

Depression Handling skill for Amazon Alexa

Project Report

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by

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1 Introduction

1.1 Problem Definition

Depression (major depressive disorder) is a common and serious medical illness that negatively affects how you feel, the way you think and how you act. Fortunately, it is also treatable. Depression causes feelings of sadness and/or a loss of interest in activities once enjoyed. It can lead to a variety of emotional and physical problems and can decrease a persons ability to function at work and at home.

The death of a loved one, loss of a job or the ending of a relationship is difficult experiences for a person to endure. It is normal for feelings of sadness or grief to develop in response to such situations. Those experiencing loss often might describe them as being depressed.

Depression affects an estimated one in 15 adults (6.7%) in any given year. And one in six people (16.6%) will experience depression at some time in their life. Depression can strike at any time, but on average, first appears during the late teens to mid-20s. Women are more likely than men to experience depression. Some studies show that one-third of women will experience a major depressive episode in their lifetime. Thus via Amazon Echo and Alexa we try to provide a solution to this problem.

1.2 Introduction to project

Alexa is Amazons voice control system. It lets you speak your wishes and see them fulfilled at least simple ones, like dimming your lights or playing music tracks. It turns the Echo, Dot, and Tap streaming audio players into de facto smart-home hubs and Internet assistants. Alexa, the voice service that powers Echo, provides capabilities, or skills, that enable customers to interact with devices in a more intuitive way using voice.

Echo connects to the Alexa Voice Service to play music, make calls, send and receive messages, provide information, news, sports scores, weather, and more instantly.

Our project is about developing a skill for Alexa. The skill is about handling depression of individuals. When the skill is enabled, the users can talk about their feeling with Alexa and in return Alexa will understand them and try to have a good conversation with the user with the aim of helping the user to come out of depression

2 Design

2.1 Previous Flow chart

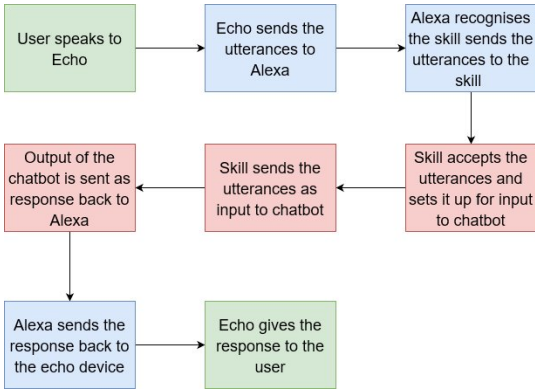


Figure 1: Old Design

Previously we used the above flow diagram. But as did more research we came to an understanding that a chat bot cannot be implemented as the main reason being Amazon Alexa needs to be given sample utterances. We cannot also take the raw data that the user speaks as input.

Due to these constraints we had to back track and change our model and had to design a new structure. The new structure is given below

2.2 New tree structure

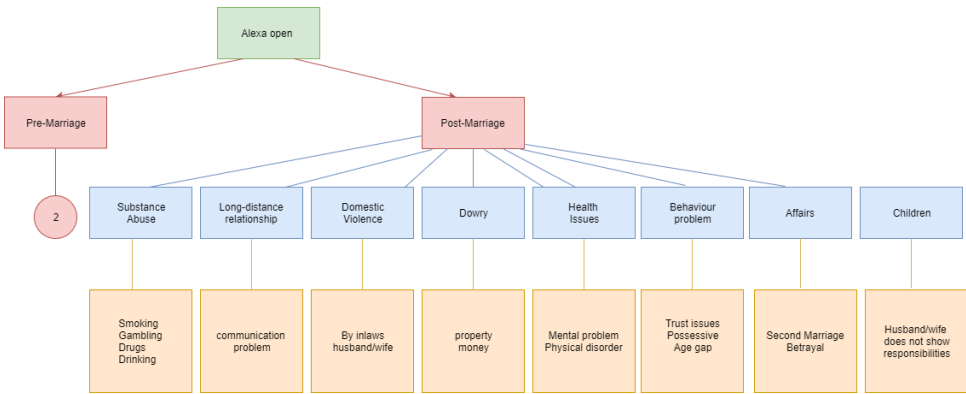


Figure 2: New Design

Green Box Skill Invocation

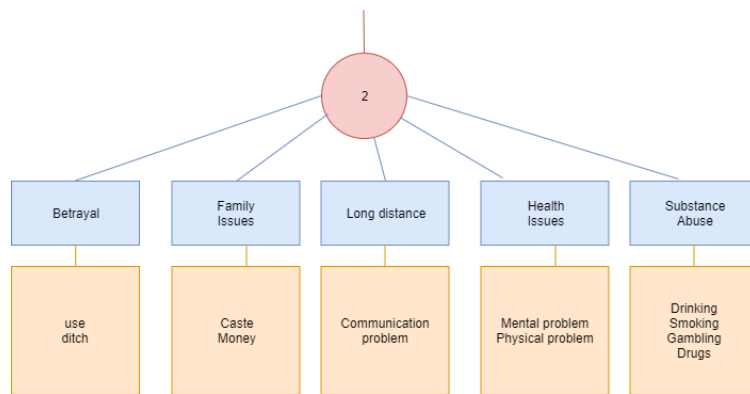


Figure 3: New Design part 2

Red Box Different Intents

Blue Box Different Scenarios

Orange Box Cases that will be looked at in each scenario

3 Implementation

3.1 Program

```
from flask import Flask
from flask_ask import Ask, statement, question

app = Flask(__name__)
ask = Ask(app, "/")

@ask.launch
def start():
    msg = 'hello....How can i help you?'
    return question(msg)

@ask.intent("Postmarriageintent")
def postmarriage(problem):
    #SUBSTANCE ABUSE
    if problem == 'drugs' :
        return statement("Express your feelings , how his or her addiction
        issue has affected you negatively , and how it may be harming others ,
        and even themselves.Avoid criticizing their actions directly ,
        but instead ,show them how their actions have caused harm.")

    elif problem == 'smoking':

        return statement("Try to talk to your partner and tell him the
        consequences of smoking. Tel him to take quitting as an incentive
        program rather than an inventory of unsatisfied cravings. You could
        also consider proposing e-cigarettes or nicotine gum. Be supportive
        and encourage him/her to develop positive attitude towards health. ")

    elif problem == 'drinking' or problem == 'drunk':
        return statement("Sit with your partner and try to speak about
        his or her addiction.Self-help meetings and support groups like
        Alcoholics Anonymous or Narcotic Anonymous. So, if you have
        addiction problems, it is worth it to enter treatment , not only
        for you, but also for your partner, children , friends , and others")
    elif problem == 'porn':
```

return statement("Try to talk to your partner about it. Be clear about how you feel, don't hold back, be bold and say how you feel and try to create a positive conversation together. It is important to listen carefully to what your partner is telling you too. ")
 elif problem == 'gambling':
 return statement("Try to talk to your partner about his addiction issue and how it will affect your family and may lead to financial crisis. Support your husband if he is making a positive effort. Support groups such as Gamblers Anonymous might also point him or her in the right direction. Here is the Gamblers anonymous helpline. 8826904945.")

#AFFAIRS

elif problem == 'cheating':
 return statement("We all experience betrayal in different ways. The best thing to do is to acknowledge how you are feeling and not suppress it. Find an outlet for these emotions. It's OK to cry and scream it's part of your healing process.. Try to talk to your partner, ask him/her the reasons, remind him/her about your beautiful memories together. Revenge is not the best medicine. Especially if there are children involved, I would always advise, do the right things. Betrayal can be very humiliating, especially if other people knew about the affair. Remember you are not the person in the wrong here and however embarrassed or silly you may feel, it was not your fault. ")

#health issues

elif problem == 'cancer':
 return statement("Understand that it's not their fault. Understand that the illness has tainted their perception, so don't let their emotions dictate yours. Be supportive. Encourage your spouse to talk about his or her feelings. Due to illness, your spouse may not have the best self-insight. However, if the two of you can learn to communicate during the difficult times and express your emotions, you can each find a bit of peace. You need to seek medical help on your spouse's behalf. Prepare yourself to hold them accountable to take

their medication and manage their illness. Together, you can work through this issue and become stronger, both individually AND as a union..")

elif problem == 'mental illness' :

return statement("Understand that it's not their fault. Understand that the illness has tainted their perception, so don't let their emotions dictate yours. This will be hard to remember when having a spouse with mental illness, especially when your spouse takes his or her feelings and behavior out on you. But remind yourself that the mood and behaviour are symptoms of the illness. It's NOT personal. At the same time, set your boundaries and gently let your spouse know when they've crossed the line and hurt your feelings. Be supportive. Encourage your spouse to talk about his or her feelings. You need to seek medical help on your spouse's behalf. Prepare yourself to hold them accountable to take their medication and manage their illness. Together, you can work through this issue and become stronger both individually AND as a union ")

elif problem == 'handicapped':

return statement("Take care of your partner. Be supportive. Maybe look into support groups or counselling for your partner, as well as for yourself. It's to be expected, I think, that your relationship with your partner is in a rough spot, but that doesn't mean it won't get better. He/she will get better, either by recovering some of the functioning she s/he's lost or by learning to live more fully in his/her new circumstances. As that happens, life will become a good deal, less hellish for you and you'll start to rebuild your lives and your marriage. ")

#lack of responsibilty towards children

elif problem == 'children':

return statement("God has given the parents a very special and unique role in the family and children are Gods greatest blessing. Children seek love and care from their parents. So convince your husband to devote some time towards children after his busy schedule which will develop better understanding between them. ")

#Long distance relationship


```

elif problem == 'missing':
return statement("The truth is , no couple can be in a long
distance relationship for forever. Eventually we all need to
settle down. It s helpful to know when the other person is busy
and when he or she is free , so that you can drop a text or make a
call at the right time. This is especially essential when
the both of you are living in different time zones.
Greet each other good morning and good night every day
this is a must. On top of that , try to update your partner
on your life and its happenings. Be open and honest with each
otherTo up the game, send each other pictures , audio clips
and short videos from time to time. By putting in this
kind of effort , you make the other person feel loved
and attended to.")
else:
return statement(" Sorry. I did not understand you")
raise Exception()

```

```

if __name__ == ( '__main__ '):
    app.run(debug = True

```

3.2 Sample Utterances

- Postmarriageintent my husband is addicted to {problem}
- Postmarriageintent {problem}
- Postmarriageintent my husband is {p_affair} on me
- Postmarriageintent {p_affair}
- Postmarriageintent {p_healthissues}
- Postmarriageintent My wife is suffering {p_healthissues}
- Postmarriageintent {p_children}
- Postmarriageintent I feel very frustrated.My husband does not show any responsibility towards our {p_children}
- Postmarriageintent {p_longdistance}

- Postmarriageintent we are in {p.longdistance} and i am missing my partner.

3.3 Intent Schema

```
{
  "intents": [
    {
      "slots": [
        {
          "name": "problem",
          "type": "SUBSTANCEABUSE"
        },
        {
          "name": "p_affair",
          "type": "AFFAIRS"
        },
        {
          "name": "p_healthissues",
          "type": "HEALTHISSUES"
        },
        {
          "name": "p_children",
          "type": "CHILDREN"
        },
        {
          "name": "p_longdistance",
          "type": "LONG_DISTANCE"
        }
      ],
      "intent": "Postmarriageintent"
    }
  ]
}
```

4 Result

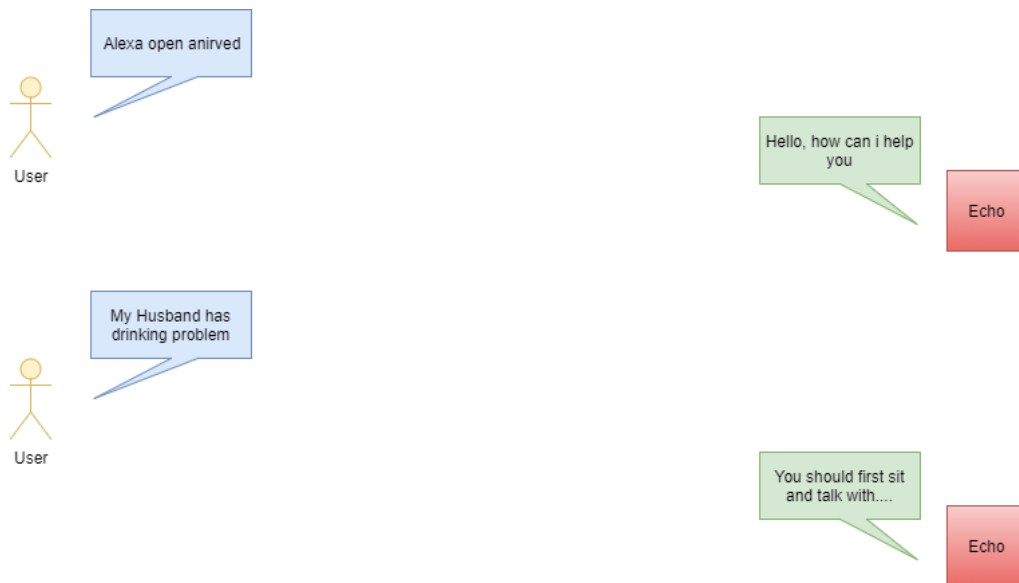


Figure 4: The above figure gives an example of how the skill interacts

5 Conclusion

During our experimentation with the chat bot we realised that the chat bot cannot be implemented because Amazon Alexa had to be given what the user will speak. Another reason is that it cannot return whatever and however the user dictates. So we traced back and came up with another solution where we create different scenarios of depression and try to handle each of these scenarios separately. To do this we had to create a tree where in all the various scenarios were mapped together to make a general outline

Once the tree was created we started the implementation phase of the solution. We started building one small branch at a time (each branch represents a single scenario) and then kept on adding the branches to create an entire tree. We also performed the testing of each scenario before merging them and then performed the testing of entire system.

6 References

- <https://www.amazon.in>
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- <https://developer.amazon.com/public/solutions/alexa/alexa-skills-kit/overviews/understa-custom-skills>
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