



Building Alexa Skills with Python and Flask

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Why? What's the Benefit for it?

1. Alexa Echo was 1 of the top selling item in Christmas at US
2. 300% growth in the amount of Alexa Skills in US in 2017
3. 33 Million voice enabled devices in circulation to this date

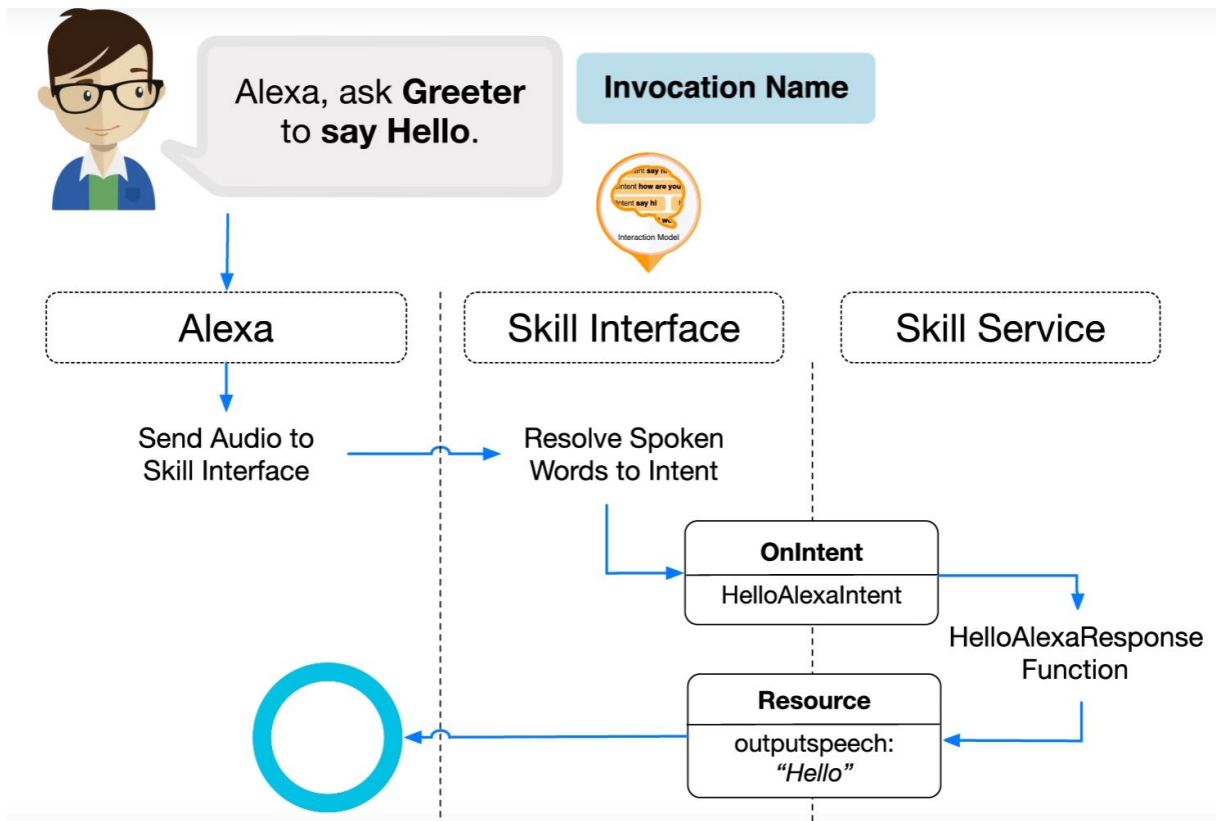
What Is Alexa Skills?

1. It's basically another voice based application for your Amazon Echo enabled devices
2. You just interact with it by just calling it's Alexa Skills name
3. It's quite easy to build using Flask-Ask within just 5 minutes.

Alexa Interaction Model



Typical Interaction Model with Alexa



Alexa Skills Demo

Create virtual environment

```
virtualenv -p python3 alexa
```

Change to Virtual Environment

```
source alexa/bin/activate
```


Installing Python Packages

```
pip install Flask==0.12.1
```

```
pip install flask-ask==0.9.8
```

```
pip install requests
```

```
pip install cryptography<2.2
```

Installing Ngrok

Sign Up a Account at Ngrok

<https://ngrok.com>

Follow the installation Instructions

<https://ngrok.com/download>

Default Flask Template - Import Libraries

Import json

Import request

from flask import Flask

from flask_ask import **Ask, statement, question**

from weather_forecast import get_24h_forecast

Difference Between Question & Statement

Question

1. Is persistent which is similar to session in a website
2. requires the user to provide voice input in other for the Alexa Skill to continue their function.
3. It can be programmed to ask again by a feature called “Reprompt ” in another way when a user does not reply Alexa

Statement

1. Statement is a declaration that closes a echo session
2. Statement does not store information when it used which requires data to be store in database
3. With statement, user can start another session with echo again.

Default Flask Template - Setup Flask App

```
app = Flask(__name__)
```

```
ask = Ask(app, '/weather_reader')
```

```
@app.route('/')  
def homepage():  
    return 'Hi there, how your doing?'
```

```
@ask.launch
```

```
def start_skill():  
    welcome_message = 'That\'s awesome!!!! Would you like to know today\'s weather?'
```

```
    return question(welcome_message)
```

```
if __name__ == '__main__':  
    welcome_message = 'Hello there, would you like the latest weather forecast?'
```

```
    app.run(debug=True)
```

Flask-Alexa Logic - Yes & No Intents

```
@ask.intent("YesIntent")
```

```
def share_weather():
```

```
    weather = get_weather()
```

```
    weather_msg = "Currently, At PyCon APAC 2018 the forecast for today is
```

```
{}".format(weather)
```

```
    return statement(weather_msg)
```

```
@ask.intent("NoIntent")
```

```
def no_intent():
```

```
    bye_text = 'Oh... that\'s too bad ... okay good bye then'
```

```
    return statement(bye_text)
```

Weather_forecast.py - Consume API

```
import requests
```

```
def get_24h_forecast():
```

```
    r =
```

```
    requests.get('https://api.data.gov.sg/v1/environment/24-hour-weather-forecast')
```

```
    data = r.json()
```

```
    general = data['items'][0]['general']
```

```
    return general
```

Flask-Ask Alexa Logic - Brief Weather Forecast

```
def get_weather():
```

```
    forecast = get_24h_forecast()
```

```
    forecast_msg = '{} with the lowest temperature at {} degrees celsius to highest {} degrees  
    celsius. Humidity from lowest {} percent to highest {} percent.'.format(  
    forecast['forecast'], forecast['temperature']['low'], forecast['temperature']['high'],  
    forecast['relative_humidity']['low'], forecast['relative_humidity']['high'])
```

```
    return forecast_msg
```


Deployment - Preparation

Run the following on your terminal

```
python try_alex.py
```

```
./ngrok http 5000
```

Amazon Skills Development Console

Go to this link below

<https://developer.amazon.com/alexa/console/ask#>

amazon alexa

Your Alexa Consoles

M

?

Q

Feedback forum

*** Make Money with Your Alexa Skills ***

On May 3, we announced general availability of in-skill purchasing (ISP) and Amazon Pay for Alexa Skills. With ISP, you can sell premium digital content that enriches your skill experience. With Amazon Pay, you can sell physical goods or services through your skill. You can also continue to make money for eligible skills that drive some of the highest customer engagement through Alexa Developer Rewards. [Learn more.](#)

Welcome to the new Alexa Skills Kit Developer Console

Curious about what's new? [Watch the video overview](#) or [read about what's changed.](#)



weather_reader2 has successfully been deleted.

Skills

Earnings

Payments

Alexa Skills

SKILL NAME

LANGUAGE

TYPE

MODIFIED

STATUS

ACTIONS

Create Skill

Create Skill

Name of Alexa Skill

Create a new skill

Next

SkillName

Skill created will default to

English (US)



Selecting Interaction Model

←
BACK

Choose a model to add to your skill

Create 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.



Custom

Design a unique experience for your users. A custom model enables you to create all of your skill's interactions.

Unselect

PRE-BUILT MODEL



Flash Briefing

Give users control of their news feed. This pre-built model lets users control what updates they listen to.

View example phrases

Select

PRE-BUILT MODEL



Smart Home

Gives users control of their smart home devices. This pre-built model lets users turn off the lights and other devices without getting up.

View example phrases

Select

PRE-BUILT MODEL



Video

Lets users easily find and consume video content. This pre-built model supports content searches and content suggestions.

View example phrases

Select

Invocation - Starting Alexa Skill

English (U.S.)

CUSTOM

Interaction Model

Invocation

Intents (4)

+

Add

Built-In Intents (4)

AMAZON.FallbackIntent

AMAZON.CancelIntent

AMAZON.HelpIntent

AMAZON.StopIntent

Slot Types (0)

+

Add

JSON Editor

Interfaces

Save Model

Build Model

Invocation

Users say a skill's invocation name to begin an interaction with a particular custom skill.


For example, if the invocation name is "daily horoscopes", users can say:

User: Alexa, ask daily horoscopes for the horoscope for Gemini

Skill Invocation Name ?

e.g. tide pooler

Invocation name must be between 2 and 50 characters.

 Invocation name requirements

Your invocation name should be two or more words, and can contain only lower-case alphabetic characters, spaces between words, possessive apostrophes (for example, "sam's science trivia"), or periods used in abbreviations (for example, "a. b. c."). Other characters like numbers must be spelled out. For example, "twenty one".

Adding Custom Intent - Add Your Yes & No

English (U.S.)

CUSTOM

Interaction Model

Invocation

Intents (4)

+ Add

Built-In Intents (4)

Slot Types (0)

+ Add

JSON Editor

Interfaces

Endpoint

Intent History

ACCOUNT LINKING

PERMISSIONS

Save Model

Build Model

Add Intent

An intent represents an action that fulfills a user's spoken request. [Learn more](#) about intents.



☒ Create custom intent ?

Create custom intent

☐ Use an existing intent from Alexa's built-in library ?

Search built-ins

145/145 built-ins

Name	Description
>  Books 16 built-ins	Intents asking about books and other written works, such as rating books, adding books to reading lists, or navigating through audio books.
>  Calendar 2 built-ins	Intents for asking about calendars and schedules, such as asking about upcoming events, adding events to a calendar, and looking up events such as birthdays.

Adding Custom Intent - Utterance

English (U.S.)

CUSTOM

Interaction Model

Invocation

Intents (5)

+ Add

YesIntent

🗑

Built-In Intents (4)

AMAZON.FallbackIntent

AMAZON.CancelIntent

AMAZON.HelpIntent

AMAZON.StopIntent

Slot Types (0)

+ Add

JSON Editor

Interfaces

Feedback

Save Model

Build Model

Intents / YesIntent

Sample Utterances (0) ?

What might a user say to invoke this intent?

+

This intent has no sample utterances

A sample utterance is a phrase a user might speak to invoke the intent.

< 0 - 0 of 0 >

Show All

Intent Slots (0) ?

ORDER ?	NAME ?	SLOT TYPE ?	ACTIONS
---------	--------	-------------	---------

Endpoints - Adding Ngrok HTTPS Address

Endpoint



The Endpoint will receive POST requests when a user interacts with your Alexa Skill. The request body contains parameters that your service can use to perform logic and generate a JSON-formatted response. [Learn more about Lambda endpoints here.](#) You can host your own HTTPS web service endpoint as long as the service meets the requirements described [here](#).

Service Endpoint Type

Select how you will host your skill's service endpoint.

☐ AWS Lambda ARN [?]
(Recommended)

☒ HTTPS [?]

Default Region [?]
(Required)

Enter URI...

My development endpoint is a sub-domain of a domain that has a wildcard certific... [?]

North America [?]
(Optional)

Enter URI...

Select SSL certificate type [?]



Interaction Model

Invocation

Intents (5)



Add

YesIntent



▼ Built-In Intents (4)

AMAZON.FallbackIntent

AMAZON.CancelIntent

AMAZON.HelpIntent

AMAZON.StopIntent

Slot Types (0)



Add

JSON Editor



Interfaces



Endpoint



Intent History

Testing Alexa Skill

< Your Skills Weather Reader Build Test Launch Measure Feedback forum

☒ Test is enabled for this skill ☒ Skill I/O ☒ Echo Show Display ☒ Echo Spot Display ☐ Device Log

Alexa Simulator Manual JSON Voice & T

English (...) Type or click and hold to speak Alexa Simulator

I have a few skills to help start your day. Some skills require you to link an account.

alexia stop weather we

alexia start weather

Currently, in East Queen Anne it's 55 degrees Fahrenheit with cloudy skies. Today, you can expect lots of clouds, with a high of 65 degrees and a low of 48 degrees.

No Content

JSON Input

JSON Output

Skill I/O is only available when you invoke a skill that you created.