Prelude to Alexa Chatbot Hackathon

Understanding chatbot and Alexa:

1. What is a Chatbot? https://towardsdatascience.com/architecture-overview-of-a-conversational-ai-chat-bot-4ef3dfefd52e
2. What is Alexa Skills Kit and how does it help with building chatbot?

   The Alexa Skills Kit is a software development kit (SDK) that enables a developer to build skills, also called conversational applications, on the Amazon Alexa artificial intelligence assistant

VERY IMP: Watch this **video** to get a basic idea of a chatbot skill is. Check section 3 (Nuances of Dialog…) of this document to understand more details. But ensure you finish Section 2 (Creating 'Amazon Developer account'...) first, so that we can get the account creation out of the way.

Creating ‘Amazon Developer’ and ‘AWS’ account :

‘Amazon developer’ is needed to build an Alexa chatbot (known as Alexa Skills) and ‘AWS’ account is needed to programmatically construct responses to the Alexa chatbot (that you build using the developer account).

1. Setting up Alexa developer and Alexa AWS Accounts.

    a. **Alexa developer account:** Create your own Alexa developer account from https://developer.amazon.com/ (Click ‘Sign in’ and then create your account). After creating the account you need to ‘Sign in’. If you already have an account please feel free to use the same.

    b. **Alexa AWS account:** Create your own Amazon AWS Account, by clicking the following link: https://aws.amazon.com/ and clicking “Create an AWS Account”.(**For AWS account creation you will be asked for your credit card details and will be charged a rupee for verification. Please note: Since you will be using the free tier, you will not be charged; So, it’s safe to go ahead and provide these details.Read point (c) for info about accounts**) Login after creating the account. If you already have an account please feel free to use the same.(assuming that account is still within the free-tier) After logging in you need to take care of the following:

Before ensuring you take care of the steps below please watch the following videos related to IAM (the AWS system that managers Identity Access management). This should take you 30 mins: (NOTE: The video below ‘unchecks’ ‘Generate access key for each user’. But you would need to check it and get the ‘Access key’)

-> AWS Essentials: What is IAM?
-> AWS Essentials: IAM Initial Setup and Configuration
-> AWS Essentials: IAM Users and Policies
-> AWS Essentials: IAM Groups and Policies
-> AWS Essentials: IAM Roles

i. Need to create a “root user” and then an individual user. The way to create individual users is as follows:
    1. Navigate to IAM->Users click “Add User”
    2. In the next page, create a user name and check both the boxes corresponding to “Programmatic Access” and “AWS Management Console Access”.
    3. If all the information above is set fine you’ll find “Next->Permissions” activated. Click on it and set up your Permissions as given in step ii below

ii. Since the account you have created is a personal one, you can freely attach the Perimission “AdministratorAccess” against your user. This can be done by going to IAM->Users->Permissions->Attach Permissons->Attach existing policies directly. (If you want to be specific you can give yourself ‘AmazonS3FullAccess’ and ‘AWSLambdaBasicExecutionRole’)

iii. **VERY IMP**: Save the “Access key Id” and “Secret keys” for later use

c. **Pricing concerns:** The following are key links that help you understand the pricing, **so that you “don’t” need to be concerned about it during the hackathon**:
    i. The free-tier is what you are expected to be using during the hackathon. It’s advised to create a new account so that you can be sure you have the free tier. Here is a link that details the free-tier pricing details. Link
    ii. You will primarily be using ‘AWS Lambda’ (the environment that allows you to build applications that respond to chatbot requests) and ‘AWS S3’ (to export the code containing chatbot responses to AWS storage instance. So that AWS Lambda can use it). Here are the pricing details of free tier (shows that you will not be charged anything for using these services):
        1. AWS Lambda Pricing
        2. AWS S3 pricing
    iii. **NOTE: The summary of the pricing section is that, you will not be charged anything for any usage within an year in the free-tier. So please do the needful, of creating your accounts for the hackathon.**

Nuances of Dialog management in Alexa :

This is critical in building a good, interactive and intelligent chatbot. Efforts in understanding this could contribute to building a good chatbot. Needless to say, this is also very interesting.

Refer all the links below. Clear understanding of different aspects of Alexa Dialog management, would enable cracking the hackathon easily.

Relevant sections (Must read!) :

Build Skills with the Alexa Skills Kit

- Build Skills with the Alexa Skills Kit
- Understand the Different Skill Models
- Understand How Users Interact with Skills
- Requirements to Build a Skill
- Glossary

Quick Reference

- Create a Custom Skill

Custom Interaction Model

- Use Alexa Presentation Language (APL) to Create Visual Content for Skills
- Alexa Design Guide
- **Understand Custom Skills**
- Steps to Build a Custom Skill
- Get Custom Skill Sample Code
- Understanding How Users Invoke Custom Skills
- Choose the Invocation Name for a Custom Skill
- Create a Custom Skill from a Quick Start Template

Build the Interaction Model (Intents, Slots, and Dialogs)

- Create the Interaction Model for Your Skill
- Create Intents, Utterances, and Slots
- Create and Edit Custom Slot Types
- Define Synonyms and IDs for Slot Type Values (Entity Resolution)
- Best Practices for Sample Utterances and Custom Slot Values

Test Your Skill

- Test and Debug a Custom Skill