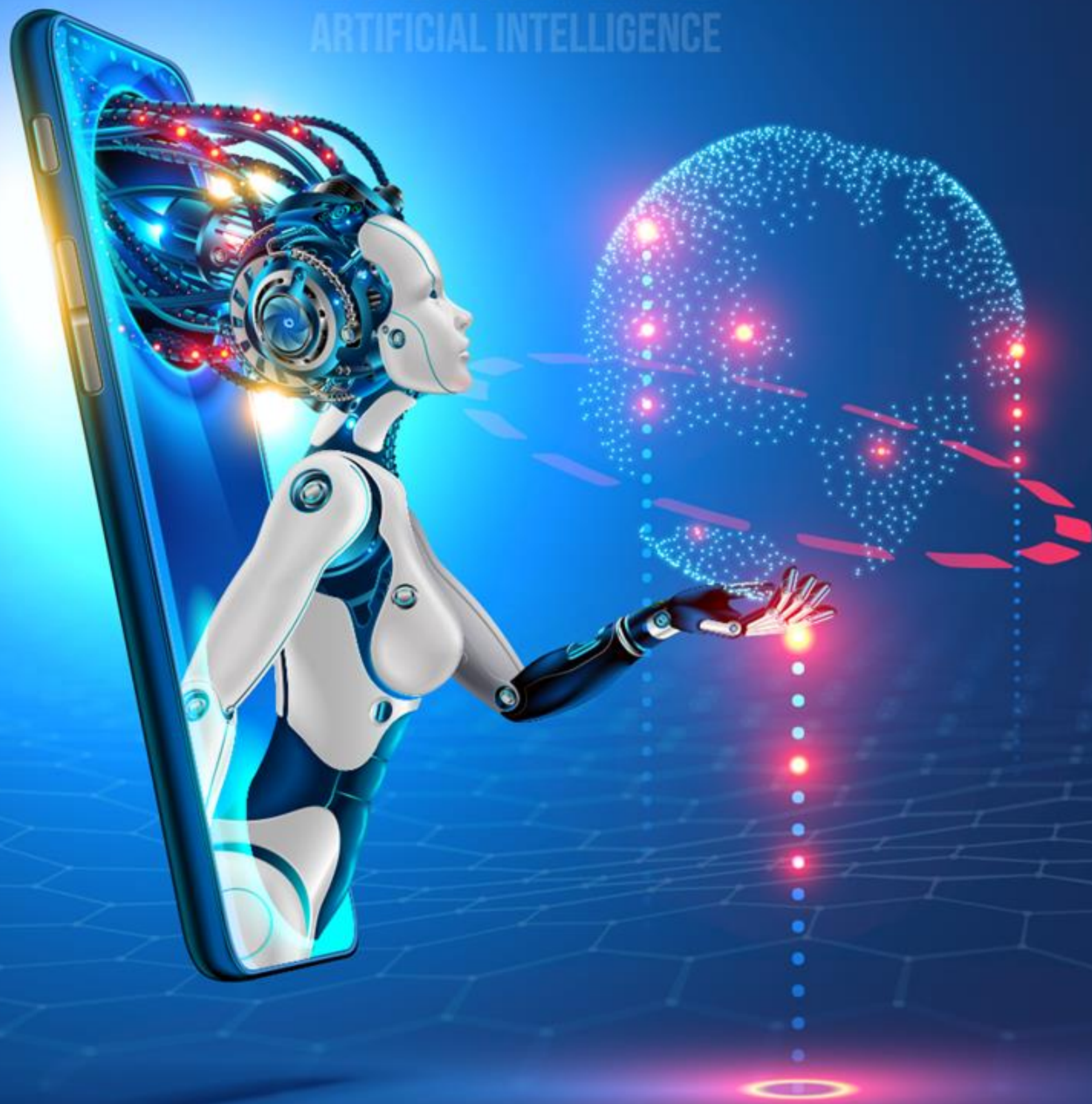


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Natural Language Processing and Speech Recognition

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Voice Assistant Devices

Learning Objectives

By the end of this lesson, you will be able to:

- Describe voice assistant devices
- Explain Alexa skill in Amazon Web Services pipeline



Voice Assistant Technology

What Is Voice Assistant Technology?

“

In this technology, a software agent performs tasks or services for an individual based on commands or questions through voice user interface.

”

What Is Voice User Interface (VUI)?

“

It makes spoken human interaction with computers possible, using speech recognition to understand spoken commands, answer questions, and typically convert text to speech to play a reply.

”

What Is Voice Command Device (VCD)?

“

It is a device controlled with a voice user interface.

”

What Is a Smart Speaker?

“

It is a type of wireless speaker and voice command device with an integrated virtual assistant that offers interactive actions and hands-free activation with the help of one "hot word" (or several "hot words").

”

Growth of Smart Speaker

- The past decade has been dominated by touch screen devices, but a new revolution is brewing, voice-controlled systems powered by artificial intelligence.
- Instead of controlling everything via apps, users can talk to virtual assistants to control everything from their computers to home lighting.

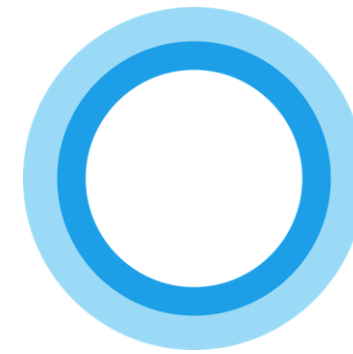
Voice Assistant Services in the Market



amazon alexa



Google Assistant



Microsoft Cortana



Apple Siri

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Alexa

Alexa

- Is a voice service that powers Echo device or skills, in order to enable customers interact with devices in a more intuitive way using voice
- Examples of these skills include the ability to play music, provide information, deliver news, and sports scores
- Is built in the cloud and always getting smarter with the help of artificial intelligence

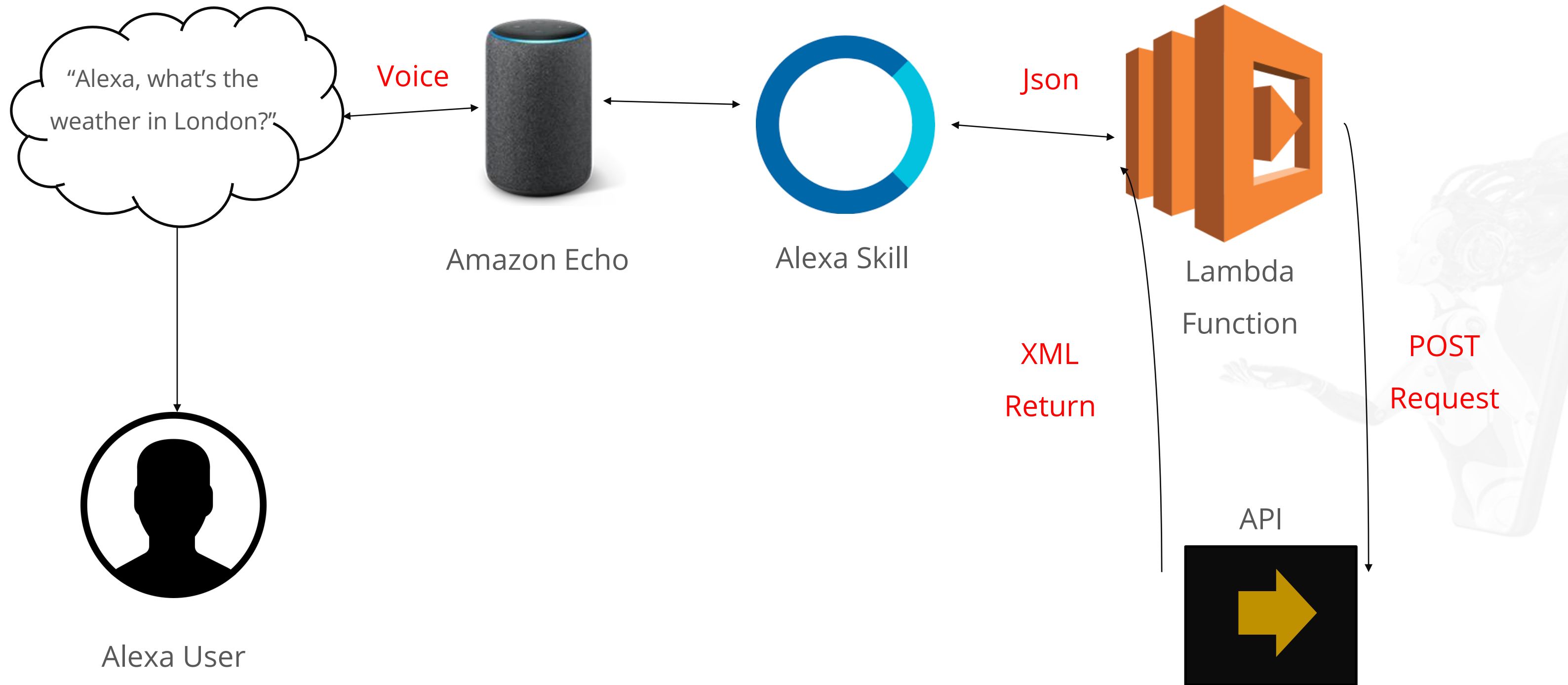
What Is Amazon Echo?

“

It is a hands-free speaker controlled by user's voice. It features Alexa as a voice assistant service.

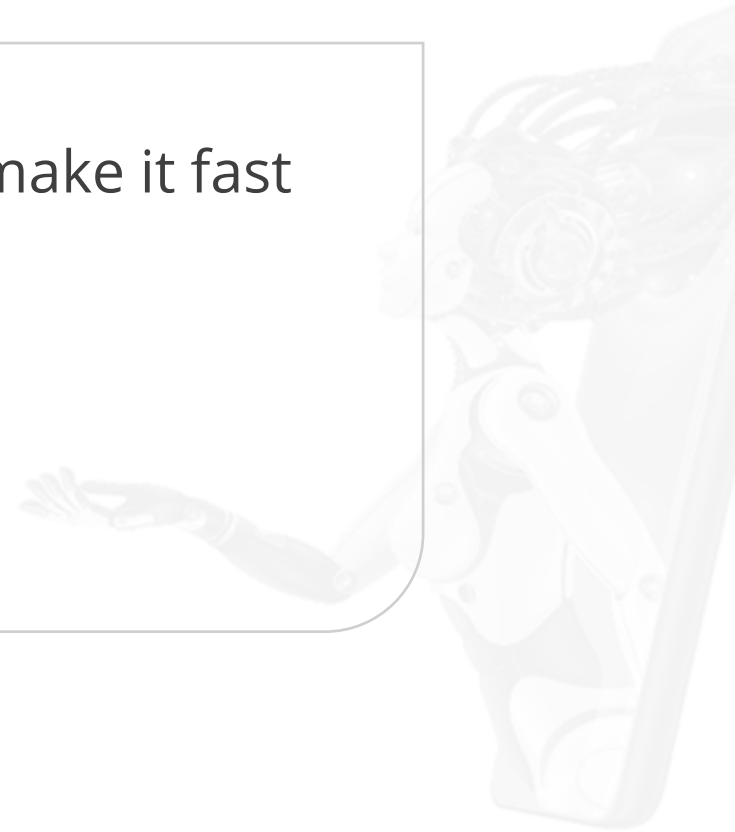
”

How It Works?



Alexa Skills Kit (ASK)

- Is a collection of self-service APIs, tools, documentation, and code samples that make it fast and easy for the user to add skills to Alexa
- Using the ASK, Amazon allows developers to build and publish skills for Alexa



Alexa Skill Type

Smart Home Skills:

- Built-in interaction model
- For example: “Alexa, turn on room’s light”
- Alexa needs permissions to retrieve device information and control device
- You need a cloud service that manages the skill of customer’s smart devices and uses AWS Lambda function

Alexa Skill Type

Custom Skills:

- Build a skill with a custom interaction model. This is called custom skill.
- Customer needs to remember the interaction name or the invocation phrase.

Note: The assisted practice to build an Alexa skill in the ASK, go to Natural Language Processing and Speech Recognition LMS.

Alexa Skill Type

Flash Briefing Skills:

- Is the only way that you can provide content for a customer's flash briefing
- Prerecorded audio clips and text to speech
- This helps a customer choose your skill in the skill store

Speech Detection of Alexa

Alexa,

Wake Word

Play some jazz!

Request



Use Cases of Alexa



"Alexa, wake me up at 7 in the morning"



"Alexa, play my favorite playlist"

Use Cases of Alexa



"Alexa, what's on my calendar today?"



"Alexa, what's in the news?"

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Knowledge Check

Knowledge Check

1

Which of the following services is used in Alexa developer console to create a skill?

- a. Alexa Skill Kit
- b. Amazon Skill Kit
- c. Alexa Skill Service
- d. None of the above



Knowledge
Check

1

Which of the following services is used in Alexa developer console to create a skill?

- a. Alexa Skill Kit
- b. Amazon Skill Kit
- c. Alexa Skill Service
- d. None of the above



The correct answer is **a**

Alexa skill kit is used in Alexa developer console to create a skill.

Knowledge Check

2

Which of the following Amazon Web Services is used to host an Alexa skill?

- a. S3 Bucket
- b. EC2 for Deep Learning
- c. Amazon Lambda
- d. All the above



Knowledge
Check

2

Which of the following Amazon Web Services is used to host an Alexa skill?

- a. S3 Bucket
- b. EC2 for Deep Learning
- c. Amazon Lambda
- d. All the above



The correct answer is **c**

Amazon Lambda is used to host an Alexa skill.

Knowledge Check

3

Which of the following is the first device with Alexa in the market?

- a. Amazon Echo
- b. Google Mini
- c. Amazon Fire Stick
- d. Xbox



Knowledge
Check

3

Which of the following is the first device with Alexa in the market?

- a. Amazon Echo
- b. Google Mini
- c. Amazon Fire Stick
- d. Xbox



The correct answer is **a**

Amazon Echo is the first device with Alexa in the market.

Knowledge Check

4

Which of the following voice assistant services is available currently in the market?

- a. Microsoft Cortana
- b. Apple Siri
- c. Google Assistant
- d. All the above



Knowledge Check

4

Which of the following voice assistant services is available currently in the market?

- a. Microsoft Cortana
- b. Apple Siri
- c. Google Assistant
- d. All the above



The correct answer is **d**

Apart from Alexa, the other giants in the voice assistant service market are Microsoft Cortana, Apple Siri, and Google Assistant.

**Knowledge
Check**

5

Which of the following models can be chosen to build a skill for Alexa?

- a. Custom Model
- b. Smart Home Model
- c. Flash Briefing Model
- d. All the above



Knowledge
Check

5

Which of the following models can be chosen to build a skill for Alexa?

- a. Custom Model
- b. Smart Home Model
- c. Flash Briefing Model
- d. All the above



The correct answer is **d**

Flash briefing, custom, smart home, music, etc. are different model types available to build a skill for Alexa.

Key Takeaways

- Smart speaker is a voice command device with an integrated virtual assistant.
- Alexa Skill Kit is used to develop skills for Alexa.

