

Programming 2: First Aid

Design overview

The starter code for my application was based off of Color games from the sample Alexa Skill kit (<http://amzn.to/1LGWslG>). I used it mainly for the overall logic that accepted requests and formulated answers.

To meet the specific requirements of this assignment I identified two types of requests: cpr and the rest. I created an intent called NeedHelp of the form 'Help me with XX' (with multiple alternative utterances). This intent tells my application what kind of first aid problem is needed.

Responses accepted include:

- "Checking an Injured Adult"
- "Choking"
- "CPR"
- "AED"
- "Controlling Bleeding"
- "Burns"
- "Poisoning"
- "Neck Injuries"
- "Spinal Injuries"
- "Stroke"

If the request fell outside of these options, Alexa will explain "I'm not sure I understand what you need help with." and tell the user what options they can take. This was done programmatically and no custom slots were used.

The app has a T shaped design shallow for all the options and fully implemented for CPR, enough to prove the concept. For all responses but CPR the application processes the request and tells the user to "Call 911". In case the user says they need help with "Choking", I used session attributes to ask a follow up question, "is the victim conscious or unconscious?" With the user's response "the victim is conscious/unconscious," Alexa tells the user that they should call 911.

I also created an intent WhatCanISay that when the user asks "what can I say?", Alexa responds with the 10 possible types of emergencies they can request help for.

For CPR I used a RESTful design that uses session attributes and a third intent, CPR, to keep track of the user's location in the CPR process. I used three session attributes: cpr, which tracks whether the user is processing cpr help; compressions which is a boolean that is true if the user is currently in the compression section of cpr, if it is false, the user is in breaths; and cpr_first that keeps track if this is the first iteration of cpr to keep track of when to include instructions.

When the user requests for help with CPR, my application sets all three session attributes to True and proceeds to begin help. Each interaction thereafter records the effect by changing one or more of the three booleans.

Sample utterances - Call 911 response

1.

USER: I need help with AED.

ALEXA: Call 911.

2.

USER: Help me with choking.

ALEXA: Is the victim conscious or unconscious?

USER: The victim is conscious.

ALEXA: Call 911.

3.

USER: Someone's injured.

ALEXA: Call 911.

Sample CPR utterance

USER: I need help with CPR

ALEXA: Perform 30 chest compressions. Instructions: Person must be on a firm, flat surface. Push hard, push fast in the middle of the chest at least 2 inches deep and at least 100 compressions per minute. To begin say 'Ready'. "

USER: Ready.

ALEXA: When you're done say 'done'

USER: Done

ALEXA: Give 2 rescue breaths. Instructions: Tilt the head up and lift the chin up. Pinch the nose shut then make a complete seal over the person's mouth. Blow in for about 1 second to make the chest clearly rise. Give the rescue breaths one after the other. If chest doesn't raise with rescue breaths, retilt the head and give another rescue breath. To begin say 'Ready'.

USER: Ready

ALEXA: When you're done say 'done'

USER: Done

ALEXA: Perform 30 chest compressions. To begin say 'Ready'.

USER: Ready

ALEXA: When you're done say 'done'

USER: How do I do compressions?

ALEXA: nstructions: Person must be on a firm, flat surface. Push hard, push fast in the middle of the chest at least 2 inches deep and at least 100 compressions per minute.

USER: Done

ALEXA: Give 2 rescue breaths. To begin say 'Ready'.

USER: Restart compressions

ALEXA: Perform 30 chest compressions. To begin say 'Ready'.

USER: Quit CPR

ALEXA: Are you sure?

USER: No.

ALEXA: Perform 30 chest compressions. To begin say 'Ready'.

USER: Quit CPR

ALEXA: Are you sure?

USER: Yes.

ALEXA: Quitting cpr