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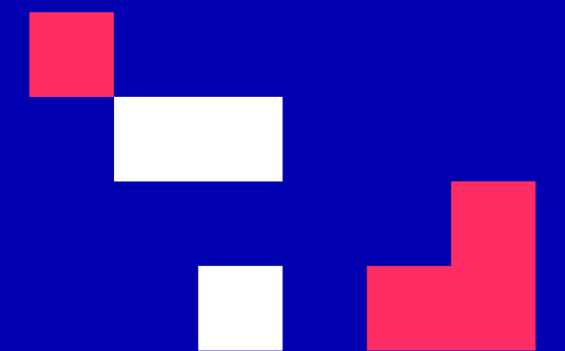
Master programmes in Artificial
Intelligence 4 Careers in Europe

University of Cyprus

HUMAN-CENTERED INTELLIGENT USER INTERFACES - MAI648

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LAB 10

Designing and Developing Skills in Alexa

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- Introduction and Laboratory Description
- Understanding Alexa Skills
- Prerequisites to build a skill in Alexa
- Voice design concepts: utterances, intents, and slots
- Hands-on Examples

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Introduction and Laboratory Description

- This is a hands-on laboratory aiming to guide you through the development of an Alexa Skill. The Alexa Skills Kit (ASK) is a software development framework that enables you to create content, called skills
- Skills are like apps for Alexa

Amazon - <https://developer.amazon.com/en-US/docs/alexa/ask-overviews/what-is-the-alexa-skills-kit.html>

Introduction and Laboratory Description

- With an interactive voice interface, Alexa gives users a hands-free way to interact with your skill. Users can use their voice to perform everyday tasks like checking the news, listening to music, or playing a game
- Users can also use their voice to control cloud-connected devices

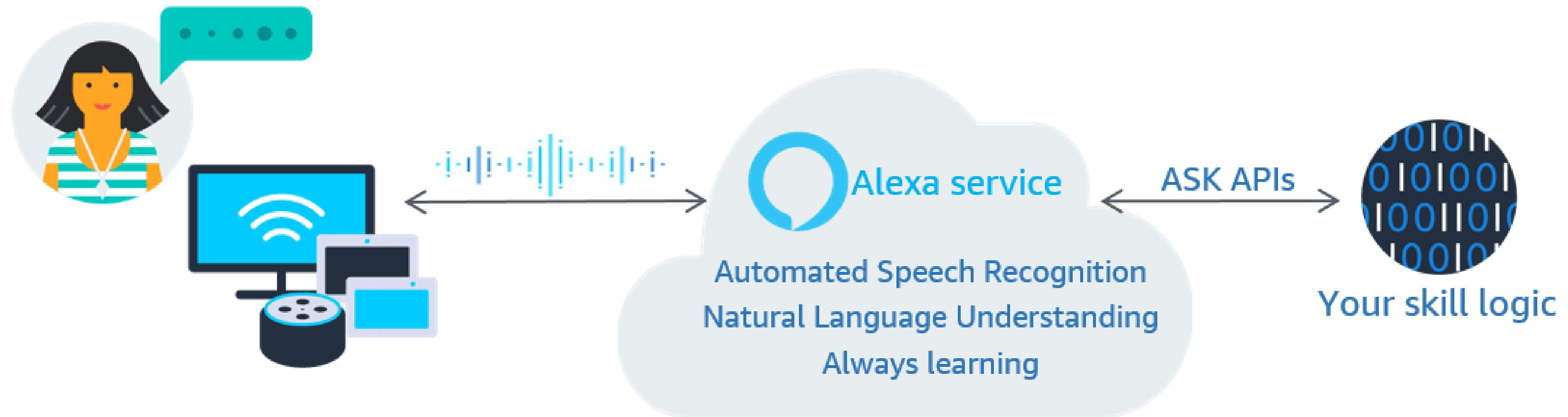
Amazon - <https://developer.amazon.com/en-US/docs/alexa/ask-overviews/what-is-the-alexa-skills-kit.html>

Introduction and Laboratory Description

- For example, users can ask Alexa to turn on lights or change the thermostat
- Skills are available on Alexa-enabled devices, such as Amazon Echo and Amazon Fire TV, and on Alexa-enabled devices built by other manufacturers

Amazon - <https://developer.amazon.com/en-US/docs/alexa/ask-overviews/what-is-the-alexa-skills-kit.html>

Introduction and Laboratory Description



Voice-activated processing flow to invoke a skill with the Alexa service

Source: <https://developer.amazon.com/en-US/docs/alexa/ask-overviews/what-is-the-alexa-skills-kit.html>

Understanding Alexa Skills

- The following steps are run when a user interacts with an Alexa skill:
 - 1. The user says the wake word, "Alexa."
 - 2. Alexa hears the wake word, and then listens.
 - 3. Alexa captures the audio, and then sends it to the Alexa service.
 - 4. The Alexa service uses the interaction model to figure out where to route the request.

Understanding Alexa Skills

- 5. The Alexa service sends a JSON request to the skill's Lambda function.
- 6. The Lambda function inspects the JSON request.
- 7. The Lambda function determines how to respond.
- 8. The Lambda function sends a JSON response to the Alexa service.

Understanding Alexa Skills

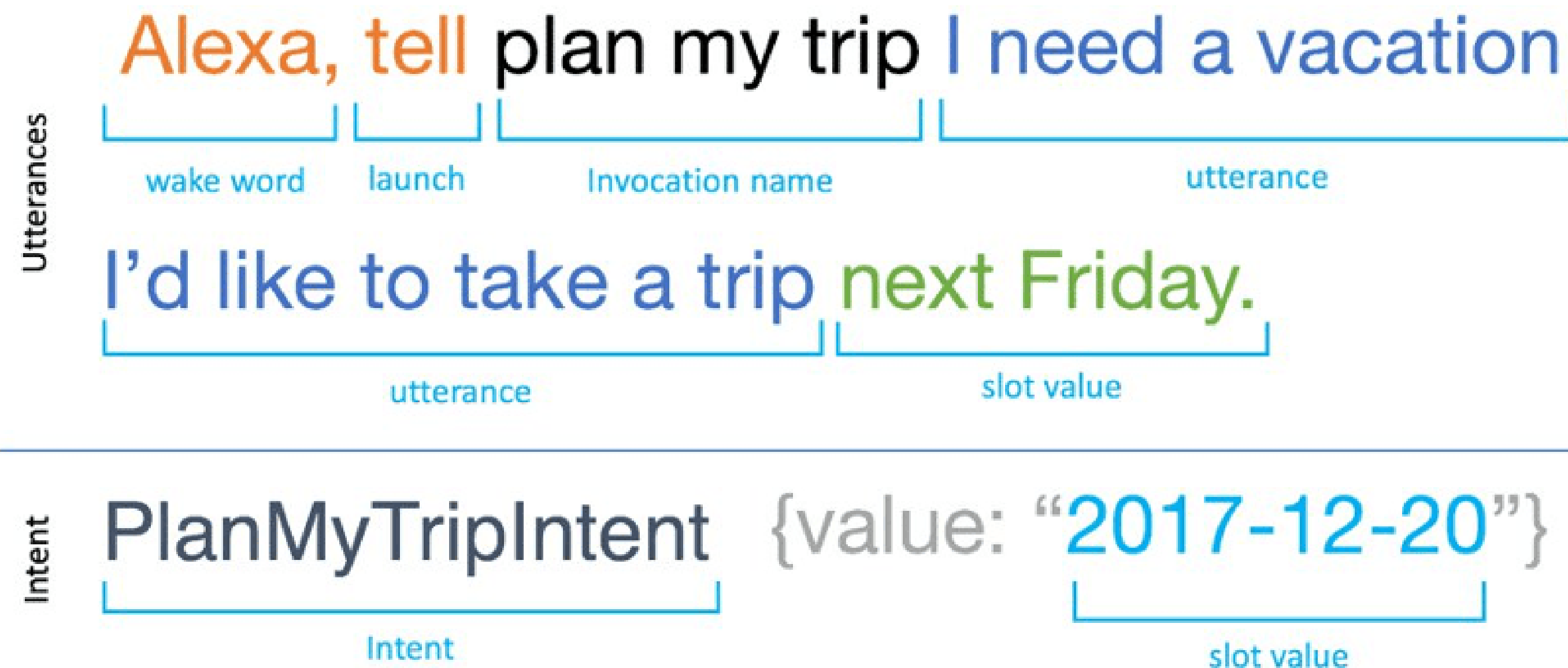
- 9. The Alexa service receives the JSON response, and then converts the output text into an audio file.
- 10. The Alexa service sends the audio file to the Alexa-enabled device.
- 11. The Alexa-enabled device receives the audio file, and then plays the audio.

Prerequisites to build a skill in Alexa

- For the laboratory, we will use the Alexa simulator in the developer console. For doing so, an Amazon account needs to be created.
- <https://developer.amazon.com/alexa/console/ask>

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Voice design concepts: utterances, intents, and slots



Design concepts

Source: <https://developer.amazon.com/en-US/docs/alexa/workshops/build-an-engaging-skill/design-vui/index.html>

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Hands-on Examples

- In this laboratory, you will build the Cake Time skill that performs the following tasks:
 - Asks the user to guess celebrity birthdays
 - Determines if they guessed right or wrong
 - Tells them their score and remembers it
 - Greets returning users differently than new ones

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Create New Skill

The screenshot shows the Alexa Developer Console interface. At the top, there's a navigation bar with 'Skills', 'Earnings', 'Payments', 'Hosting', and 'Settings'. Below this is a search bar and a 'Create Skill' button. A table with columns 'SKILL NAME', 'LANGUAGE', 'MODIFIED', 'STATUS', and 'ACTIONS' is visible. The main content area features a large graphic with a plus sign and the text 'Alexa Skills' and 'Create your first skill or learn more about Alexa Skills Kit'. On the right side, there are promotional banners for 'alexa LIVE' and 'Alexa Skill Insights'.

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Choose a “Custom” model to add to your skill

1. Choose a model to add to your skill

There are many ways to start building a skill. You can design your own custom model or start with a pre-built model. Pre-built models are interaction models that contain a package of intents and utterances that you can add to your skill.

<p>Custom</p> <p>Design a unique experience for your users. A custom model enables you to create all of your skill's interactions.</p> <p>SELECTED</p>	<p>Flash Briefing</p> <p>Give users control of their news feed. This pre-built model lets users control what updates they listen to.</p> <p>"Alexa, what's in the news?"</p>	<p>Smart Home</p> <p>Give users control of their smart home devices. This pre-built model lets users turn off the lights and other devices without getting up.</p> <p>"Alexa, turn on the kitchen lights"</p>	<p>Music</p> <p>Give users complete control of their music. This pre-built model lets users search, pause, skip, or shuffle in your skill.</p> <p>"Alexa, play music by Lady Gaga"</p>	<p>Video</p> <p>Let users find and consume video content. This pre-built model supports content searches and content suggestions.</p> <p>"Alexa, play Interstellar"</p>	<p>Knowledge</p> <p>Give users Q&A on business data you upload via spreadsheets. Use with personal devices, Alexa for Business, Alexa for Hospitality, or Alexa for Residential.</p> <p>"Alexa, how do I get on the Wi-Fi?"</p>
<p>Meetings</p> <p>This pre-built model leverages Alexa for Business APIs to allow users to search for and book available meeting rooms in their office.</p> <p>"Alexa, book a room"</p>					

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Choose the “Alexa-hosted (Python)” option to host your skill’s backend resources

2. Choose a method to host your skill's backend resources

You can provision your own backend resources or you can have Alexa host them for you. If you decide to have Alexa host your skill, you'll get access to our code editor, which will allow you to 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. You will gain access to AWS Lambda endpoints in all Alexa service regions, a DynamoDB table for data persistence, and S3 for media storage. [Learn more](#)

Alexa-hosted (Python) SELECTED

Alexa will host skills in your account and get you started with a Python template. You will gain access to AWS Lambda endpoints in all Alexa service regions, a DynamoDB table for data persistence, and S3 for media storage. [Learn more](#)

Provision your own

Provision your own endpoint and backend resources for your skill. This is recommended for skills that have significant data transfer requirements. You will not gain access to the console's code editor.

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Choose “Start from Scratch” template to add to your skill

Choose a template to add to your skill

Select a skill template from the list below or import a skill shared by the Alexa community as a public Git repository.

Import skill

Continue with template

Start from Scratch

SELECTED

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

By [Alexa](#)

Intro to Alexa Conversations

This skill introduces you to Alexa Conversations by providing basic “Hello World” functionality and generating a voice response from Alexa. [Learn more](#)

Includes: Alexa Conversations Preview, APL, APL for Audio, session persistence

By [Alexa](#)

Weather Bot Skill

Build a conversational weather bot skill that allows users to receive brief weather updates for a given location and date.

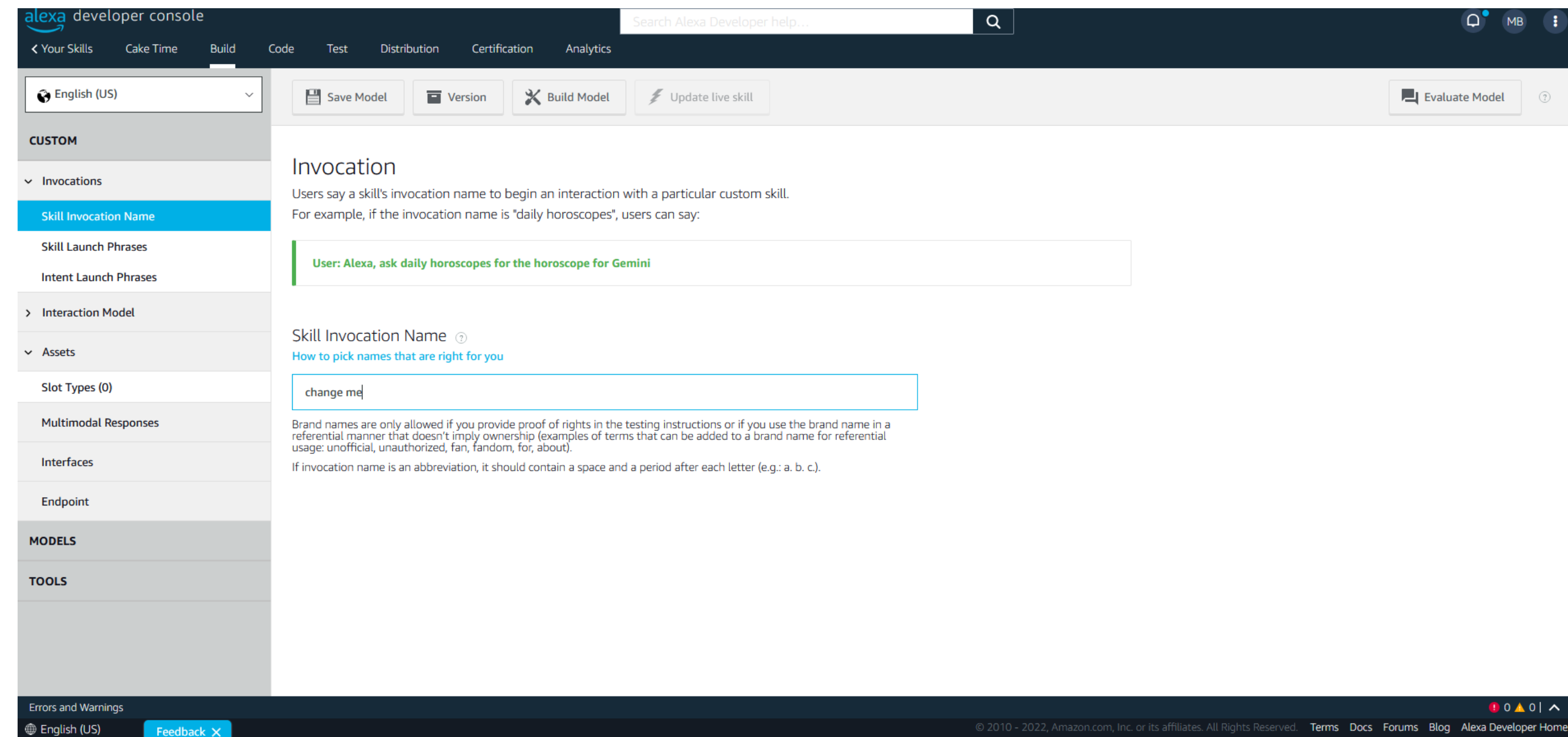
[Learn more](#)

Includes: Alexa Conversations, APL for Audio, session persistence

By [Alexa](#)

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Change the Skill Invocation name under the Build section



Sources

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Thank you.