

# CREATE YOUR FIRST ALEXA SKILL

PRESENTED BY



**CapTech**<sup>®</sup>

Others Talk, We Listen.



“DEAR WOMEN,  
WE NEED YOU”

- The Tech Industry



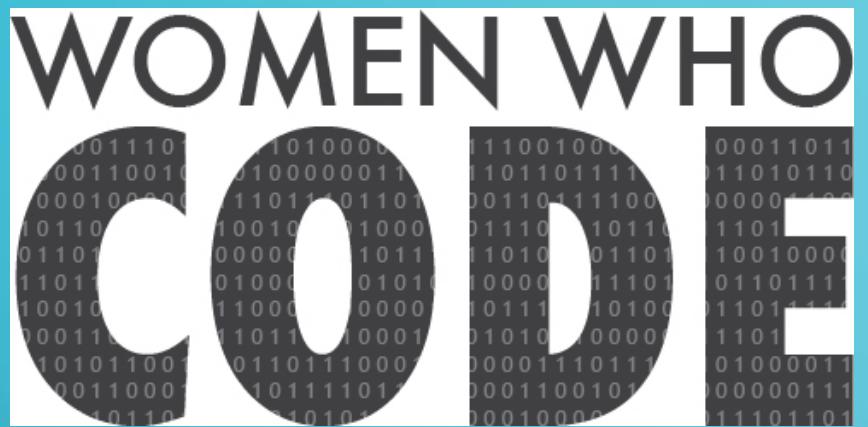
Tech jobs are growing. **Fast.**

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

## Women in the Workforce

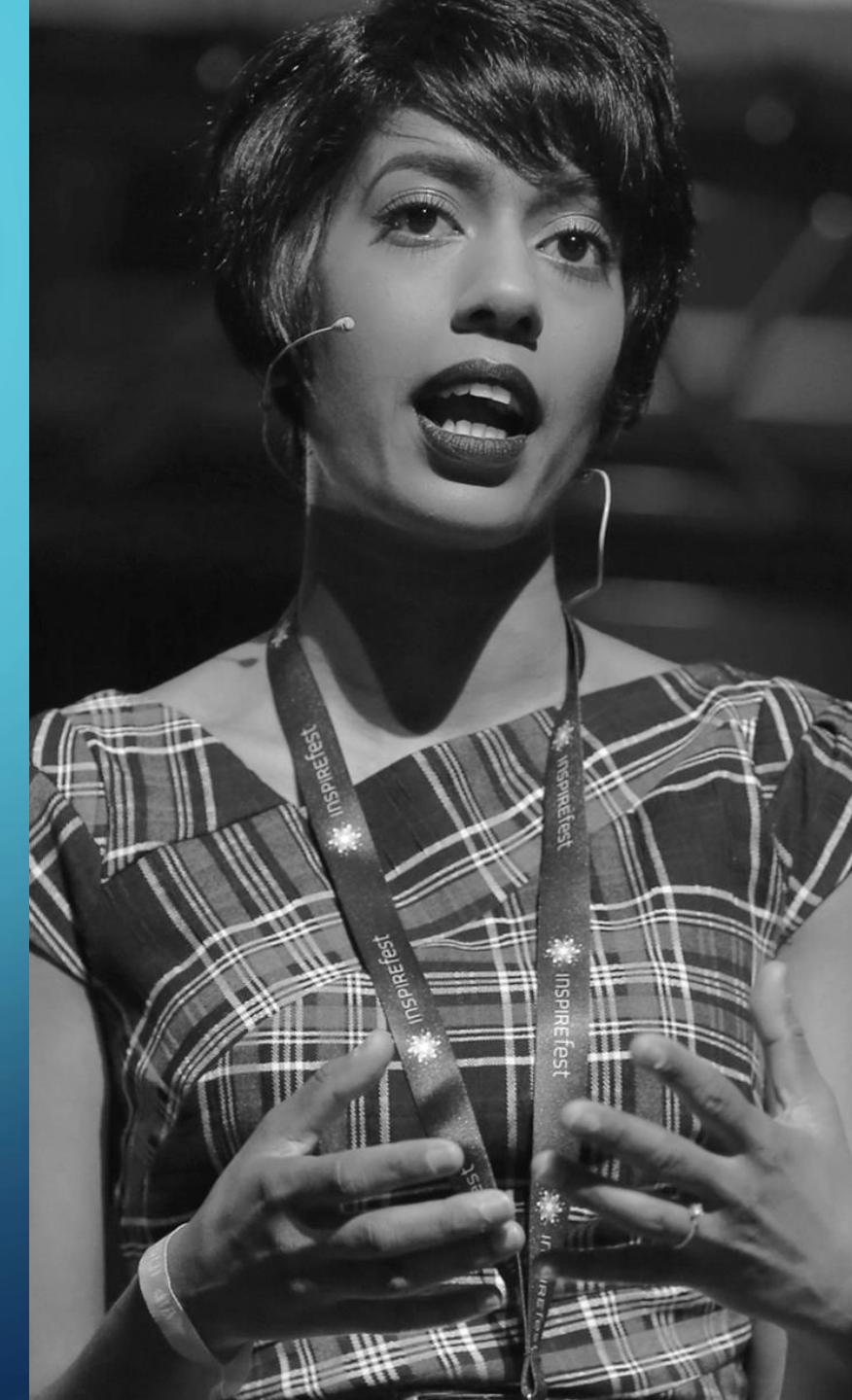
- 51% of professional occupations
- 26% of 3.8 million computing jobs
- 4.2% of investing Venture Partners
- 7% of Venture Capital recipients





## 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  
Hands On Skill Development

Hack-A-Thons  
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

# 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)





OPEN THE SAMPLE CODE IN GITHUB

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

# LOGIN TO OUR DEMO AMAZON DEVELOPERS ACCOUNT

<https://developer.amazon.com>

**Username:** alexa@techemstudios.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 >](#)

<b>Skill Information</b>	<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? [Learn more](#).

Yes  No

#### Render Template

Does this skill use the Render Template directives? [Learn more](#).

Yes  No

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

Inspirational Women  
English (US) ▾

Save Model



Build Model



Skill Information



Interaction Model

Dashboard

&lt;/&gt; 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



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" Delete

"mathematical" Delete

"mathematical category" Delete

"mathematics category" Delete

"mathematics" Delete

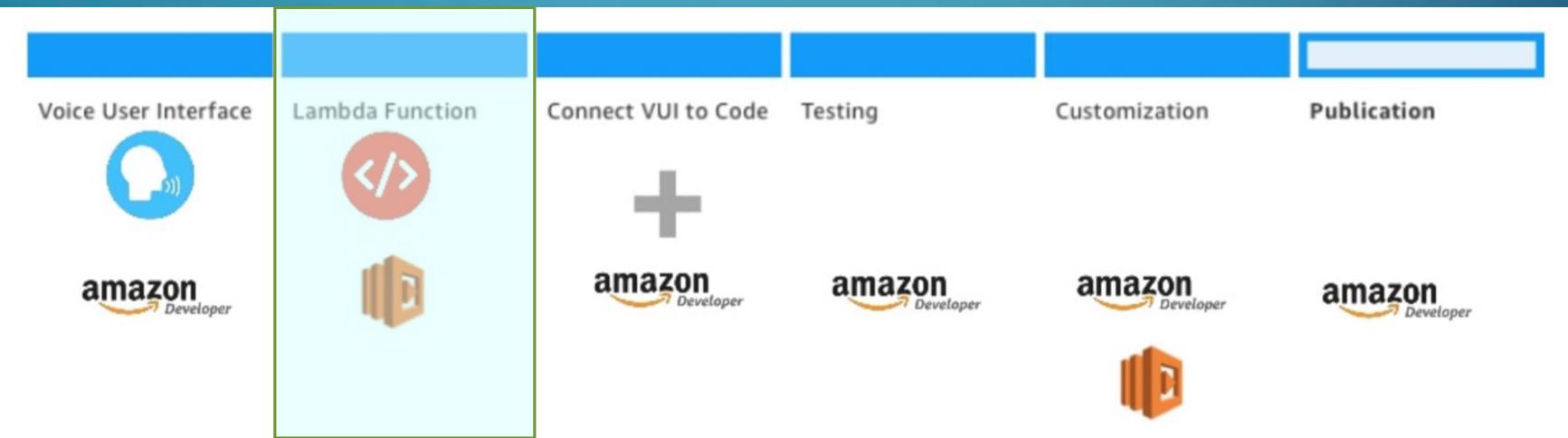
"math category" Delete

Intent Slots (0) ?

ORDER REQ SLOT

Create a new slot...

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



# COMPONENTS OF AN ALEXA SKILL



# 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@techemstudios.com

**Password:** techme17



Services ▾

Resource Groups ▾



lambda@techemstudios.com @... ▾

Lambda

# 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 a portion of the AWS Lambda console interface. At the top, there is a dark header bar with a bell icon, the text "N. Virginia ▾", and a "Support" dropdown. Below this, a vertical list of AWS regions is displayed, with "US East (N. Virginia)" highlighted in orange. The other regions listed are: US East (Ohio), US West (N. California), US West (Oregon), Canada (Central), EU (Ireland), EU (Frankfurt), EU (London), Asia Pacific (Singapore), Asia Pacific (Sydney), Asia Pacific (Seoul), Asia Pacific (Tokyo), Asia Pacific (Mumbai), and South America (São Paulo).

Region
US East (N. Virginia)
US East (Ohio)
US West (N. California)
US West (Oregon)
Canada (Central)
EU (Ireland)
EU (Frankfurt)
EU (London)
Asia Pacific (Singapore)
Asia Pacific (Sydney)
Asia Pacific (Seoul)
Asia Pacific (Tokyo)
Asia Pacific (Mumbai)
South America (São Paulo)



Services ▾

Resource Groups ▾



lambda@techemstudios.com @...

Lambda > Functions > Create function

Welcome to AWS Lambda! You can get started on creating your first Lambda function by choosing one of the blueprints below. X

## Blueprints Info

Export

Author from scratch

Filter by tags and attributes or search by keyword



< 1 2 3 4 5 6 7 ... 11 >



Services ▾

Resource Groups ▾



lambda@techemstudios.com @... ▾

Lambda &gt; Functions &gt; Create function &gt; Author from scratch

## Basic information Info

Name\*

InspirationalWomen

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.

Choose an existing role

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.

lambda\_basic\_execution

\* These fields are required.

Cancel

Previous

Create function

# 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 &gt; Functions &gt; 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 a workflow where a dashed box represents an event source points to a central orange cube icon labeled "Lambda".

**Lambda**

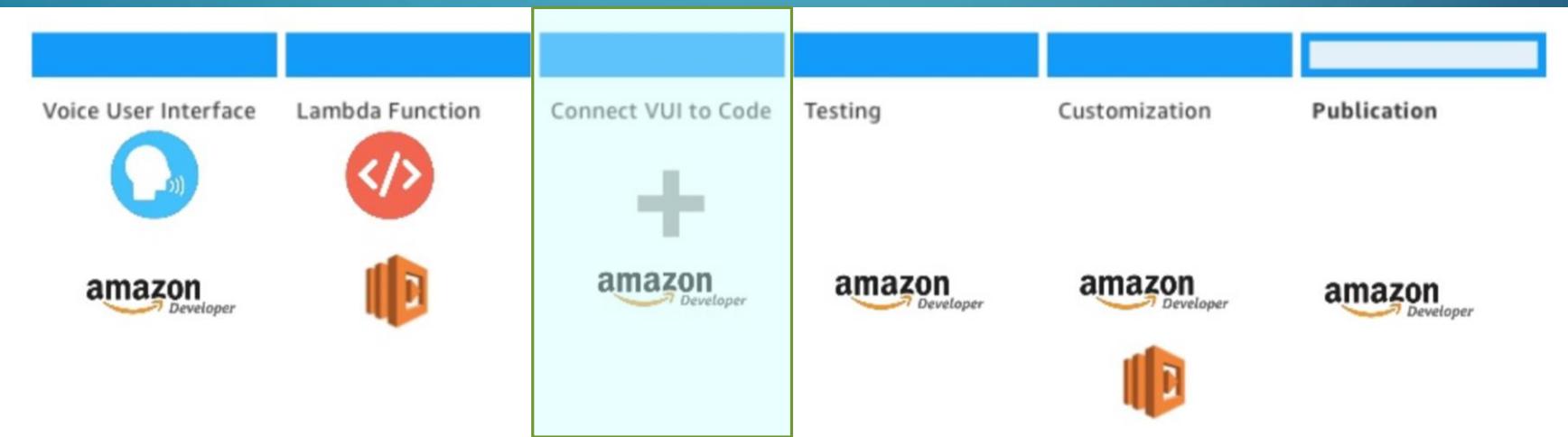
*Filter integrations*

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

**Cancel** **Submit**

A dropdown menu titled "Filter integrations" is displayed, listing various AWS services as potential triggers for the Lambda function. The "Alexa Skills Kit" option is currently selected, highlighted by a green border. The "Submit" button is located in the bottom right corner of the modal.

## 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

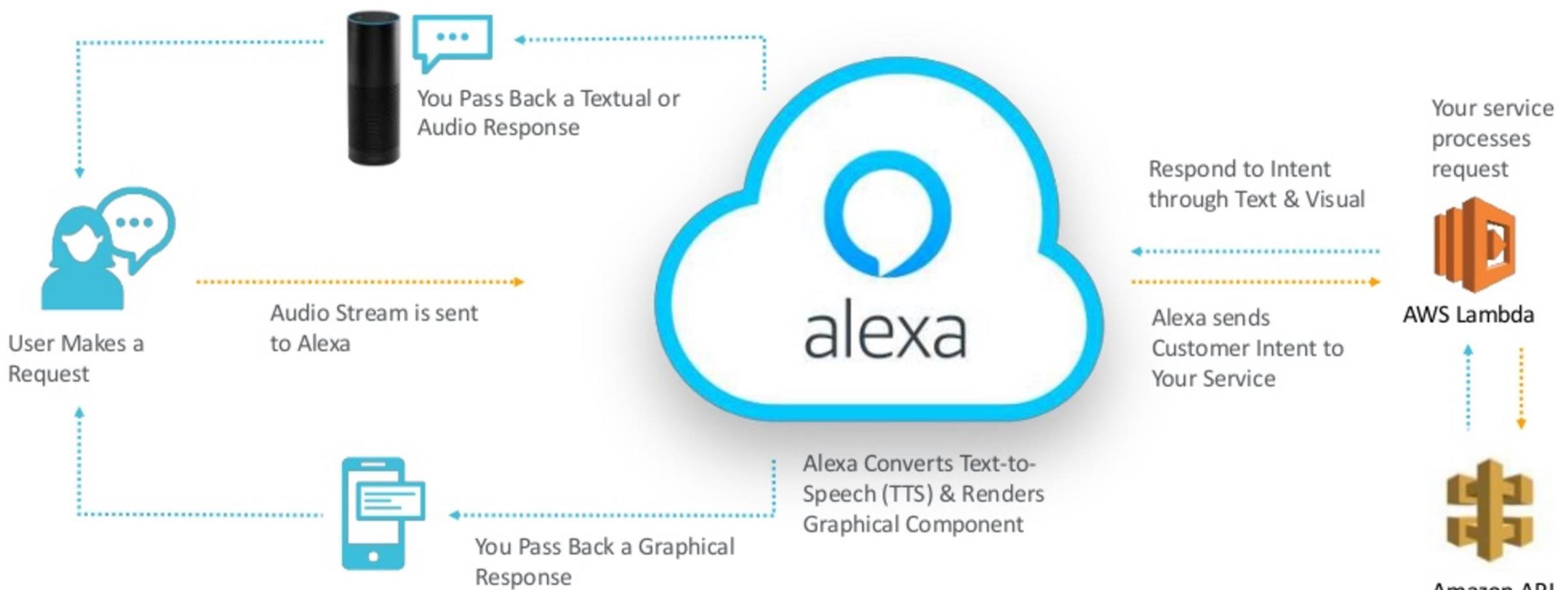
### Provide geographical region endpoints?

(Optional)

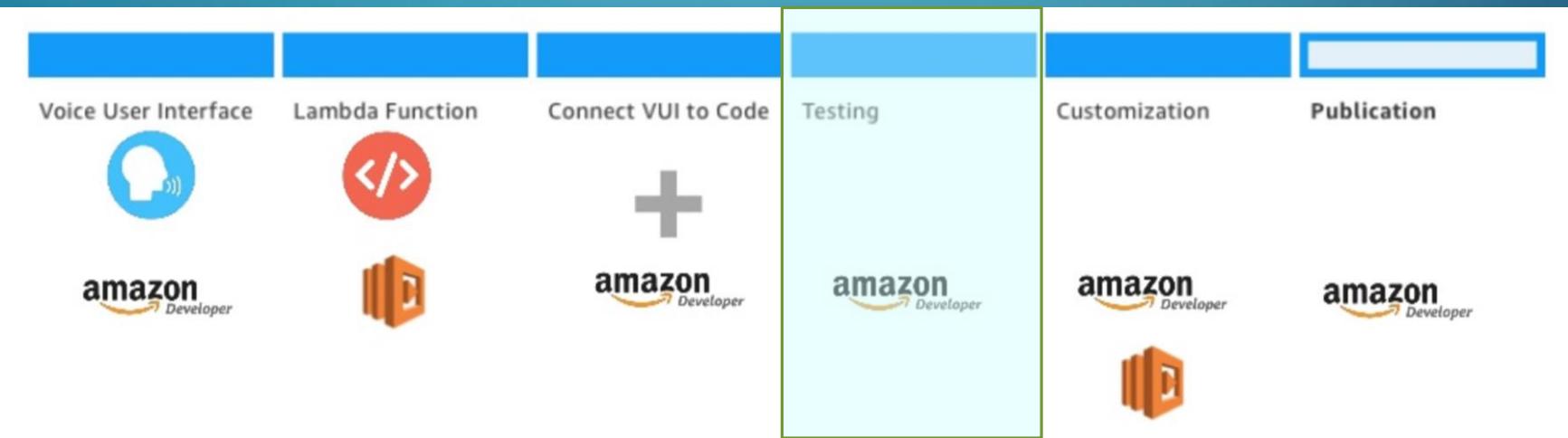
Yes  No

# 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.**

Skill Information ✓  
Interaction Model ✓  
**Builder BETA**  
Configuration ✓  
**Test** ✓  
Publishing Information ✓  
Privacy & Compliance ✓  
  
Skills Beta Testing NEW  
Status Not yet eligible ⓘ

English (U.S.) Add a New Language

*(i)* Please complete the Interaction Model tab to start testing this skill.  
 **Enabled** This skill is enabled for testing on your account. ⓘ  
Once you have completed testing on your device, please complete the Description and Publishing Information tab, then submit the skill for certification.  
If it passes Amazon's testing and certification process, it will become available to Alexa end users.  
You will be able to see your skill in the Skills tab in Alexa App and you can enable the skill and start testing.  
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  
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**

*(i)* For successful Alexa Skills Certification, please test for our requirements on [Session Management](#) and [Error Handling](#).

## Voice Simulator

Hear how Alexa will speak a response entered in plain text or SSML. [Learn more about supported SSML tags](#).

For example: Here is a word spelled out: <say-as interpret-as="spell-out">hello</say-as>.

Listen ▶

## 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  
open inspirational women

Ask Inspirational Women Reset

Service Request

1 {	2 "session": {
-----	----------------

Service Response

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

```
{  
  "session": {  
    "new": true,  
    "sessionId": "SessionId.ae065503-a224-43ba-a",  
    "application": {  
      "applicationId": "amzn1.ask.skill.356422e7",  
    },  
    "attributes": {},  
    "user": {  
      "userId": "amzn1.ask.account.AFQFHLCX566V",  
    }  
  },  
  "request": {  
    "type": "IntentRequest",  
    "requestId": "EdwRequestId.c65bef31-6ac3-4a4",  
  },  
}
```

Service Response

```
x 1 The remote endpoint could not be called, or the r
```

Listen

aws Services Resource Groups λ lambda@techemstudio

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

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

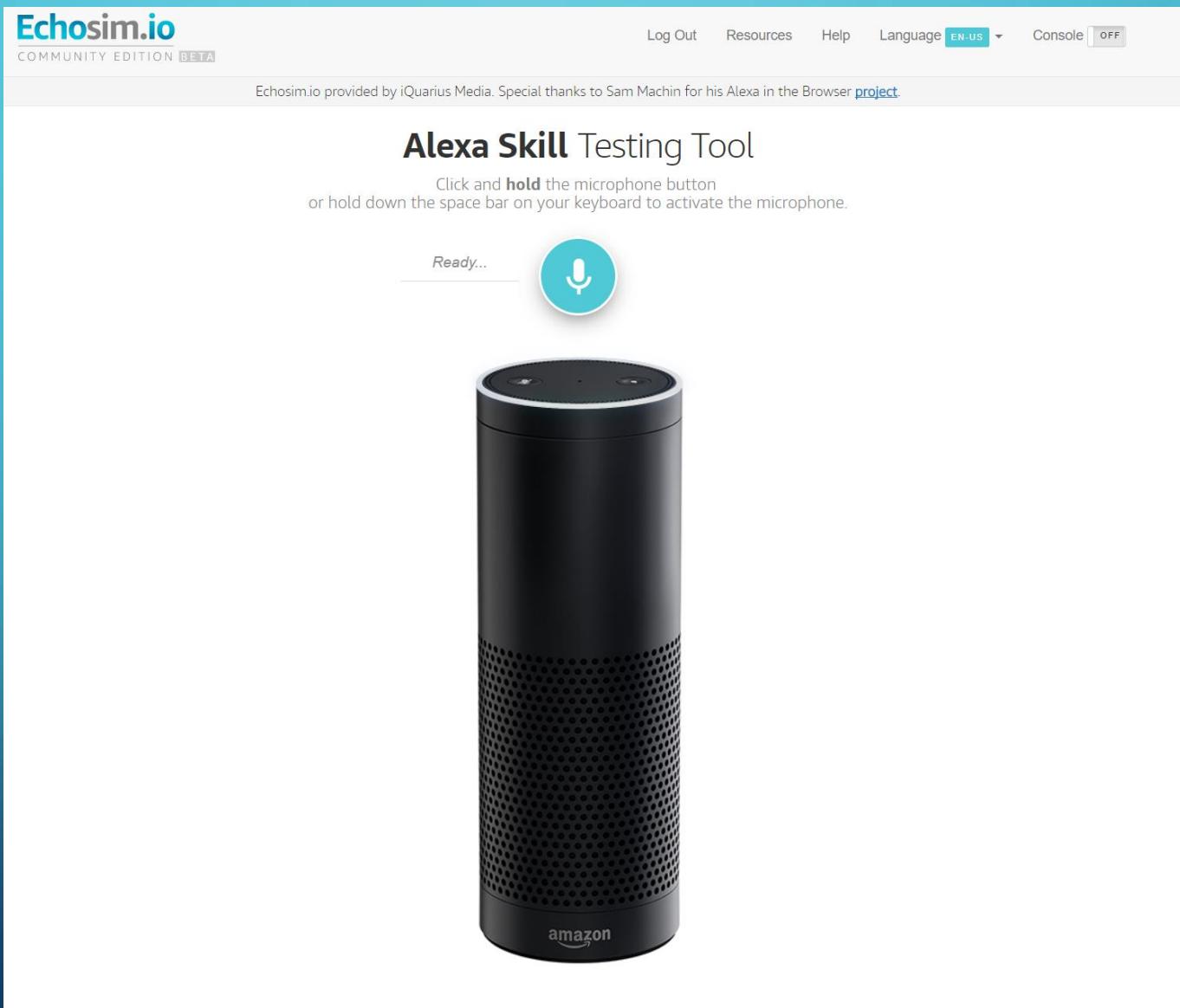
Execution result: failed (logs)  
Details

Configuration Triggers Monitoring

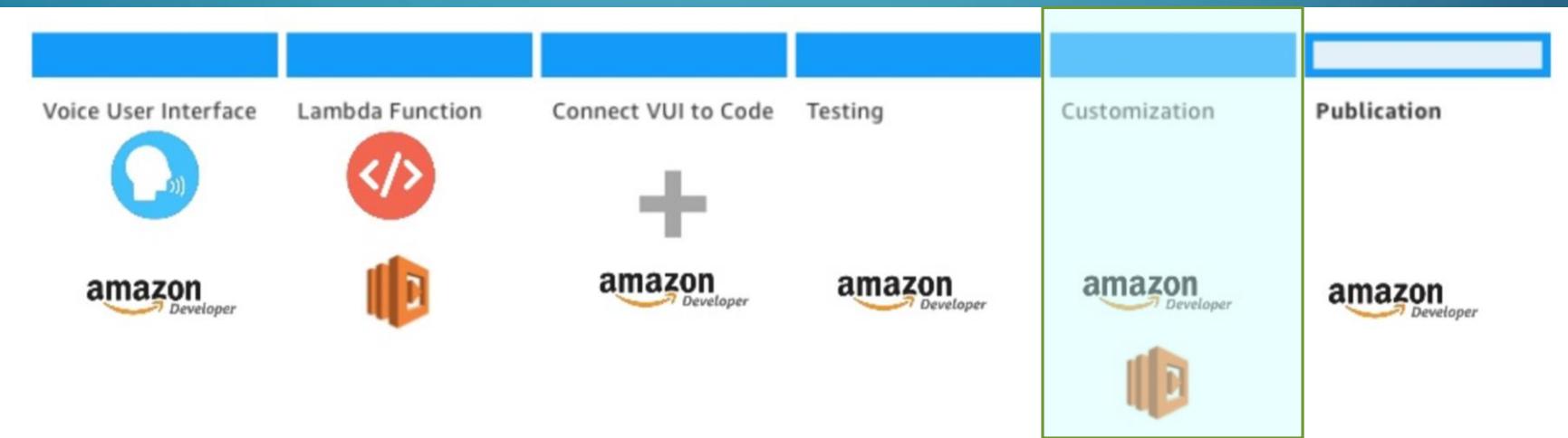
▼ Function code

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

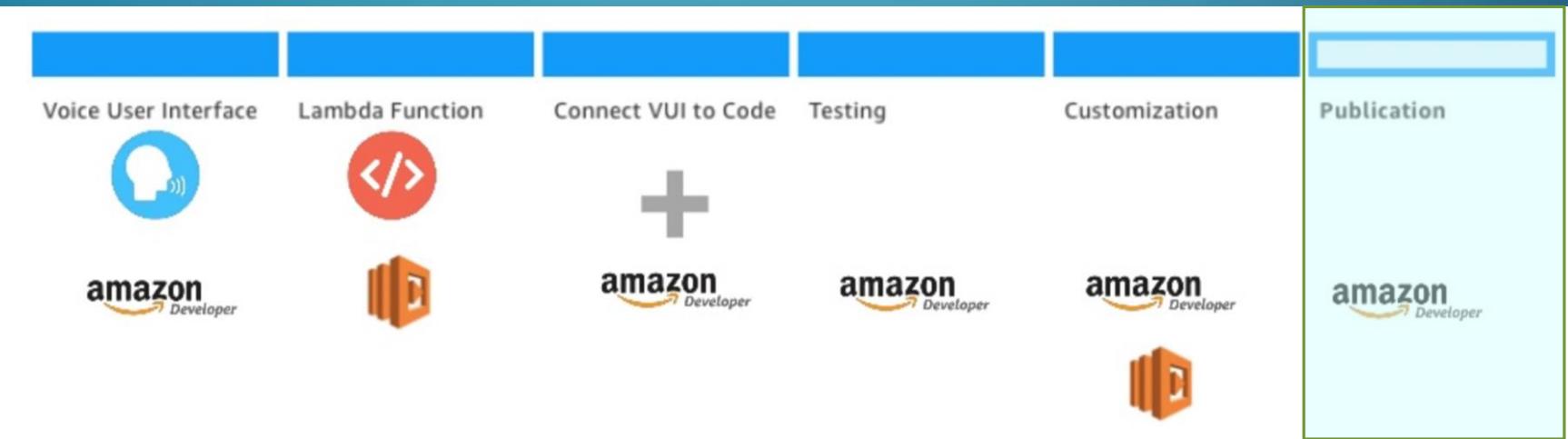
Go to Echosim.io to perform verbal testing of your skill if you don't have an Alexa-enabled device.



## 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](http://www.womenwhocode.com)
  - Register for meetups at [www.meetup.com/Women-Who-Code-Richmond](http://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](http://womenwhocode.com/richmond)

[meetup.com/women-who-code-richmond](http://meetup.com/women-who-code-richmond)

@wwcoderichmond

[facebook.com/WWCodeRichmond](http://facebook.com/WWCodeRichmond)

[wwcrva-slack.herokuapp.com](http://wwcrva-slack.herokuapp.com)



# WOMEN WHO CODE

RVA

# THANK YOU!