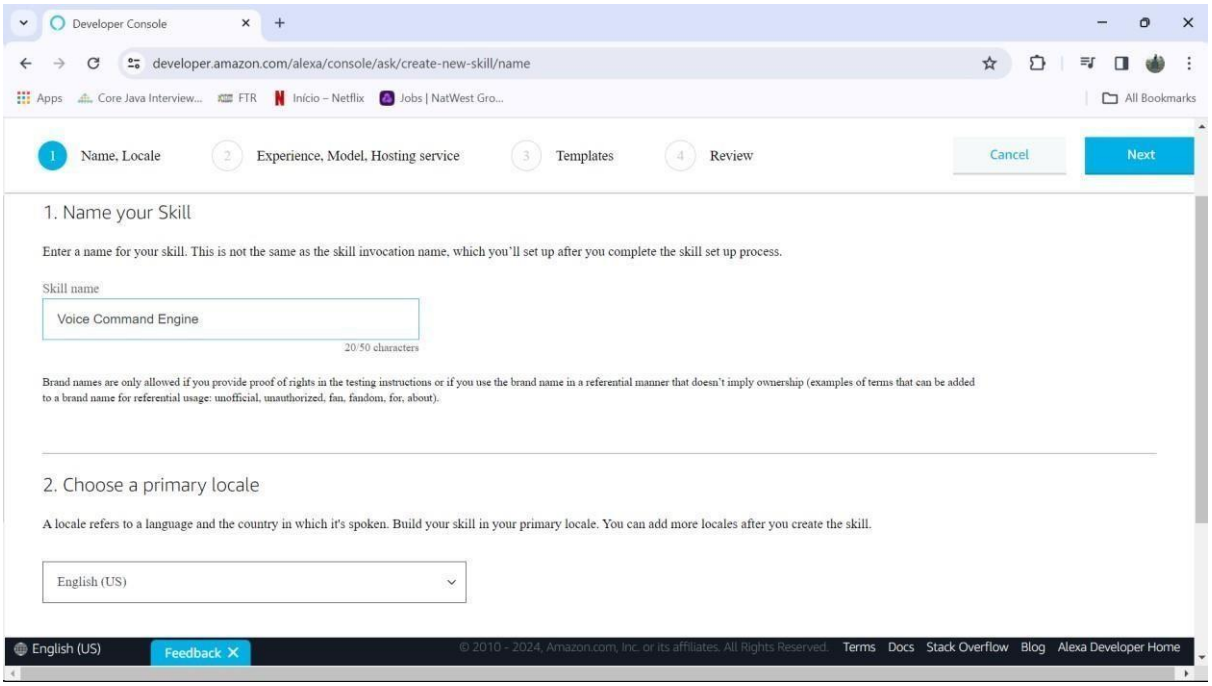
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Skill name
Voice Command Engine
20/50 characters
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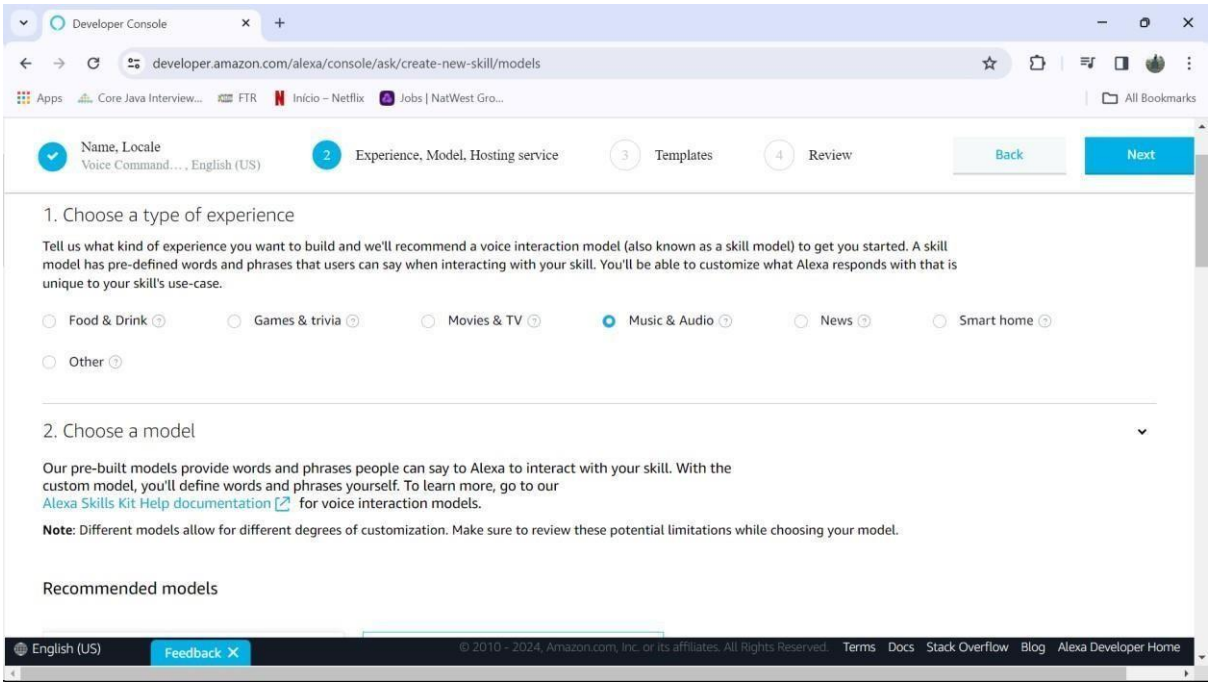
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Name, Locale
Voice Command..., English (US)
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1. Choose a type of experience
Tell us what kind of experience you want to build and we'll recommend a voice interaction model (also known as a skill model) to get you started. A skill model has pre-defined words and phrases that users can say when interacting with your skill. You'll be able to customize what Alexa responds with that is unique to your skill's use-case.
Food & Drink
Games & trivia
Movies & TV
Music & Audio
News
Smart home
Other
2. Choose a model
Our pre-built models provide words and phrases people can say to Alexa to interact with your skill. With the custom model, you'll define words and phrases yourself. To learn more, go to our Alexa Skills Kit Help documentation for voice interaction models.
Note: Different models allow for different degrees of customization. Make sure to review these potential limitations while choosing your model.
Recommended models
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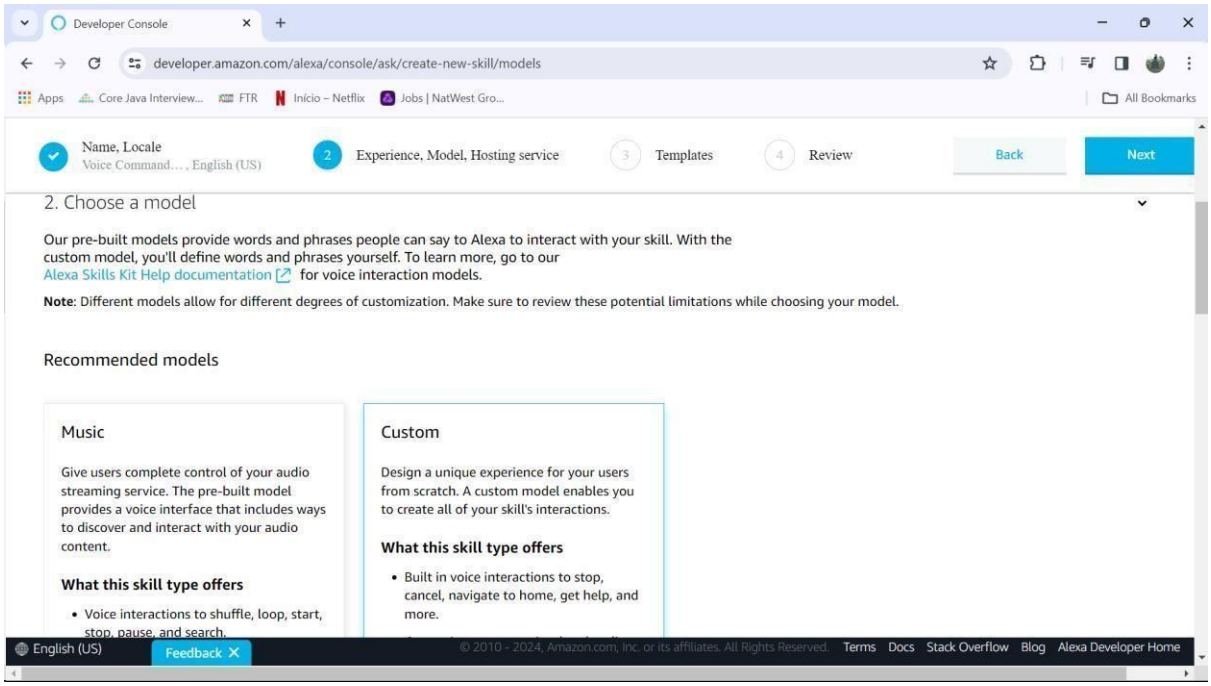
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Note: Different models allow for different degrees of customization. Make sure to review these potential limitations while choosing your model.
Recommended models
Music
Give users complete control of your audio streaming service. The pre-built model provides a voice interface that includes ways to discover and interact with your audio content.
What this skill type offers
Voice interactions to shuffle, loop, start, stop, pause, and search.
Custom
Design a unique experience for your users from scratch. A custom model enables you to create all of your skill's interactions.
What this skill type offers
Built in voice interactions to stop, cancel, navigate to home, get help, and more.
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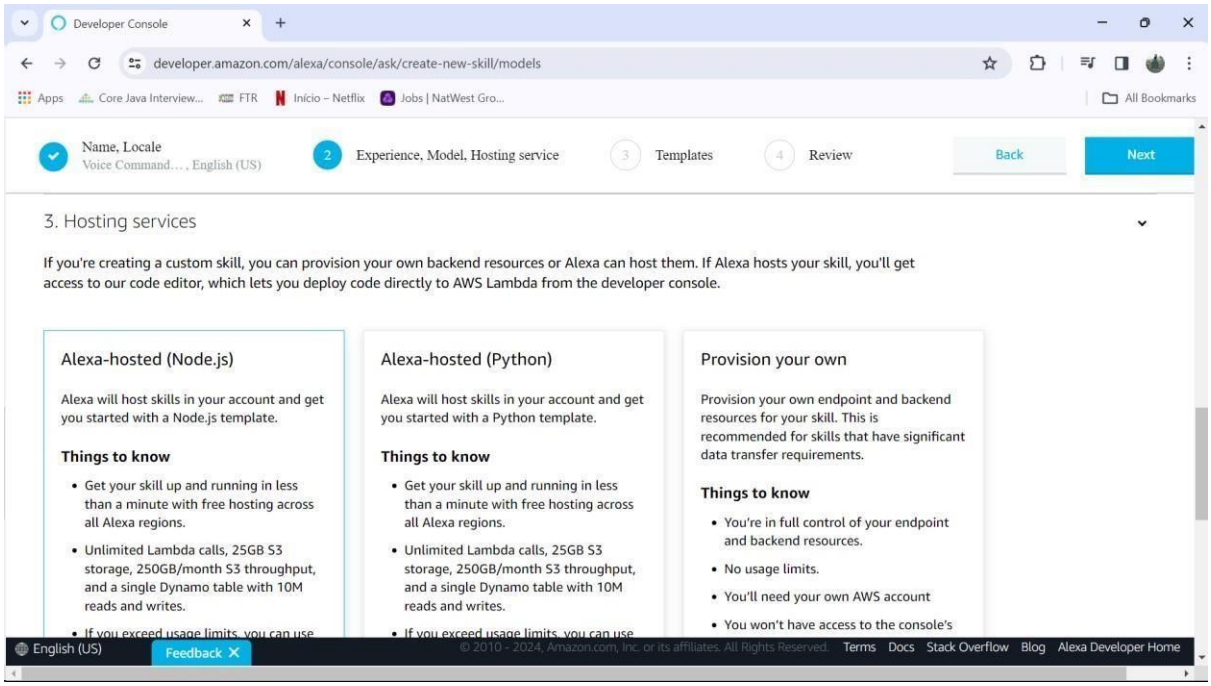
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3. Hosting services
If you're creating a custom skill, you can provision your own backend resources or Alexa can host them. If Alexa hosts your skill, you'll get access to our code editor, which lets you deploy code directly to AWS Lambda from the developer console.
Alexa-hosted (Node.js)
Alexa will host skills in your account and get you started with a Node.js template.
Things to know
Get your skill up and running in less than a minute with free hosting across all Alexa regions.
Unlimited Lambda calls, 25GB S3 storage, 250GB/month S3 throughput, and a single Dynamo table with 10M reads and writes.
Alexa-hosted (Python)
Alexa will host skills in your account and get you started with a Python template.
Things to know
Get your skill up and running in less than a minute with free hosting across all Alexa regions.
Unlimited Lambda calls, 25GB S3 storage, 250GB/month S3 throughput, and a single Dynamo table with 10M reads and writes.
Provision your own
Provision your own endpoint and backend resources for your skill. This is recommended for skills that have significant data transfer requirements.
Things to know
You're in full control of your endpoint and backend resources.
No usage limits.
You'll need your own AWS account
You won't have access to the console's
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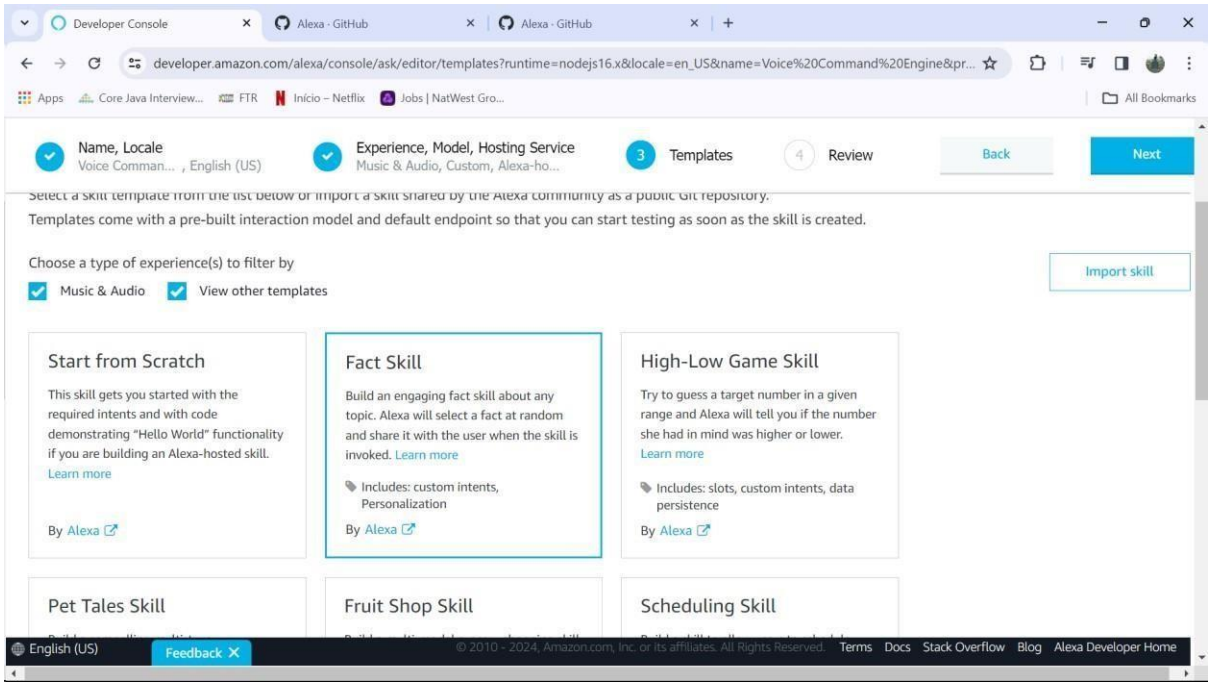
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Experience, Model, Hosting Service
Music & Audio, Custom, Alexa-ho...
3
Templates
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Next
Templates come with a pre-built interaction model and default endpoint so that you can start testing as soon as the skill is created.
Choose a type of experience(s) to filter by
Music & Audio
View other templates
Import skill
Start from Scratch
This skill gets you started with the required intents and with code demonstrating "Hello World" functionality if you are building an Alexa-hosted skill.
Learn more
By Alexa
Fact Skill
Build an engaging fact skill about any topic. Alexa will select a fact at random and share it with the user when the skill is invoked. Learn more
Includes: custom intents, Personalization
By Alexa
High-Low Game Skill
Try to guess a target number in a given range and Alexa will tell you if the number she had in mind was higher or lower.
Learn more
Includes: slots, custom intents, data persistence
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Fruit Shop Skill
Scheduling Skill
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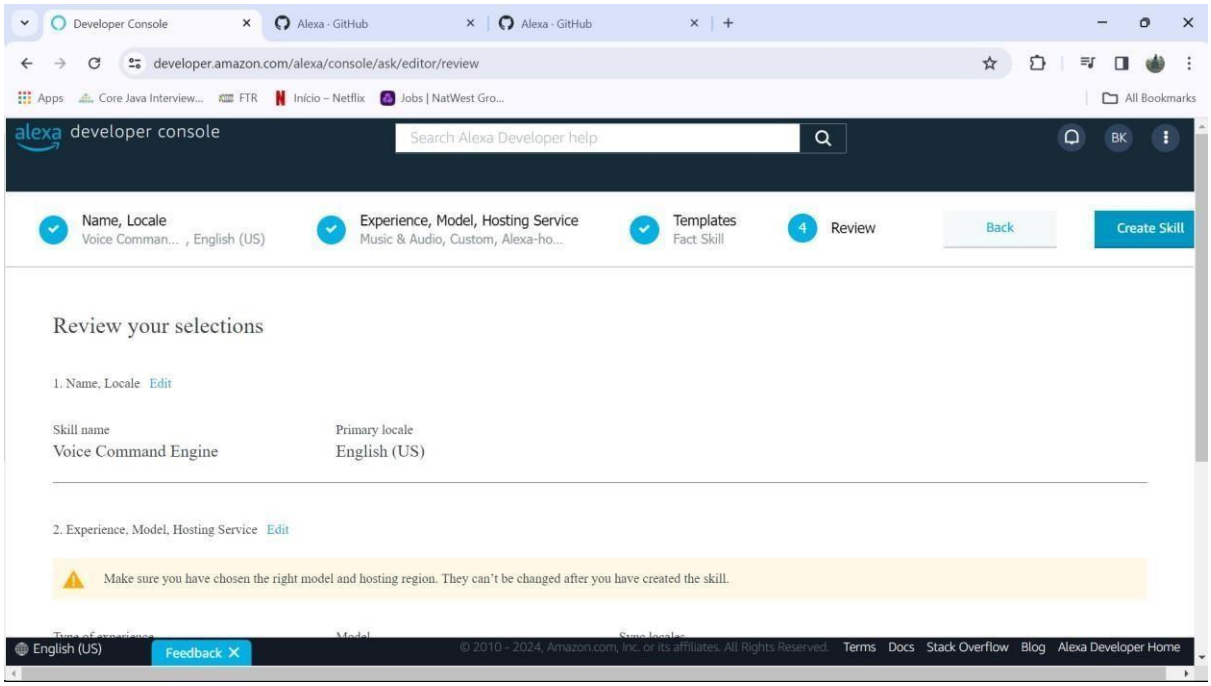
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Experience, Model, Hosting Service
Music & Audio, Custom, Alexa-ho...
Templates
Fact Skill
4
Review
Back
Create Skill
Review your selections
1. Name, Locale Edit
Skill name
Voice Command Engine
Primary locale
English (US)
2. Experience, Model, Hosting Service Edit
Make sure you have chosen the right model and hosting region. They can't be changed after you have created the skill.
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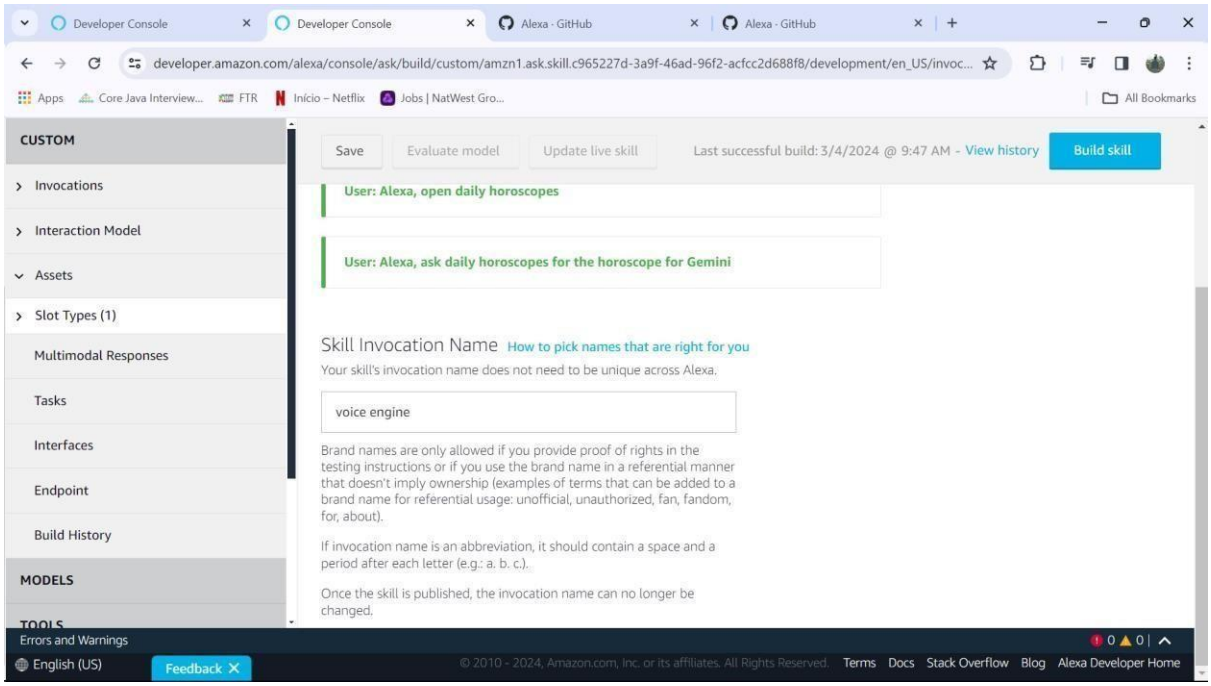
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Interaction Model
Assets
Slot Types (1)
Multimodal Responses
Tasks
Interfaces
Endpoint
Build History
MODELS
TOOLS
Save
Evaluate model
Update live skill
Last successful build: 3/4/2024 @ 9:47 AM - View history
Build skill
User: Alexa, open daily horoscopes
User: Alexa, ask daily horoscopes for the horoscope for Gemini
Skill Invocation Name
How to pick names that are right for you
Your skill's invocation name does not need to be unique across Alexa.
voice engine
Brand names are only allowed if you provide proof of rights in the testing instructions or if you use the brand name in a referential manner that doesn't imply ownership (examples of terms that can be added to a brand name for referential usage: unofficial, unauthorized, fan, fandom, for, about).
If invocation name is an abbreviation, it should contain a space and a period after each letter (e.g.: a. b. c.).
Once the skill is published, the invocation name can no longer be changed.
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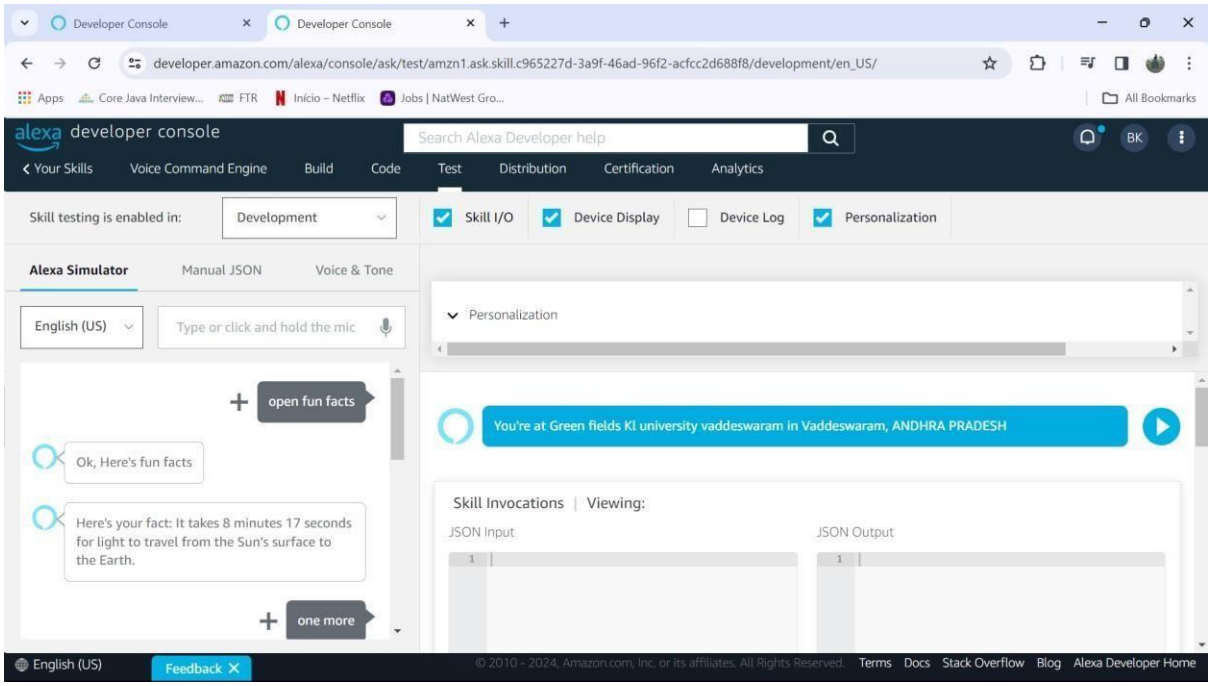
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Skill I/O
Device Display
Device Log
Personalization
Alexa Simulator
Manual JSON
Voice & Tone
English (US)
Type or click and hold the mic
open fun facts
Ok, Here's fun facts
Here's your fact: It takes 8 minutes 17 seconds for light to travel from the Sun's surface to the Earth.
one more
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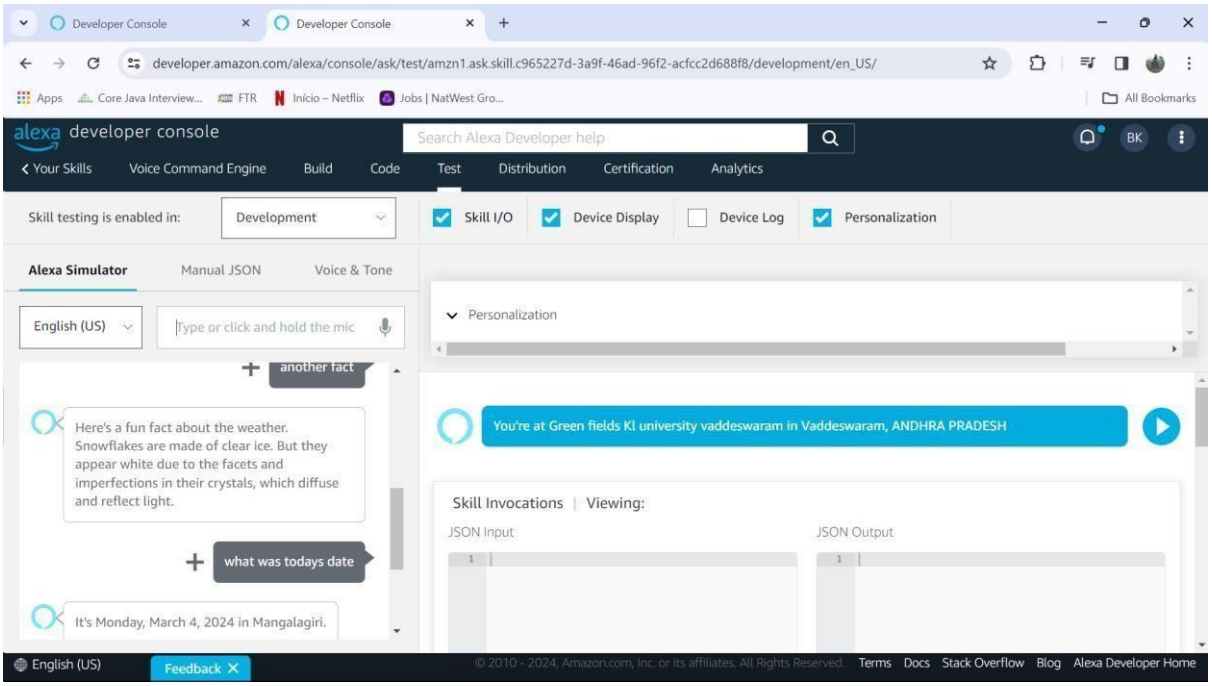

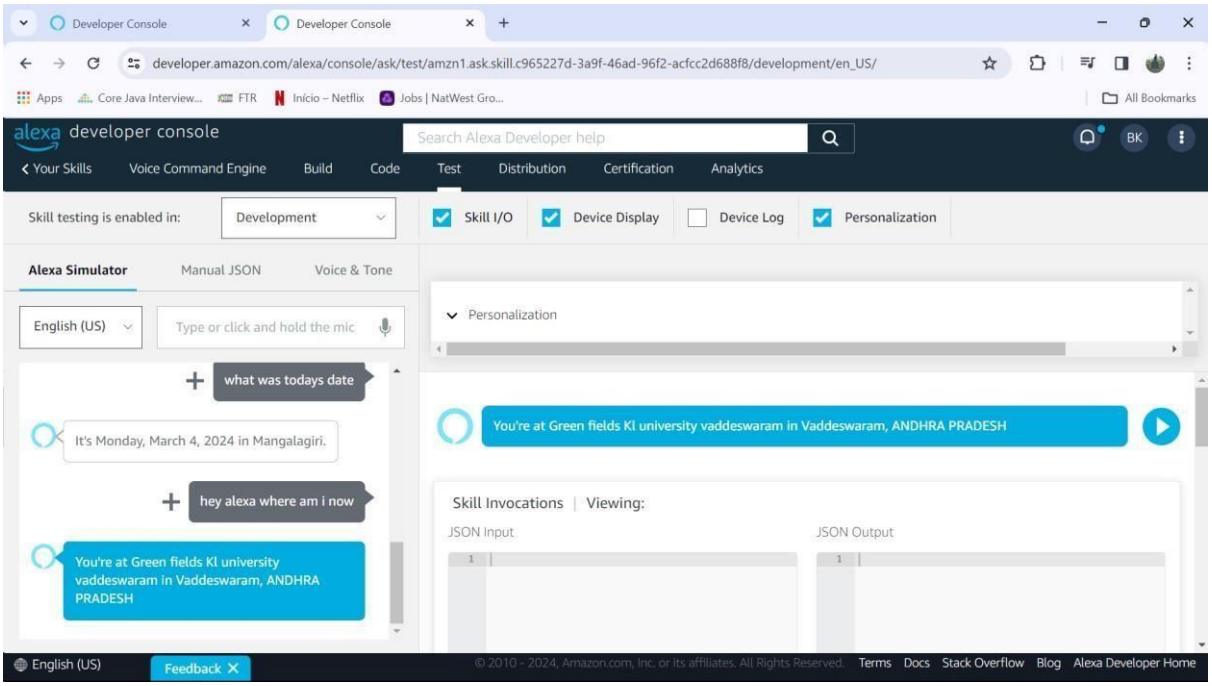

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