



Alexa Skills Development

# Color Harmonies

Max Marchuk

# Primary Project Goal



- Familiarize myself with the Alexa development environment
  - AWS Lambda Management Console
  - Alexa Skills Kit and publishing process

# Product Goals



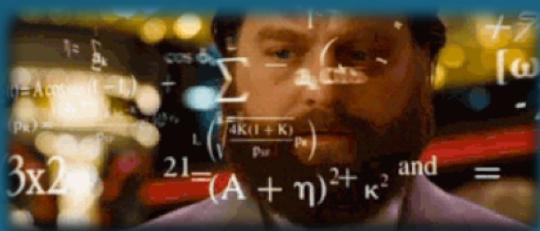
- Create an easy-to-use, voice interactive utility for finding **color harmonies**



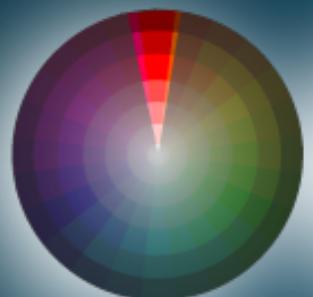
Alexa, what's the  
complement of green?



The complement of green  
is purple



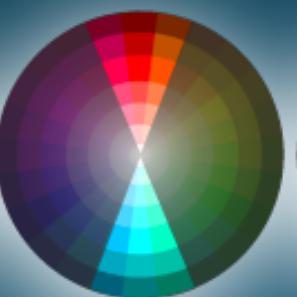
# What is a color harmony?



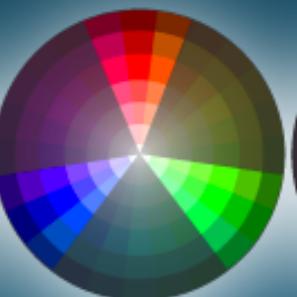
Monochromatic



Analogous



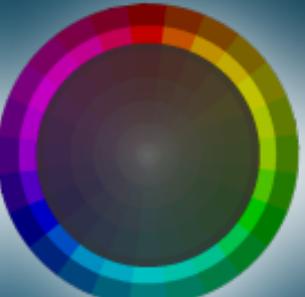
Compliments



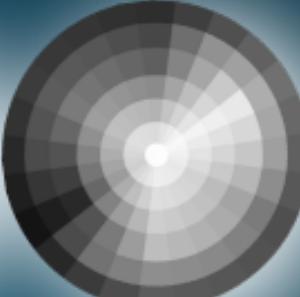
Triadic



Tints



Shades



Achromatic

# Which tools did I use for development?



## AWS Lambda Console

colorHarmonySkill

Qualifiers ▾ Actions ▾ Test

Code Configuration Triggers Tags Monitoring

Code entry type

Edit code inline ▾

```
1 'use strict';
2
3 // ----- Helpers that build all of the responses -----
4
5 function buildColorSetResponse(speechOutput, hexColor) {
6     const cardTitle = 'Color Harmonies - Set Color';
7
8
9     return {
10         outputSpeech: {
11             type: "PlainText",
```

# Which tools did I use for development?



## Alexa Skills Kit

The screenshot shows the Alexa Skills Kit interface for developing a skill named "Color Harmonies".

**Intent Configuration:** The "setColorIntent" intent is selected. It includes sample utterances like "set color to {first} {second} {third} {fourth} {fifth} {sixth}" and "set color to {first} {second} {third}". A confirmation prompt "What will Alexa say to ask the user to confirm the intent?" is also present.

**Intent Slots:** The "Intent Slots" section lists six slots: "first", "second", "third", "fourth", and "fifth", all of which are of type "HEXADECIMAL\_VALUES".

**Navigation:** The top navigation bar includes links for "Save Model", "Build Model", "Skill Information", "Interaction Model", "Configuration", "Test", "Publishing", and "Privacy & Compliance". The left sidebar lists other intents: "AMAZON.CancelIntent", "AMAZON.HelpIntent", "AMAZON.StopIntent", "getColorsIntent", and "setColorIntent".

# Alexa Skills - Intents



## Alexa Skills Kit

Color Harmonies  
English (US) ▾

Save Model Build Model

Skill Information Interaction Model Configuration Test Publishing Privacy & Compliance

Dashboard

</> Code Editor

Intents (5) ADD +

AMAZON.CancelIntent (required)

AMAZON.HelpIntent (required)

AMAZON.StopIntent (required)

getColorsIntent

harmonyType

setColorIntent

first

second

third

setColorIntent

What might a user say to invoke this intent?

+

"set color to {first} {second} {third} {fourth} {fifth} {sixth}"

"set color to {first} {second} {third}"

Intent confirmation (optional) ?

Does this intent require confirmation?  NO

Prompts (0)

What will Alexa say to ask the user to confirm the intent?

Intent Slots (6) ?

ORDER	REQ	SLOT
-	first	HEXADECIMAL_VALUES
-	second	HEXADECIMAL_VALUES
-	third	HEXADECIMAL_VALUES
-	fourth	HEXADECIMAL_VALUES
-	fifth	HEXADECIMAL_VALUES

# Alexa Skills - Intents



## Alexa Skills Kit

Color Harmonies  
English (US) ▾

Save Model Build Model

Skill Information Interaction Model Configuration Test Publishing Privacy & Compliance

Dashboard

</> Code Editor

Intents (5) ADD +

AMAZON.CancelIntent (required)

AMAZON.HelpIntent (required)

AMAZON.StopIntent (required)

getColorsIntent

harmonyType

setColorIntent

first

second

third

setColorIntent

Sample Utterances (2) ?

What might a user say to invoke this intent? +

"set color to {first} {second} {third} {fourth} {fifth} {sixth}"

"set color to {first} {second} {third}"

Intent confirmation (optional) ?

Does this intent require confirmation?  NO

Prompts (0)

What will Alexa say to ask the user to confirm the intent?

Intent Slots (6) ?

ORDER	REQ	SLOT
-	first	HEXADECIMAL_VALUES
-	second	HEXADECIMAL_VALUES
-	third	HEXADECIMAL_VALUES
-	fourth	HEXADECIMAL_VALUES
-	fifth	HEXADECIMAL_VALUES

# Alexa Skills - Intents



## Alexa Skills Kit

ALEXA SKILLS KIT | SKILL BUILDER BETA    SIGN OUT

Color Harmonies    English (US) ▾

Save Model    Build Model    Skill Information    Interaction Model    Configuration    Test    Publishing    Privacy & Compliance

Dashboard    Code Editor    Intents (5) ADD +

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

getColorsIntent

harmonyType

setColorIntent

Slot Types (2) ADD +

getColorsIntent

Sample Utterances (2) ?

What might a user say to invoke this intent?

"What is the {harmonyType} color"

"What are the {harmonyType} colors"

Intent confirmation (optional) ?

Does this intent require confirmation?  NO

Prompts (0)

What will Alexa say to ask the user to confirm the intent?

Intent Slots (1) ?

ORDER	REQ	SLOT
-	<input type="checkbox"/>	harmonyType COLOR_HARMONIES ▾

Create a new slot...

The screenshot shows the Alexa Skills Kit Skill Builder Beta interface. The main focus is on the 'getColorsIntent' configuration. A red box highlights the 'Sample Utterances' section, which contains three examples: 'What might a user say to invoke this intent?', 'What is the {harmonyType} color', and 'What are the {harmonyType} colors'. To the right, the 'Intent Slots' section is shown, listing a single slot named 'harmonyType' under the slot type 'COLOR\_HARMONIES'. The 'Slot Types' section at the bottom indicates there are two defined slot types.

# Completed Features



- Create the user interaction for setting a color
- Create the user interaction for getting harmonies a color
- Perform the calculations for finding a complementary color and return the right color to a user
- Render a “card” to the user’s Alexa mobile app after the user requests a color harmony, with the results.

# Completed Features



- Submit the skill and get it approved

A screenshot of the Alexa Skills page on the Amazon website. The search bar at the top contains the text "color harmonies". The main search result is for the "Color Harmonies" skill by Max Marchuk. The skill icon is a colorful flower-like graphic. Below the skill name are two sample phrases: "Alexa, open Color Harmonies" and "Set color to F, F, 0". A message at the bottom of the results page says "Results for 'color harmonies' in All Departments (See all 18,323 results)".

amazon prime

Alexa Skills ▾ color harmonies

Savings

Departments ▾ Browsing History ▾ Max's Amazon.com Today's Deals Gift Cards & Registry Sell Help EN Hello, Max Account & Lists ▾ Orders Prime ▾

Alexa Skills For Your Smart Home Games and Trivia Lifestyle Your Skills Getting Started Help

1 result for Alexa Skills : "color harmonies"

Show results for

Any Category Alexa Skills Utilities

Refine by

New Arrivals Last 7 Days Last 30 Days Last 90 Days

Color Harmonies

Max Marchuk

"Alexa, open Color Harmonies"

"Set color to F, F, 0"

Available instantly on your connected Alexa device.

**Description**

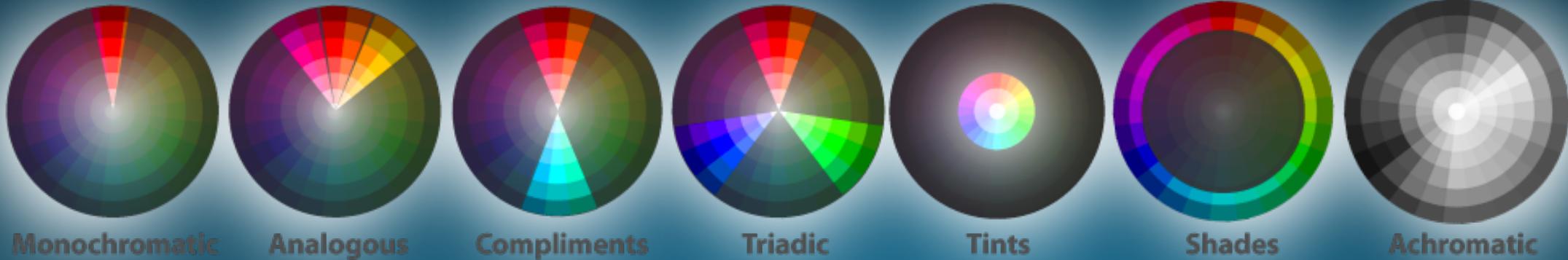
A skill that allows you to set hex colors and get different color harmonies for that color. The only supported harmony is "complementary".... [more](#)

Results for "color harmonies" in All Departments (See all 18,323 results)

# To Do



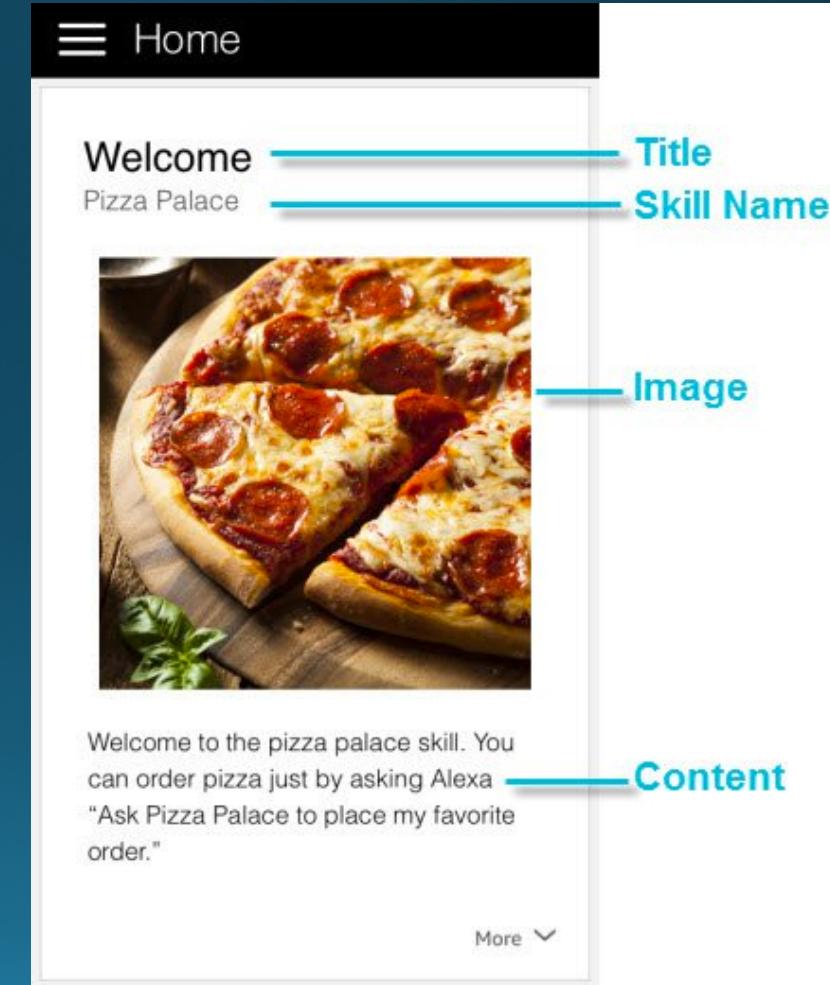
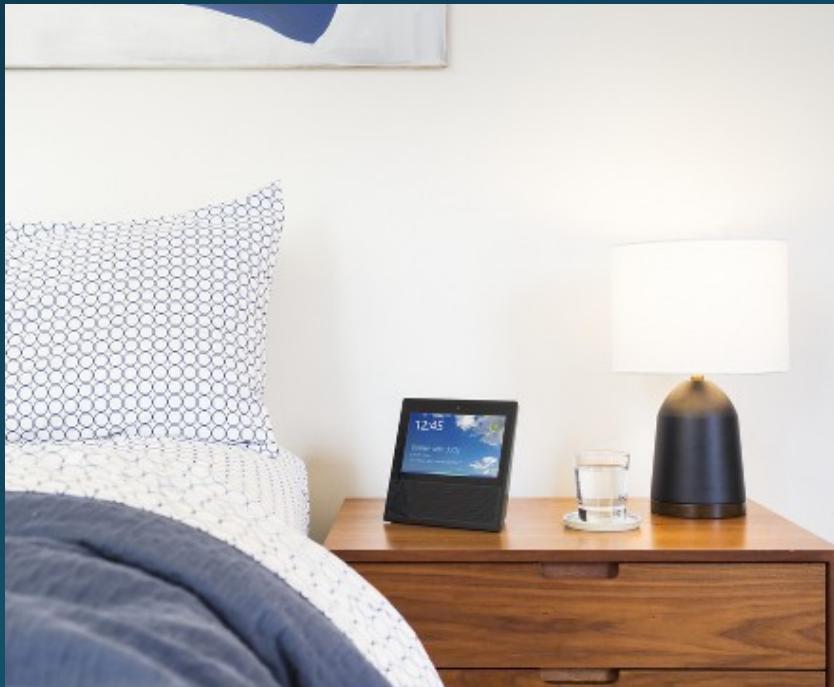
- Add more color harmonies
  - Split-complementary
  - Tetradic
  - Triadic
  - Analogous



# To Do



- Render colors in an Alexa app card
- Utilize more Echo devices



# Questions?

Criticism also welcome