

CREATE YOUR FIRST ALEXA SKILL

PRESENTED BY



CapTech.

Others Talk, We Listen.



“DEAR WOMEN,
WE NEED YOU”

- The Tech Industry

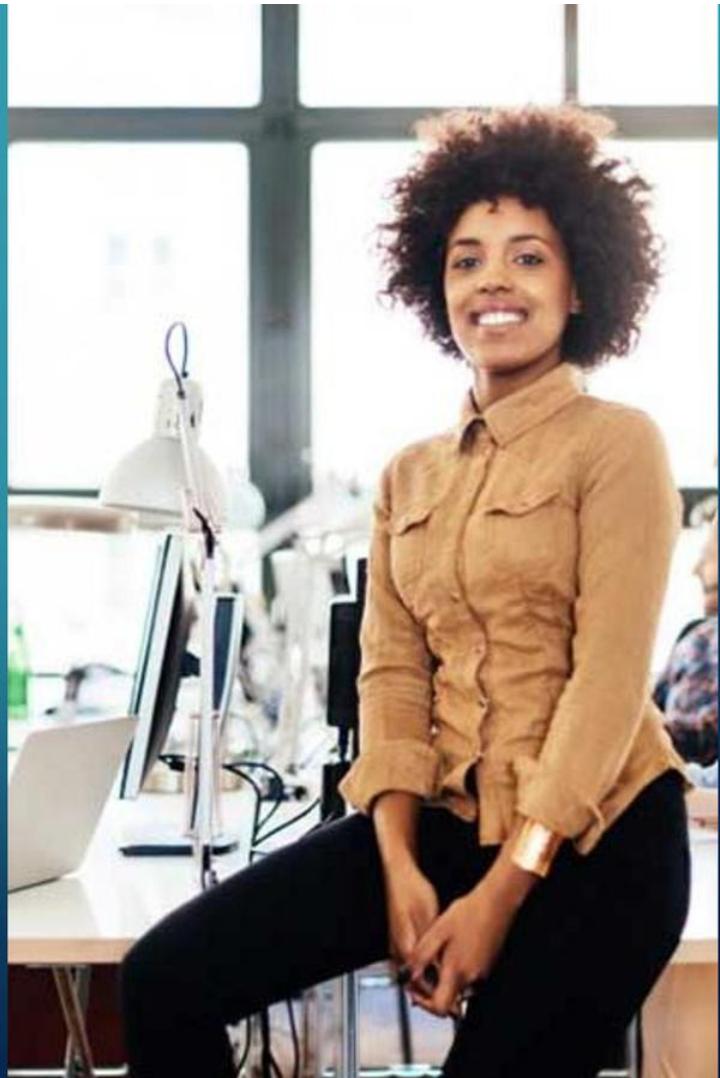


Tech jobs are growing. **Fast.**

THE MARKET IS NOT PREPARED TO FILL **600,000+ jobs**

Women in the Workforce

- **51%** of professional occupations
- **26%** of 3.8 million computing jobs
- **4.2%** of investing Venture Partners
- **7%** of Venture Capital recipients



WOMEN WHO CODE

OUR MISSION

Inspiring women to excel in
technology careers





60
cities

20
countries





Study Groups
Patterns
Languages
Dev Ops

New Technology Trends
UI/UX
Microservices

Infrastructure
Workshops

Networking
Technical Talks

Hack-A-Thons
Hands On Skill Development
Security

AND SO MUCH MORE...

PRESENTED TO WOMEN BY WOMEN
ALL ARE WELCOME

WE HELP DEVELOP
EACH OTHERS' SKILLS

WHAT/WHO IS ALEXA?

A **voice-controlled personal assistant** developed by Amazon. But also an example of...

Artificial Intelligence (AI). Alexa uses a service called Amazon Lex which uses **deep learning** to convert speech to text, and **natural language understanding** (NLU) to figure out the intent of the text.



“The age of touch could soon come to an end. From smartphones and smartwatches, to home devices, to in-car infotainment systems, touch is no longer the primary user interface.”

Source: Design News

DEVICES THAT USE ALEXA – THE “INTERNET OF THINGS”



Added in 2017:



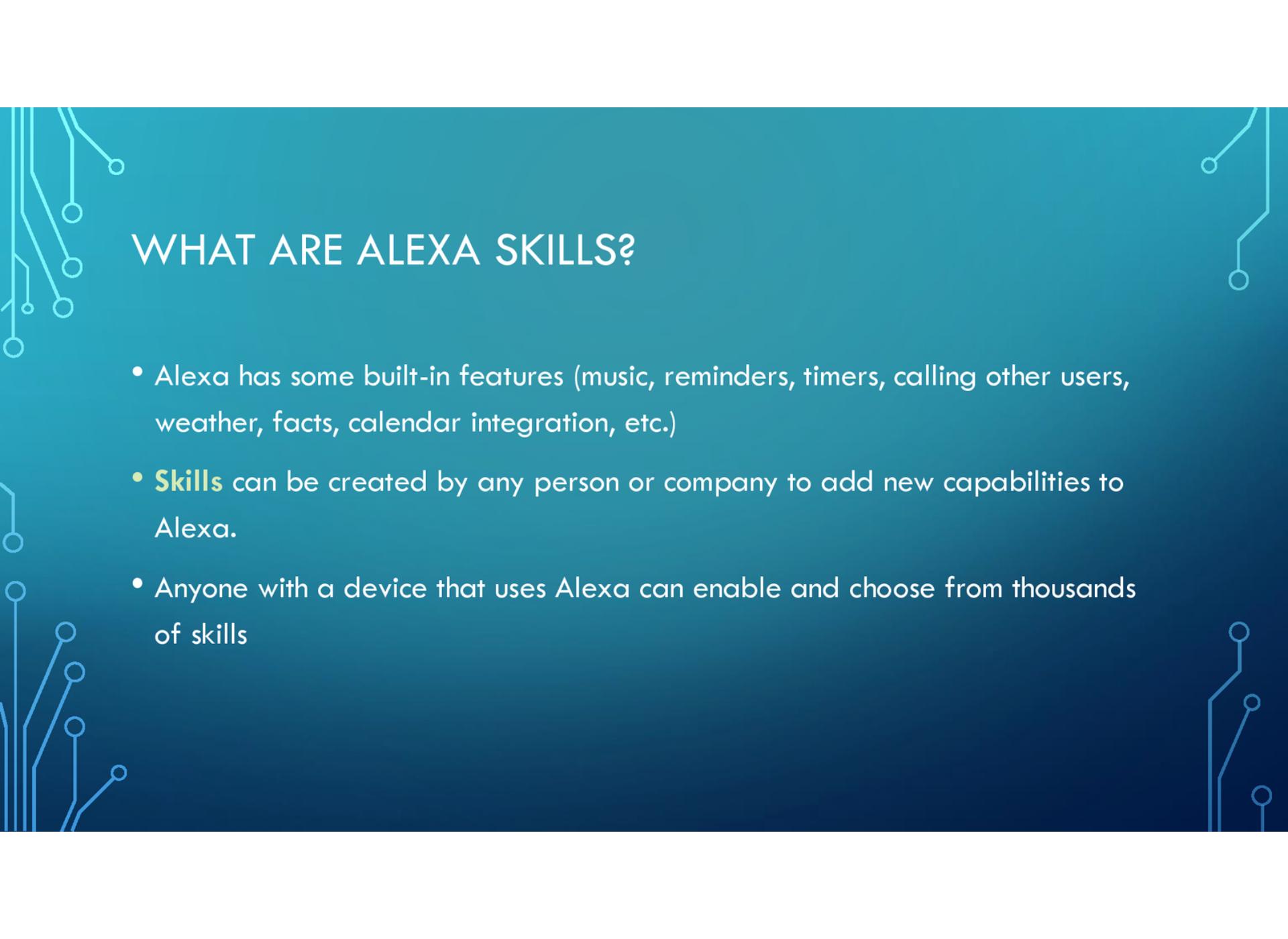
Echo Look



Echo Show



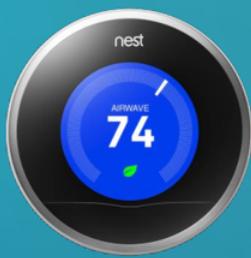
Dash Wand

A decorative background graphic featuring a light blue gradient with white circuit board patterns. The patterns consist of vertical lines with small circles at the intersections, resembling a network or a brain. They are more prominent on the left and right sides.

WHAT ARE ALEXA SKILLS?

- Alexa has some built-in features (music, reminders, timers, calling other users, weather, facts, calendar integration, etc.)
- **Skills** can be created by any person or company to add new capabilities to Alexa.
- Anyone with a device that uses Alexa can enable and choose from thousands of skills

WHAT CAN ALEXA SKILLS DO?



Home Automation

"Alexa, set the basement to 68 degrees"



Food Ordering

"Alexa, open Domino's and place my Easy Order"



News

"Alexa, ask Washington Post for headlines"



Games

"Alexa, play Jeopardy"

STEP 1: SET UP THE VOICE USER INTERFACE (VUI) USING THE ALEXA SKILLS KIT (ASK)



The background of the slide features a repeating pattern of white circuit board tracks and component pads on a dark teal gradient background.

OPEN THE SAMPLE CODE IN GITHUB

<https://github.com/techemstudios/inspiring-women-alexa/>



LOGIN TO OUR DEMO AMAZON DEVELOPERS
ACCOUNT

<https://developer.amazon.com>

Username: alexa@techmestudios.com

Password: techme17

DASHBOARD

APPS & SERVICES

ALEXA

REPORTING

Get started with Alexa

Add new voice-enabled capabilities using the Alexa Skills Kit, or add voice-powered experien



Alexa Skills Kit

Easily add new skills to Alexa

[Get Started >](#)



Alexa Voice Service

Bring voice capabilities to your connected device

[Get Started >](#)

Skill Information	<input checked="" type="checkbox"/>
Interaction Model	<input checked="" type="checkbox"/>
Configuration	<input checked="" type="checkbox"/>
SSL Certificate	<input checked="" type="checkbox"/>
Test	<input checked="" type="checkbox"/>
Publishing Information	<input checked="" type="checkbox"/>
Privacy & Compliance	<input checked="" type="checkbox"/>

Skill Type

Define a custom interaction model or use one of the predefined skill APIs. [Learn more](#)

 Custom Interaction Model Smart Home Skill API Flash Briefing Skill API Video Skill API**Language**

Language of your skill

English (U.S.) ▾

Name

Name of the skill that is displayed to customers in the Alexa app. Must be between 2-50 characters.

Inspirational Women

Invocation Name

The name customers use to activate the skill. For example, "Alexa ask Tide Pooler..."

Inspirational Women

 For successful Alexa Skills Certification, please review and follow our [Invocation Name Guidelines](#) as well as our [Certification Requirements](#).

Global Fields

These fields apply to all languages supported by the skill.

Audio Player

Does this skill use the audio player directives?

 Yes No[Learn more](#).**Video App**

Does this skill use the video app directives?

 Yes No[Learn more](#).**Render Template**

Does this skill use the Render Template directives?

 Yes No[Learn more](#).**Save**

< Back to All Skills



Inspirational Women

Custom

ID: amzn1.ask.skill.356422e7-c0c8-4f0b-b3f0-568308f99ae2

English (U.S.)

Add a New Language

Skill Information

Interaction Model

Configuration

Test



Try the skill builder (beta), an intuitive interface for building your interaction model and creating dialog prompts

Launch Skill Builder BETA



A **voice user interface** (VUI) allows people to use their voice to control computers and devices.

TERMINOLOGY

Alexa, tell Personality Type to start the quiz.

Wake word Launch Skill Invocation Name

Utterance



Executes the "Quiz" intent

Alexa, ask Personality Type for a fun fact.

Wake word Launch Skill Invocation Name

Utterance



Executes the "Fact" intent

ALEXA SKILLS KIT | SKILL BUILDER BETA

Inspirational Women
English (US) ▾

Save Model Build Model

Skill Information Interaction Model

Dashboard

</> Code Editor

Intents (3) ADD +

- AMAZON.CancelIntent (required)
- AMAZON.HelpIntent (required)
- AMAZON.StopIntent (required)

Slot Types (0) ADD +

Dashboard

Intents ? Add an Intent +

3 built-ins
0 custom

Slot Types ? Add a Slot Type +

0 built-ins
0 custom

ALEXA SKILLS KIT | SKILL BUILDER BETA

Inspirational Women
English (US) ▾

Save Model Build Model

Skill Information Interaction Model

Dashboard

Code Editor

Intents (3) ADD +

- AMAZON.CancelIntent (required)
- AMAZON.HelpIntent (required)
- AMAZON.StopIntent (required)

Slot Types (0) ADD +

Add intent

Create a new custom intent ?

ScienceCategory Create Intent

Use an existing intent from the built-in library ?

Search built-in intents

ALEXA SKILLS KIT | SKILL BUILDER BETA

Inspirational Women
English (US) ▾

Save Model Build Model

Skill Information Interaction Model Configuration

Dashboard

Code Editor

Intents (7) ADD +

AMAZON.CancelIntent (required)

AMAZON.HelpIntent (required)

AMAZON.StopIntent (required)

EngineeringCategory

MathCategory

ScienceCategory

TechnologyCategory

(2) MathCategory (3)

Sample Utterances (6) ? (1)

math

"mathematicians"

"mathematical"

"mathematical category"

"mathematics category"

"mathematics"

"math category"

Intent Slots (0) ?

ORDER REQ SLOT

Create a new slot...

This screenshot shows the Alexa Skills Kit Skill Builder Beta interface. The top navigation bar includes 'ALEXA SKILLS KIT | SKILL BUILDER BETA', language settings ('English (US)'), and three main buttons: 'Save Model', 'Build Model', 'Skill Information', 'Interaction Model', and 'Configuration'. On the left, a sidebar lists intents: 'Inspirational Women' (selected), 'EngineeringCategory', 'MathCategory' (highlighted in green), 'ScienceCategory', and 'TechnologyCategory'. Below this is a list of required intents: 'AMAZON.CancelIntent', 'AMAZON.HelpIntent', and 'AMAZON.StopIntent'. The main content area displays the 'MathCategory' intent with the title '(2) MathCategory (3)'. It features a 'Sample Utterances (6)' section containing the following entries: 'math', 'mathematicians', 'mathematical', 'mathematical category', 'mathematics category', 'mathematics', and 'math category'. A green box highlights the search bar above the utterances, labeled '(1)'. A green box also highlights the 'MathCategory' intent title, labeled '(2)'. A green box highlights the 'Build Model' button, labeled '(3)'. A green box highlights the 'Configuration' button, labeled '(4)'. To the right, there's a 'Intent Slots (0)' section with 'ORDER', 'REQ', and 'SLOT' headers and a 'Create a new slot...' button.

STEP 2: CREATE YOUR SKILL LOGIC USING AN AWS LAMBDA FUNCTION



COMPONENTS OF AN ALEXA SKILL

Voice User Interface



Programming Logic



developer.amazon.com



AWS Lambda

aws.amazon.com/lambda

WHAT IS THE CLOUD?



The **cloud** is software and services that run on the internet (a.k.a someone else's server) instead of from your computer.



Amazon Web Services (AWS) is a cloud services platform.

AWS Lambda is one of those services – it lets you build and run your code online.

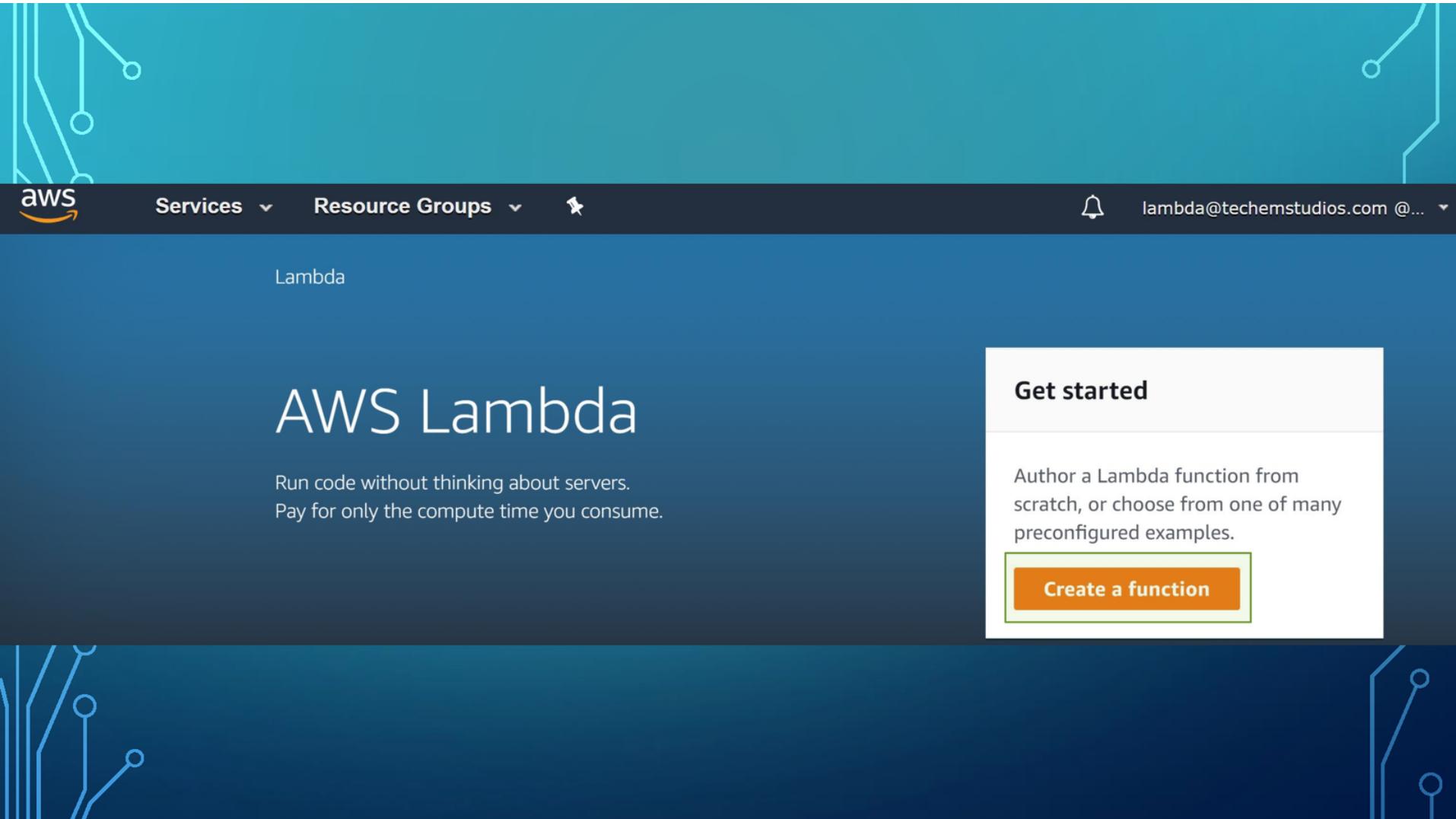
LOGIN TO OUR DEMO AWS ACCOUNT

<https://console.aws.amazon.com/>

Account ID: 694910018021

Username: lambda@techmestudios.com

Password: techme17



The image shows the AWS Lambda landing page. The background features a dark blue gradient with light blue circuit board patterns on the left and right sides. At the top, there is a navigation bar with the AWS logo, 'Services' dropdown, 'Resource Groups' dropdown, a star icon, and a user email 'lambda@techemstudios.com @...'. Below the navigation bar, the word 'Lambda' is displayed. The main title 'AWS Lambda' is prominently shown in large white font. Below it, two descriptive lines of text are present: 'Run code without thinking about servers.' and 'Pay for only the compute time you consume.' To the right, a white callout box contains the heading 'Get started' in bold, followed by the text: 'Author a Lambda function from scratch, or choose from one of many preconfigured examples.' At the bottom of this box is an orange button with the text 'Create a function'.

AWS Lambda

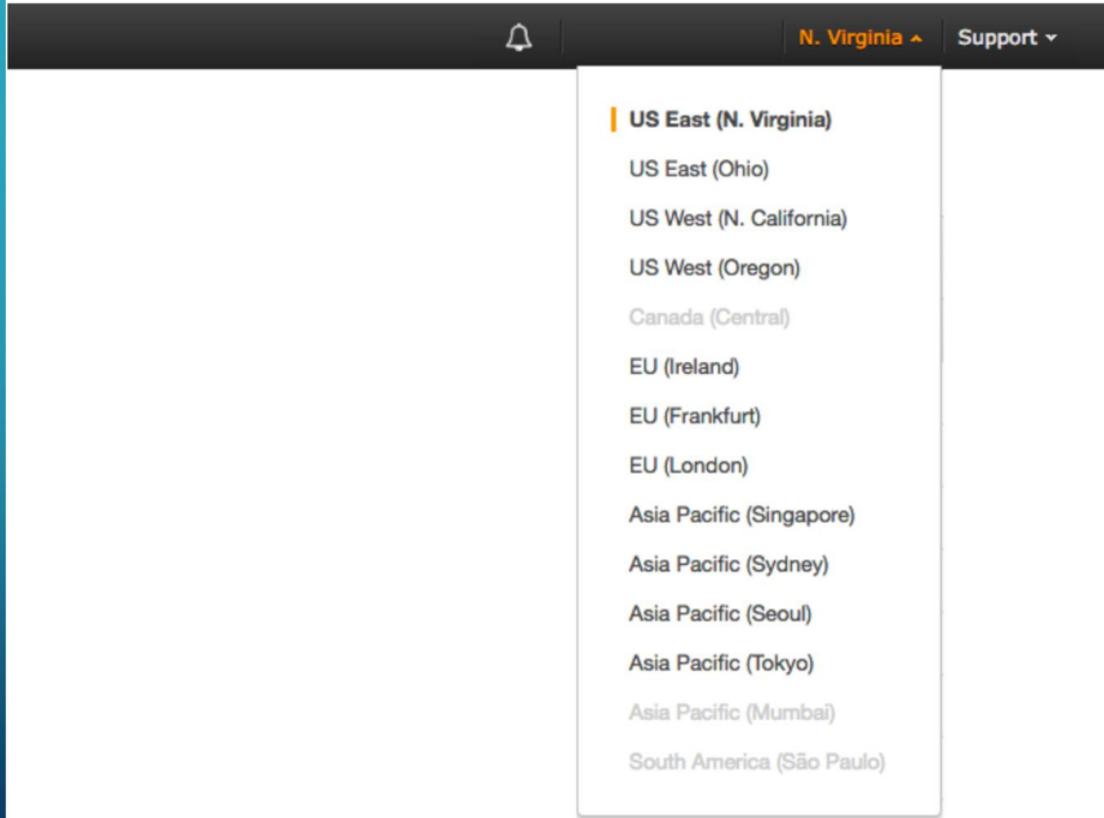
Run code without thinking about servers.
Pay for only the compute time you consume.

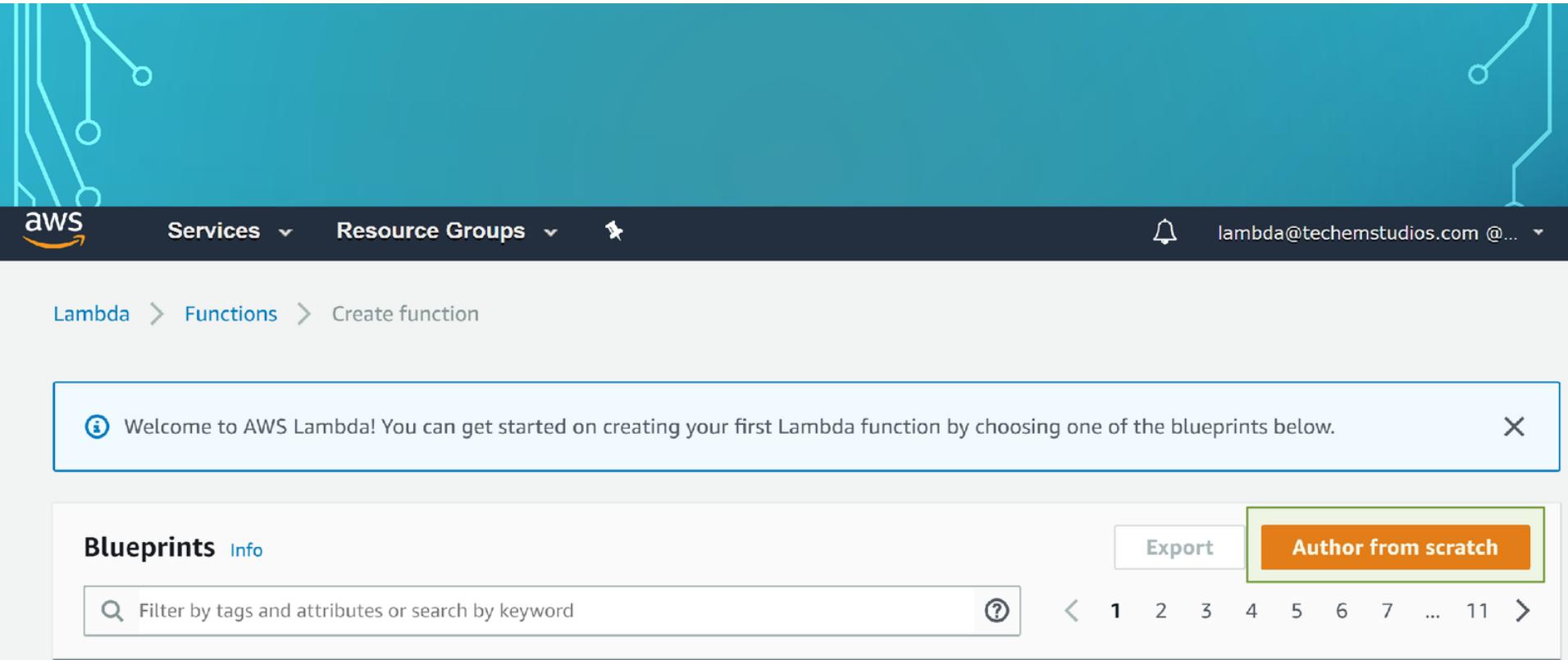
Get started

Author a Lambda function from scratch, or choose from one of many preconfigured examples.

Create a function

Check your AWS region. AWS Lambda only works with the Alexa Skills Kit in two regions: US East (N. Virginia) and EU (Ireland). Make sure you choose the region closest to your customers.





The screenshot shows the AWS Lambda 'Create function' blueprint page. At the top, there's a navigation bar with the AWS logo, 'Services' dropdown, 'Resource Groups' dropdown, and a user icon. Below the navigation, the path 'Lambda > Functions > Create function' is displayed. A prominent callout message says: 'Welcome to AWS Lambda! You can get started on creating your first Lambda function by choosing one of the blueprints below.' An 'X' button is at the top right of the message box. Below the message, the 'Blueprints' section has an 'Info' link. It includes a search bar with a magnifying glass icon and the placeholder 'Filter by tags and attributes or search by keyword'. To the right of the search bar are buttons for 'Export' and 'Author from scratch', with 'Author from scratch' being orange and outlined. A navigation bar with page numbers (1, 2, 3, 4, 5, 6, 7, ..., 11, >) is also present.

 Services ▾ Resource Groups ▾   lambda@techemstudios.com @...

Lambda > Functions > Create function > Author from scratch

Basic information Info

Name*

Role* Defines the permissions of your function. Note that new roles may not be available for a few minutes after creation. [Learn more](#) about Lambda execution roles.

Existing role* You may use an existing role with this function. Note that the role must be assumable by Lambda and must have Cloudwatch Logs permissions.

* These fields are required.

Cancel

Previous

Create function



Services ▾

Resource Groups ▾



lambda@techems

Lambda > Functions > InspirationalWomen

ARN - arn:aws:lambda:us-east-2:694910018021:function:InspirationalWomen

Inspiration alWomen

Qualifiers ▾

Actions ▾

Save

Select a test event.. ▾

Save and test

Configuration

Triggers

Monitoring

(3)

▼ Function code

Code entry type

Edit code inline

Runtime

Python 3.6

Handler [Info](#)

index.handler

index.py

```
1 exports.handler = (event, context, callback) => {  
2     // TODO implement  
3     callback(null, 'Hello from Lambda');  
4 };
```

(2) – paste your lambda code here



Services ▾

Resource Groups ▾



lambda@techemstudio

Lambda > Functions > InspirationalWomen

ARN - arn:aws:lambda:us-east-2:694910018021:function:InspirationalWomen

InspirationalWomen

Qualifiers ▾

Actions ▾

Test ▾

Test

Configuration

Triggers

Monitoring

You do not have any triggers for this function.

+ Add trigger

Refresh triggers

▶ View function policy

Add trigger



Configure your Lambda function **InspirationalWomen** to respond to events from the selected trigger. Click on the box below to select your trigger type.



The diagram illustrates the flow of data from an external source (represented by a dashed box) through a green arrow to a Lambda function (represented by an orange 3D block).

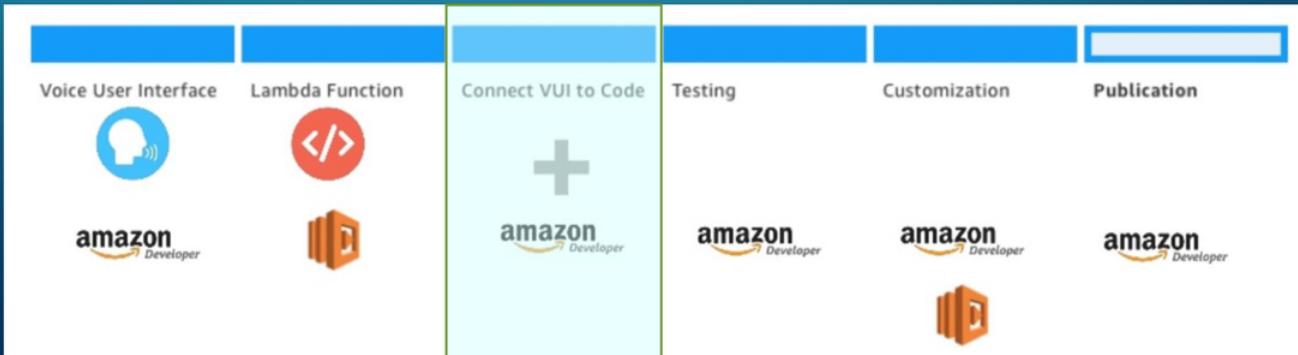
Lambda

Filter integrations

-  API Gateway
-  AWS IoT
-  Alexa Skills Kit
-  Alexa Smart Home
-  CloudFront
-  Amazon Kinesis

Cancel **Submit**

STEP 3: CONNECT YOUR VOICE USER INTERFACE TO YOUR LAMBDA FUNCTION





Copy this

Lambda > Functions > InspirationalWomen

ARN - arn:aws:lambda:us-east-1:694910018021:function:InspirationalWomen

InspirationalWomen

Qualifiers ▾

Actions ▾

Save

Select a test event.. ▾

Save and test

- ✓ Successfully added the trigger to function InspirationalWomen. The function is now receiving events from the trigger. To configure the Alexa service to work with your Lambda function, go to the [Alexa Developer](#) portal. 

Configuration

Triggers

Monitoring



Alexa Skills Kit

alexa-appkit.amazon.com

Delete

 To configure your Alexa skill, go to the [Alexa Developer Portal](#).

English (U.S.)

Add a New Language

Skill Information

Interaction Model

Builder **BETA**

Configuration

Test

Publishing Information

Privacy & Compliance

Skills Beta Testing **NEW**

Status Not yet eligible

Global Fields

These fields apply to all languages supported by the skill.

Endpoint

Service Endpoint Type:

AWS Lambda ARN (Amazon Resource Name)

Recommended

AWS Lambda is a server-less compute service that runs your code in response to events and automatically manages the underlying compute resources for you.

[More info about AWS Lambda](#)

[How to integrate AWS Lambda with Alexa](#)

HTTPS

Default

arn:aws:lambda:us-east-1:694910018021:function:InspirationalWomen

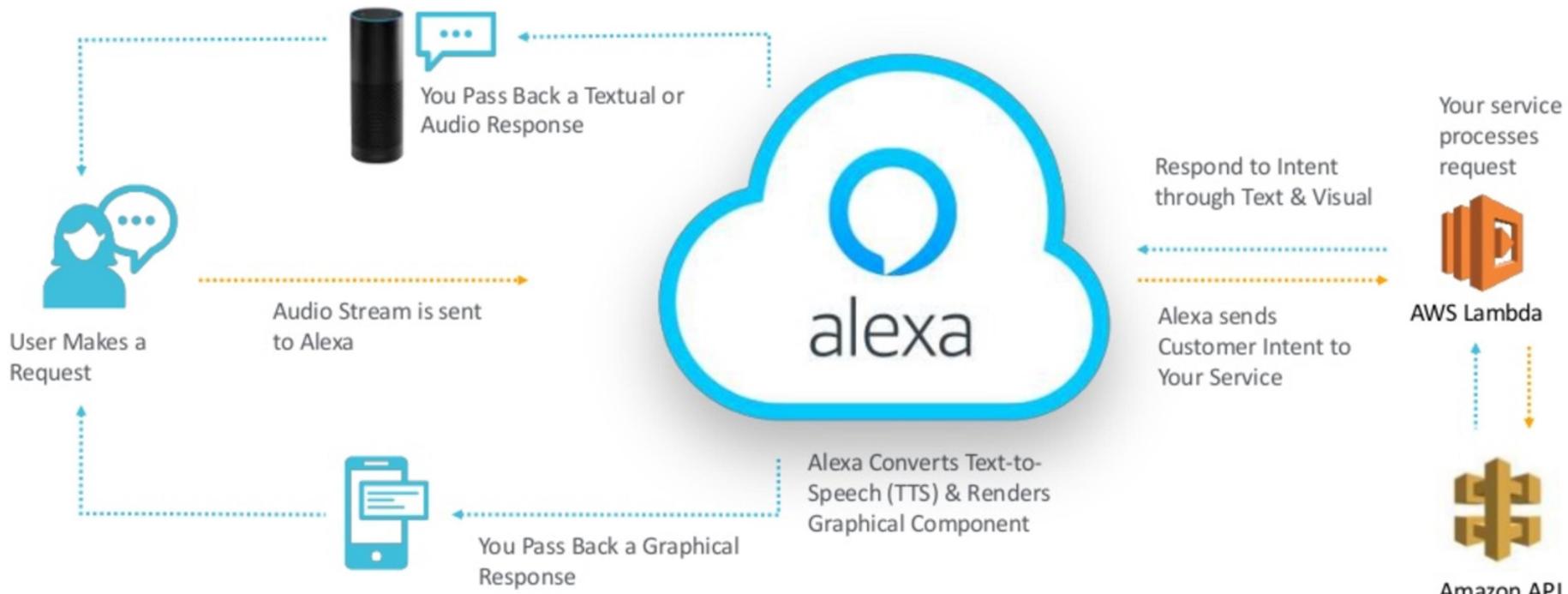
Provide geographical region endpoints?

(Optional)

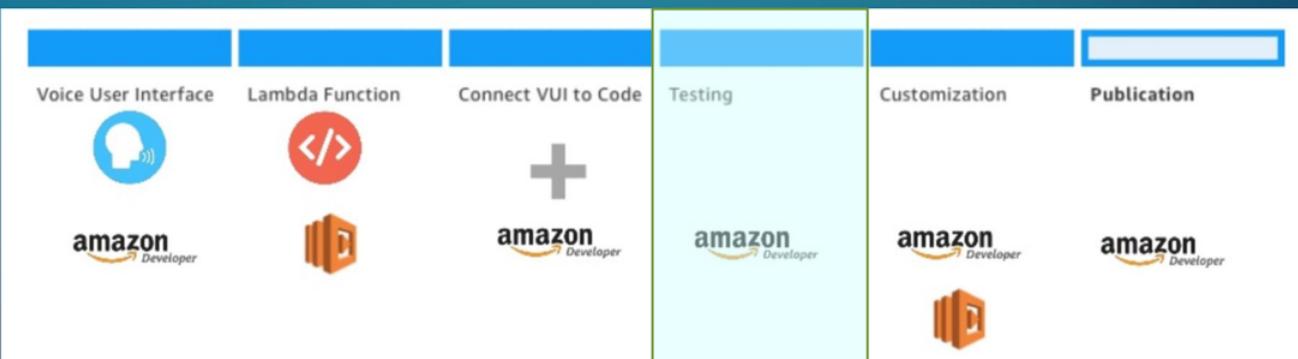
Yes No

The Life Cycle of our Skill

A look at how the Alexa Skills Kit process a request and returns an appropriate response



STEP 4: TEST THE ALEXA SKILL

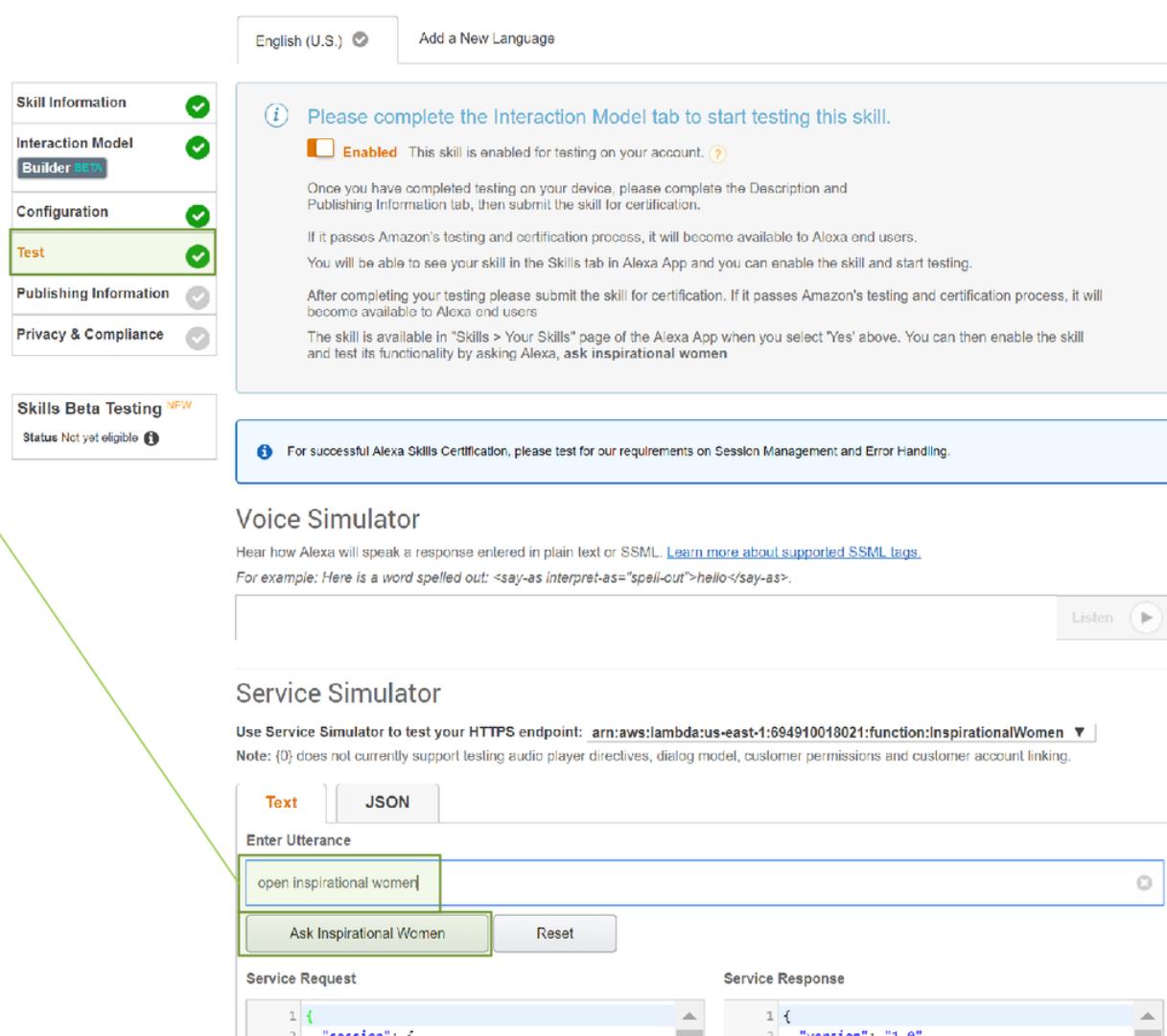




Test utterances to make sure the service response gives you what you'd expect.

Note: to test the **Launch intent**, you have to include the skill's invocation name after the word "open" or "launch" or "start".

But for all other intents, you can just type the utterance by itself to test it.



The screenshot shows the Alexa Skills Kit (ASK) developer console interface. At the top, there are tabs for "English (U.S.)" and "Add a New Language". Below this, a sidebar lists several tabs: "Skill Information" (green checkmark), "Interaction Model" (green checkmark), "Builder BETA" (highlighted in blue), "Configuration" (green checkmark), "Test" (orange highlight, green checkmark), "Publishing Information" (green checkmark), and "Privacy & Compliance" (green checkmark). The "Test" tab is currently active.

In the main content area, there is a message: "Please complete the Interaction Model tab to start testing this skill." Below this, there is a section titled "Enabled" with a checkbox that is checked, indicating the skill is enabled for testing. It also says: "Once you have completed testing on your device, please complete the Description and Publishing Information tab, then submit the skill for certification." Further down, it says: "If it passes Amazon's testing and certification process, it will become available to Alexa end users." and "You will be able to see your skill in the Skills tab in Alexa App and you can enable the skill and start testing." At the bottom of this section, it says: "After completing your testing please submit the skill for certification. If it passes Amazon's testing and certification process, it will become available to Alexa end users." and "The skill is available in "Skills > Your Skills" page of the Alexa App when you select "Yes" above. You can then enable the skill and test its functionality by asking Alexa, ask inspirational women".

Below this, there is a section titled "Skills Beta Testing NFW" with a status message: "Status Not yet eligible".

Further down, there is a "Voice Simulator" section with a text input field and a "Listen" button. A note says: "For successful Alexa Skills Certification, please test for our requirements on Session Management and Error Handling".

At the bottom, there is a "Service Simulator" section. It has tabs for "Text" and "JSON". Under "Text", there is an "Enter Utterance" field containing "open inspirational women". Below this is a "Service Request" field showing a partial JSON object: "1 { 2 session: ". To the right, there is a "Service Response" field showing a partial JSON object: "1 { 2 "version": "1.0",".

Troubleshoot Service Response Errors: Copy the service request from the Service Simulator and paste into the Lambda's "Configure test events" modal. Then click "Test". Error details will be under the Execution result's Details section.

Service Simulator

Use Service Simulator to test your HTTPS endpoint: arn:aws:lambda:us-east-1:694910018021:function:InspirationalWomen ▾

Note: (0) does not currently support testing audio player directives, dialog model, customer permissions and customer account linking.

Text **JSON**

Enter Utterance
science

Ask Inspirational Women Reset

Service Request

```
1 {  
2   "session": {  
3     "new": true,  
4     "sessionId": "SessionId.ae065503-a224-43ba-bf3d-000000000000",  
5     "application": {  
6       "applicationId": "amzn1.ask.skill.356422e7-  
7     },  
8     "attributes": {},  
9     "user": {  
10       "userId": "amzn1.ask.account.AFQFHLX566V"  
11     }  
12   },  
13   "request": {  
14     "type": "IntentRequest",  
15     "requestId": "EdwRequestId.c65bef31-6ac3-4a4c-  
16   }
```

Service Response

```
1 The remote endpoint could not be called, or the response was not received within the timeout period.
```

Listen

Lambda > Functions > InspirationalWomen ARN - arn:aws:lambda:us-east-1:694910018021:function:InspirationalWomen

InspirationalWomen Qualifiers Actions Select a test event... Test Configure test events

Execution result: failed (logs)

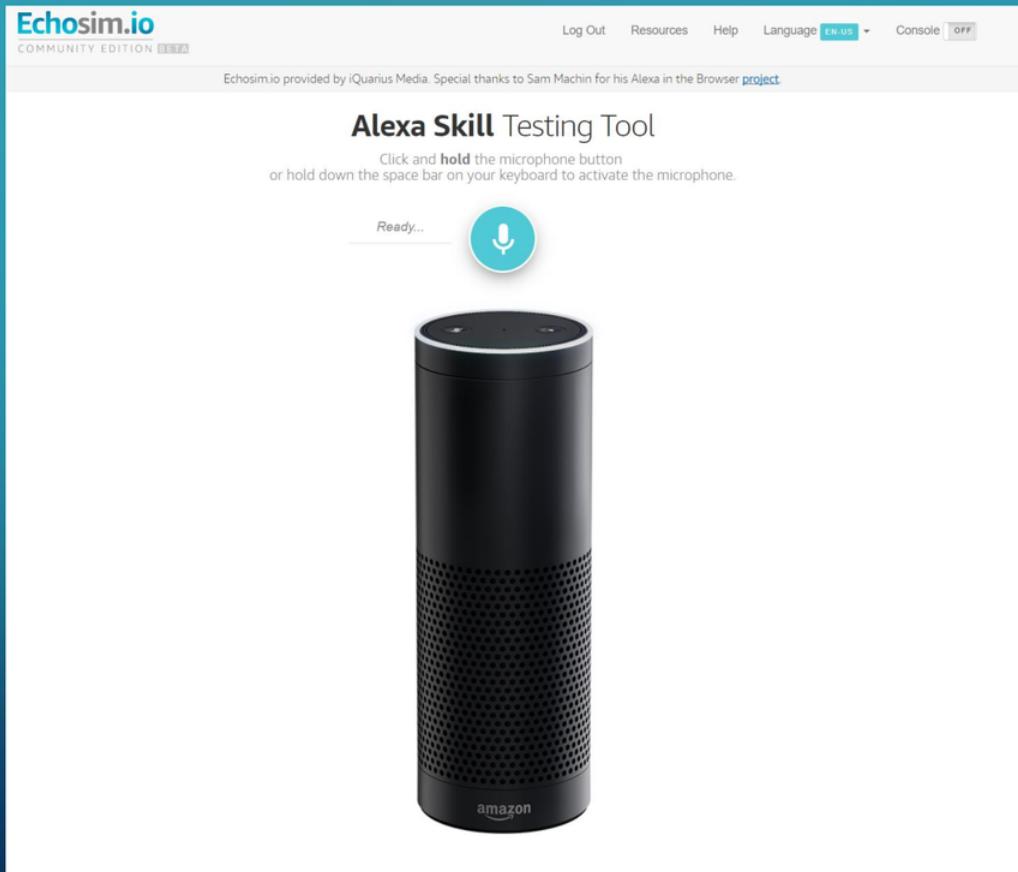
▶ Details

Configuration Triggers Monitoring

Function code

Code entry type: Edit code inline Runtime: Python 3.6 Handler: index.handler

Go to Echosim.io to perform verbal testing of your skill if you don't have an Alexa-enabled device.

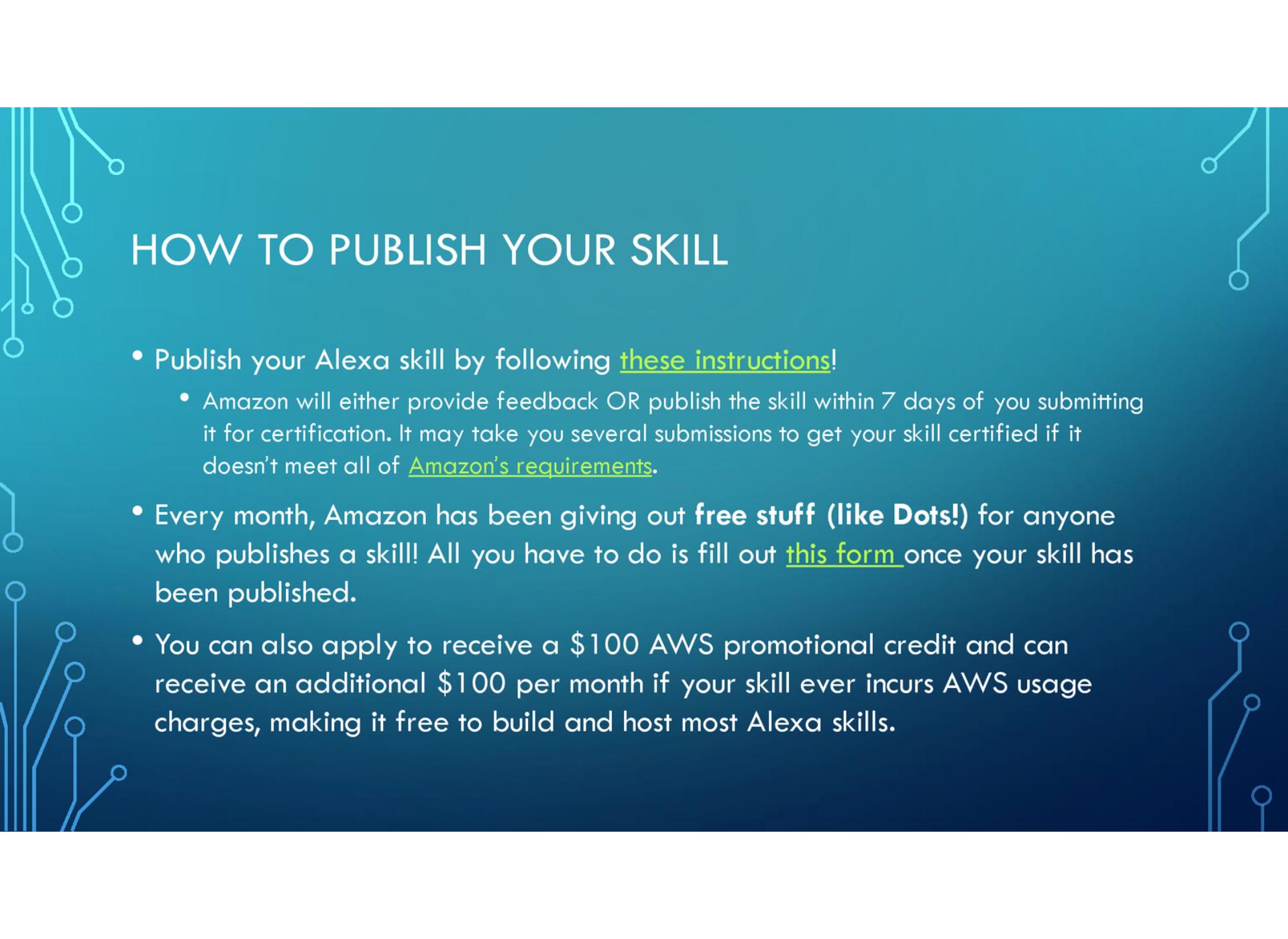


STEP 5: CUSTOMIZE THE SKILL TO BE YOURS



STEP 6: OPTIONAL - GET YOUR SKILL CERTIFIED AND PUBLISHED





HOW TO PUBLISH YOUR SKILL

- Publish your Alexa skill by following [these instructions!](#)
 - Amazon will either provide feedback OR publish the skill within 7 days of you submitting it for certification. It may take you several submissions to get your skill certified if it doesn't meet all of [Amazon's requirements](#).
- Every month, Amazon has been giving out **free stuff (like Dots!)** for anyone who publishes a skill! All you have to do is fill out [this form](#) once your skill has been published.
- You can also apply to receive a \$100 AWS promotional credit and can receive an additional \$100 per month if your skill ever incurs AWS usage charges, making it free to build and host most Alexa skills.

GO FORTH AND DEVELOP!!

- 1) Sign up for an [Amazon Developers account](#)*.
- 2) Sign up for an [AWS account](#)*. When registering, select the Personal Account option. It will ask you for credit card information but will not charge your card if you're using the account just to create basic Alexa skills.
** If you already have an Amazon account, just sign in using your existing login.*
- 3) For step-by-step tutorials on how to create skills including a facts skill, a trivia skill, and a quiz game skill, use Amazon's [Alexa Skills Kit Tutorials](#).



#ApplaudHer

iOS Lead at Circa
2.5 years iOS experience
Formerly Apple

HOW TO GET INVOLVED!

- Join Us –
 - Sign up today at www.womenwhocode.com
 - Register for meetups at www.meetup.com/Women-Who-Code-Richmond
- Participate, participate, participate
- Send us ideas and feedback
- Lead (or help lead) a community or a single event
 - training, study groups, workshop, code circle
- Host an event
 - provide space, food and Wifi



STAY CONNECTED!

womenwhocode.com/richmond

meetup.com/women-who-code-richmond

@wwcoderichmond

facebook.com/WWCodeRichmond

wwcrva-slack.herokuapp.com





The logo for Women Who Code RVA. The word "WOMEN WHO" is in large, dark grey capital letters. The word "CODE" is in large, light blue capital letters, where each letter is filled with a grid of binary code. Below "CODE" is the acronym "RVA" in a teal color. To the right of "RVA" is a small circular logo containing the letter "R".

THANK YOU!