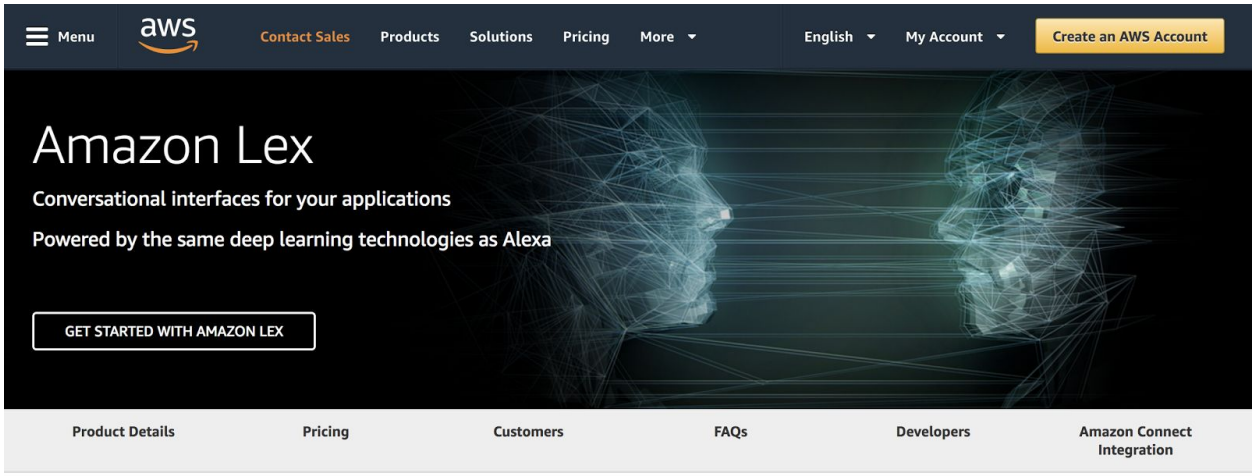
Building Chatbots using Amazon Lex: A Primer

This blog post will introduce a newbie to building a chatbot using the Lex methodology/toolkit from Amazon. We will demonstrate the basic building blocks and then move on to creating a live application. Our approach will be a step-by-step method. Here is the main landing page for Lex:



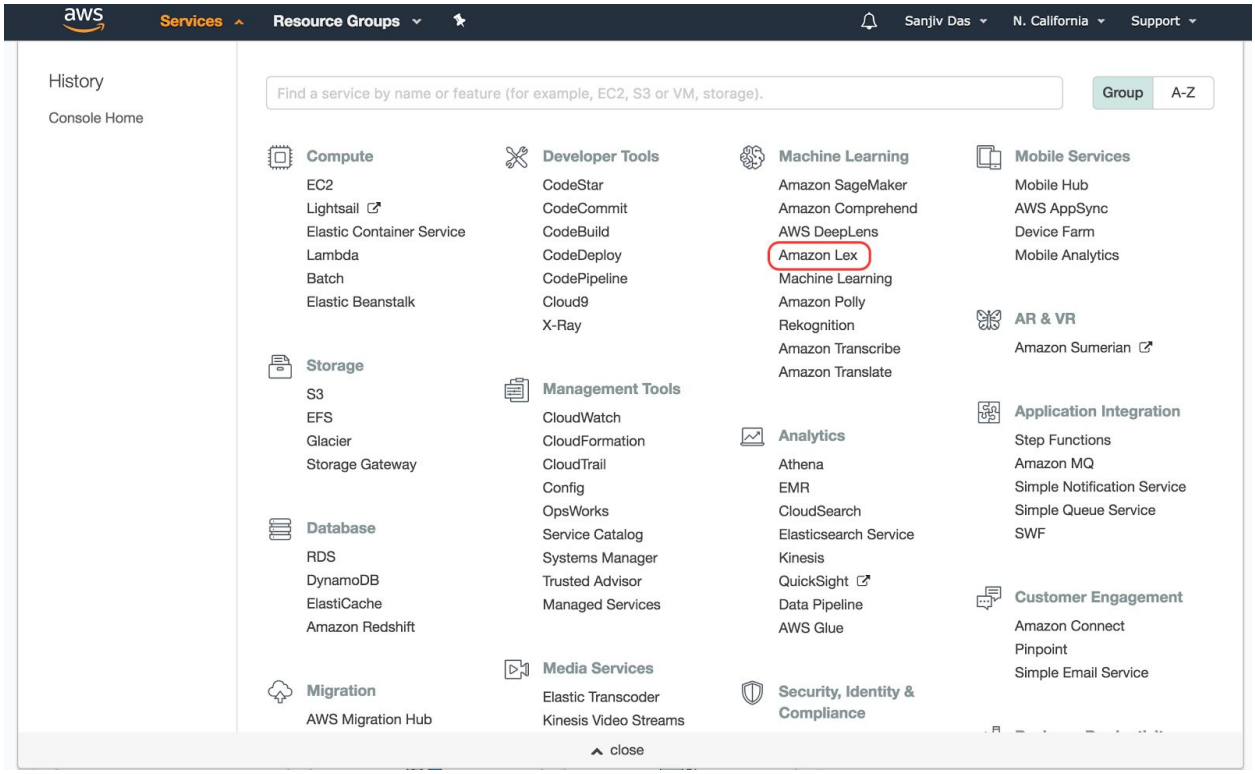
You can find a working model of a sample chatbot at the URL below:
http://vardangupta.s3-website-us-east-1.amazonaws.com/

Some reading:
https://work.qz.com/1147692/harness-the-power-of-bots-to-automate-the-busy-work/

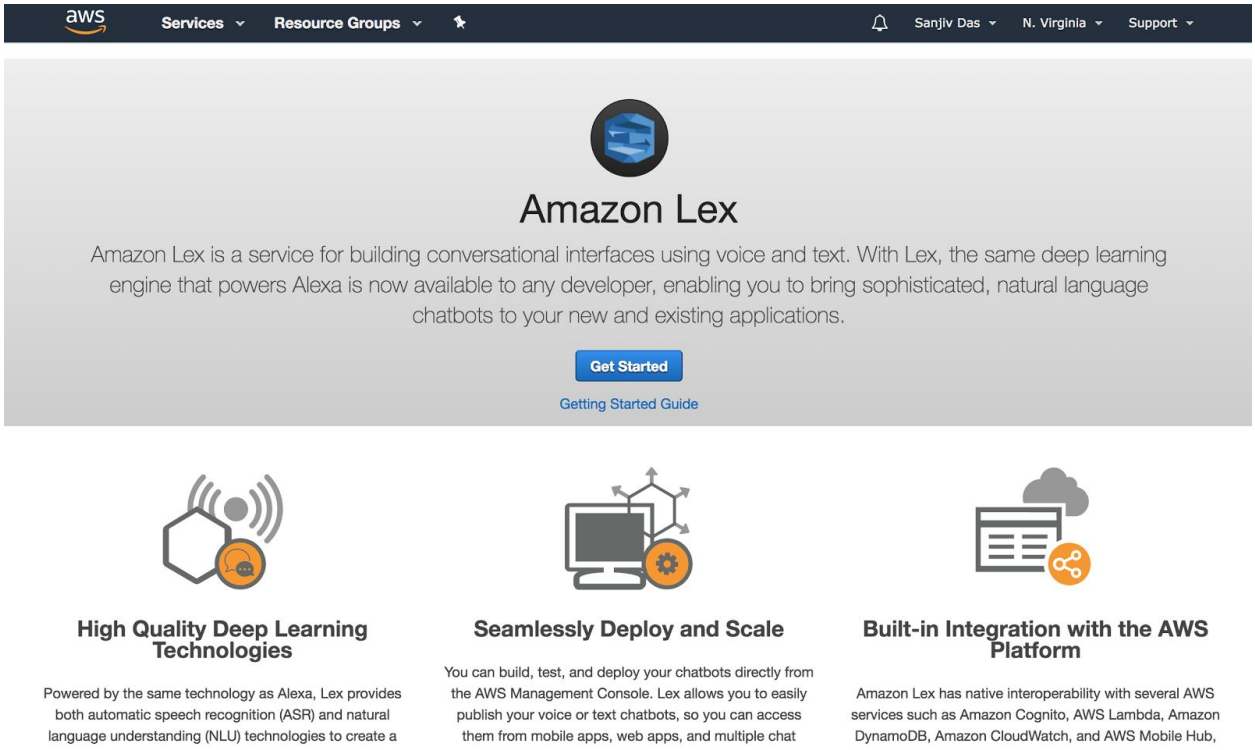
Basic Setup

(1) Sign up for an AWS account and sign in: https://aws.amazon.com/console/
(2) Go to the dashboard and search for Lex under AWS services. Open the lex services and create the new chatbot. Select the purpose of your chatbot from existing

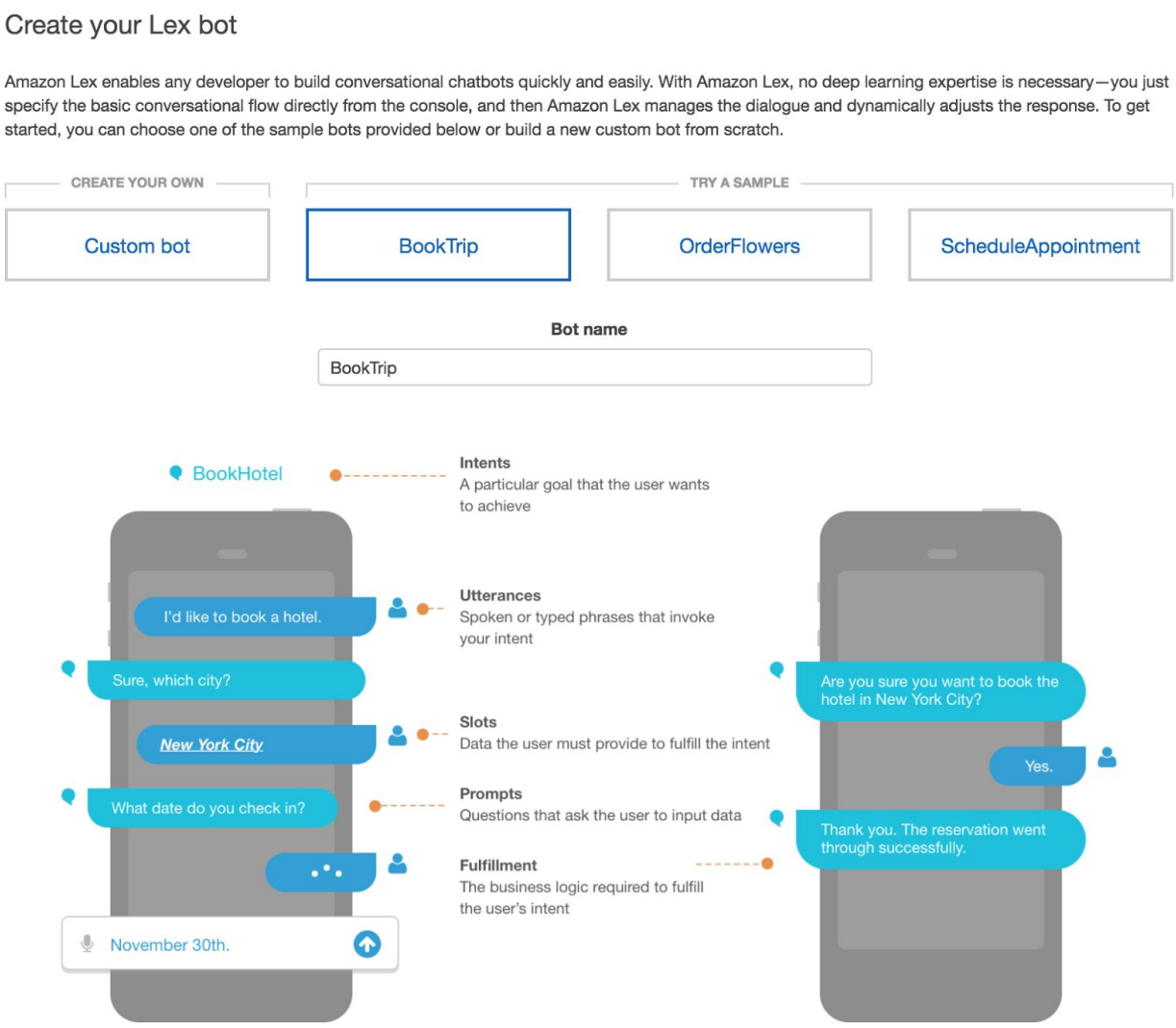
examples or create your own. To make this demonstration even more explanatory let's move ahead with the custom bot.



When you click on “Amazon Lex” you reach this screen.

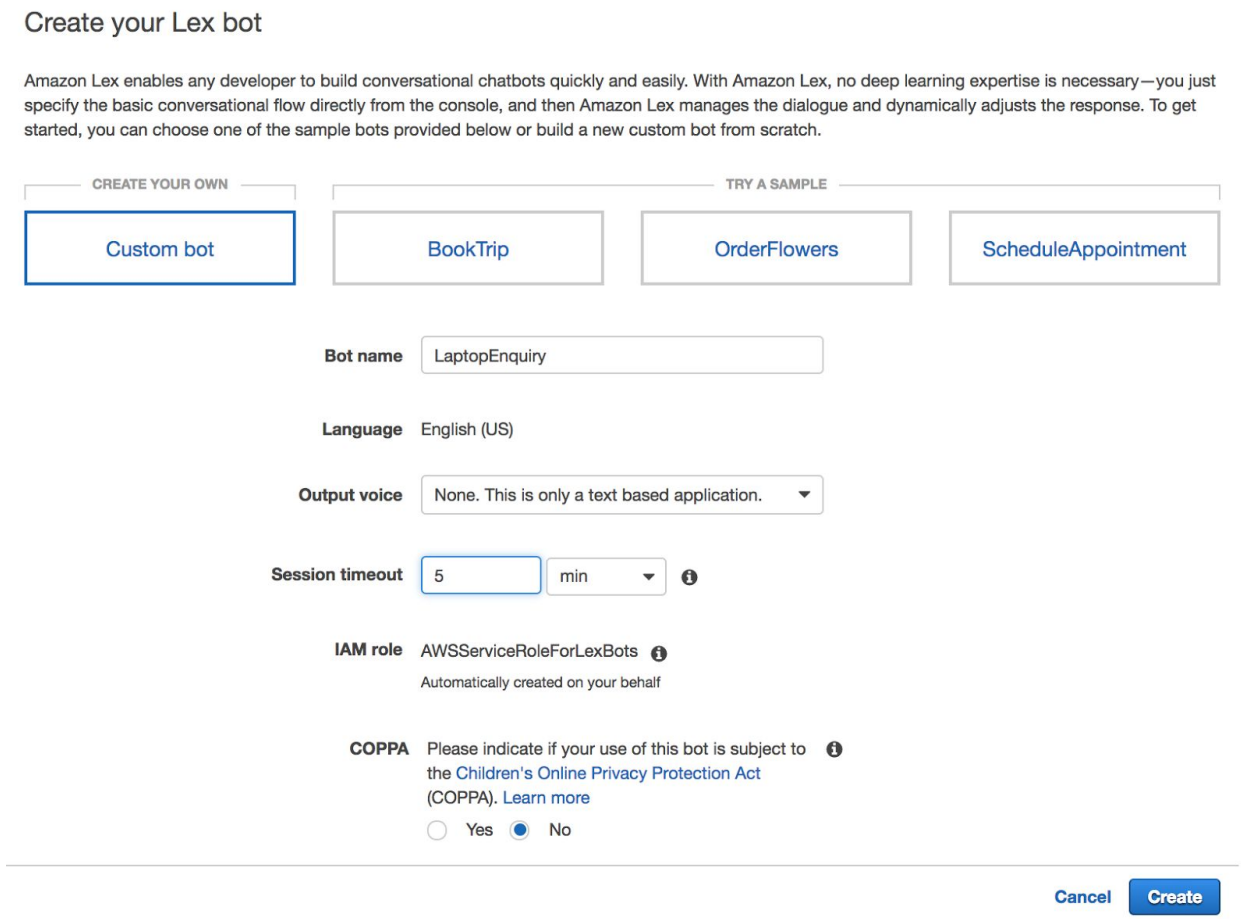


The main components of the bot are shown below: Intents, Utterances, Slots, Prompts, and Fulfillment.



Building a Custom Bot

We will pick a custom bot and fill out the basic information in the form depending on the type of use.

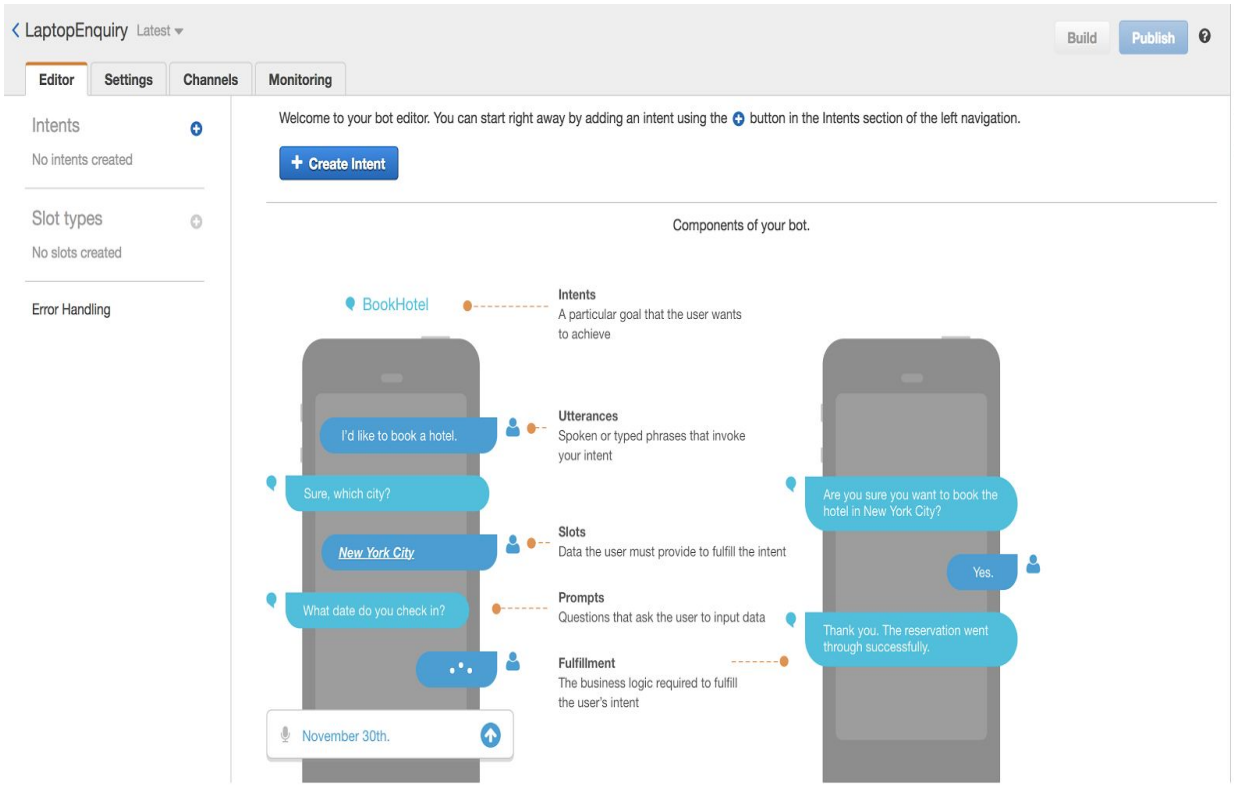


You will land on your chatbot console where you can edit and customize your chatbot. Before moving forward, lets understand some basic terminologies that we will be using throughout the tutorial.

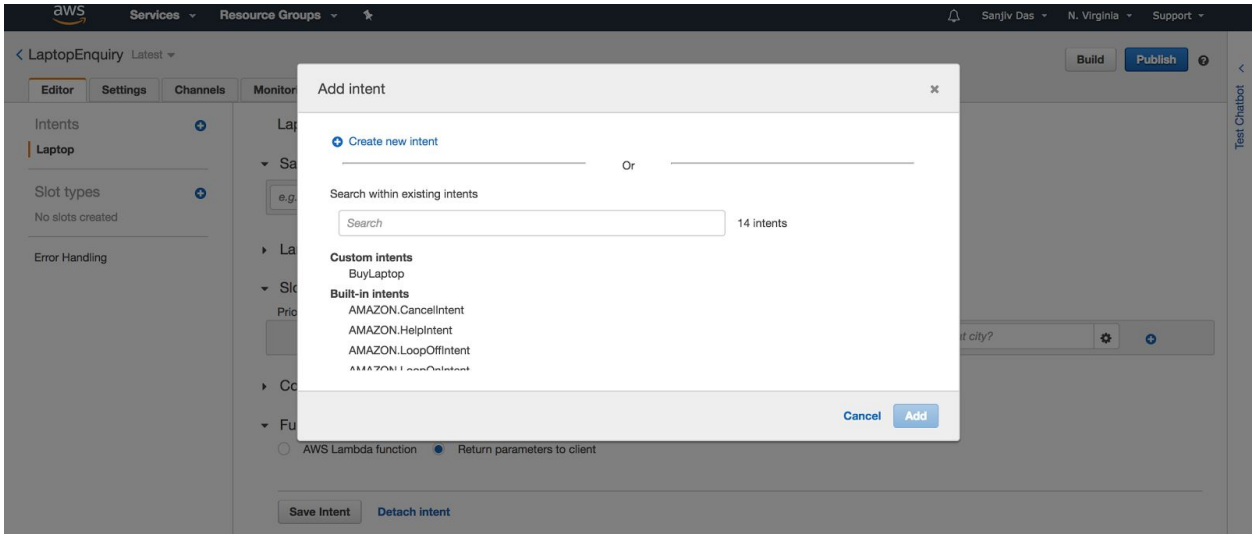
- **Intent:** Represents an action that the user wants to perform.
- **Utterances:** Sentences by a user to represent an intent. Example: I want to enquire about a laptop.
- **Slot**: Sets of information supplied by the user and required by the intent for it to get completed. The information may or may not be mandatory and is asked from the user while chatting with the user i.e., during the runtime.
- **Slot Types:** Each slot belongs to a particular type and has different properties related to the type of input from the user. Lex has hundreds of inbuilt slot types but users can always define their own.

We take the example of a “Laptop Enquiry” for this tutorial.

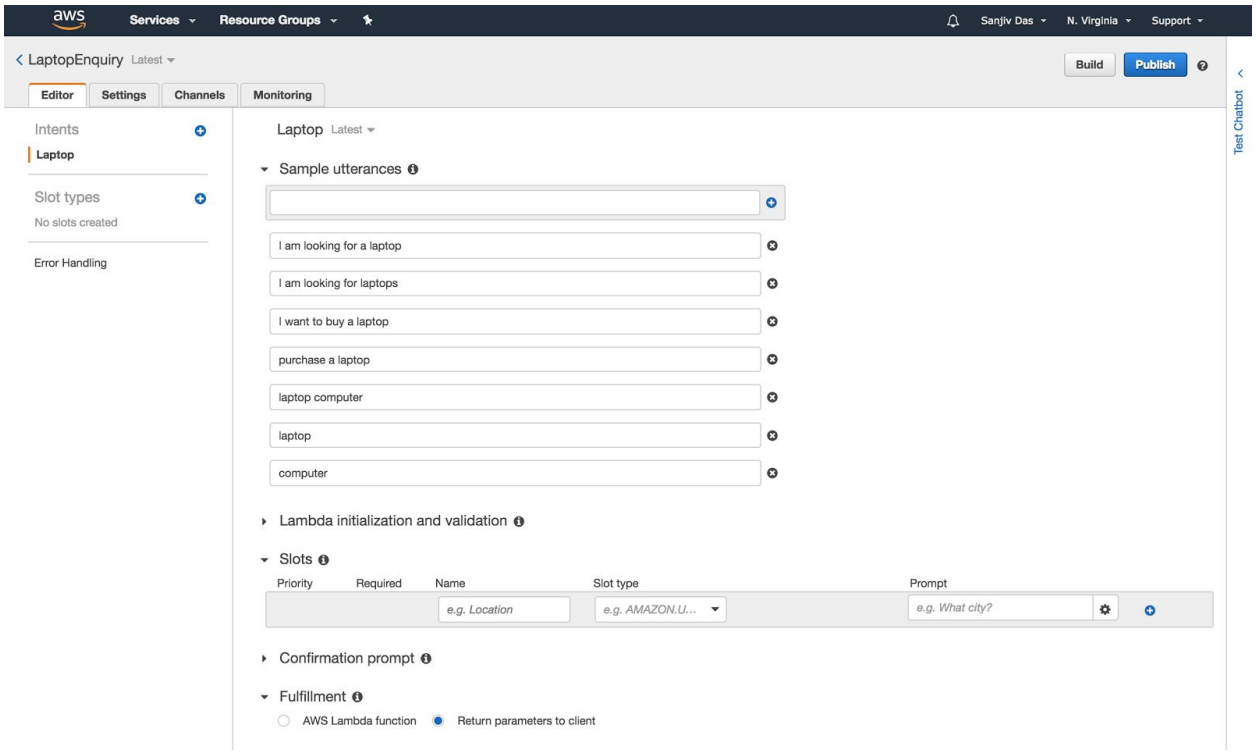
This is the dashboard of the chatbot where all the functionality can be modified. Firstly we have to define a new **intent** and its operation.



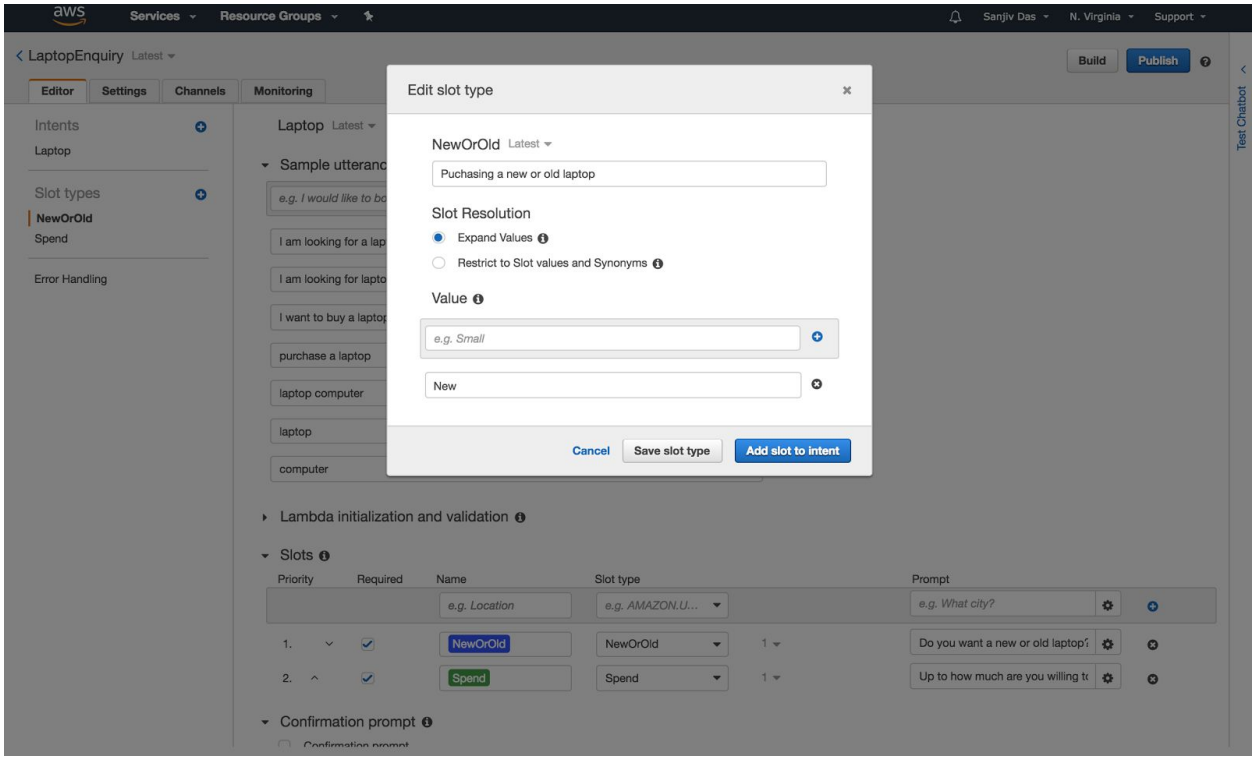
This is the screen which comes up when we create a new intent or we are currently on any of the intent. Here, inside the sample utterances we define various sentences or responses from the user, that will tell the chatbot about the intent of user.

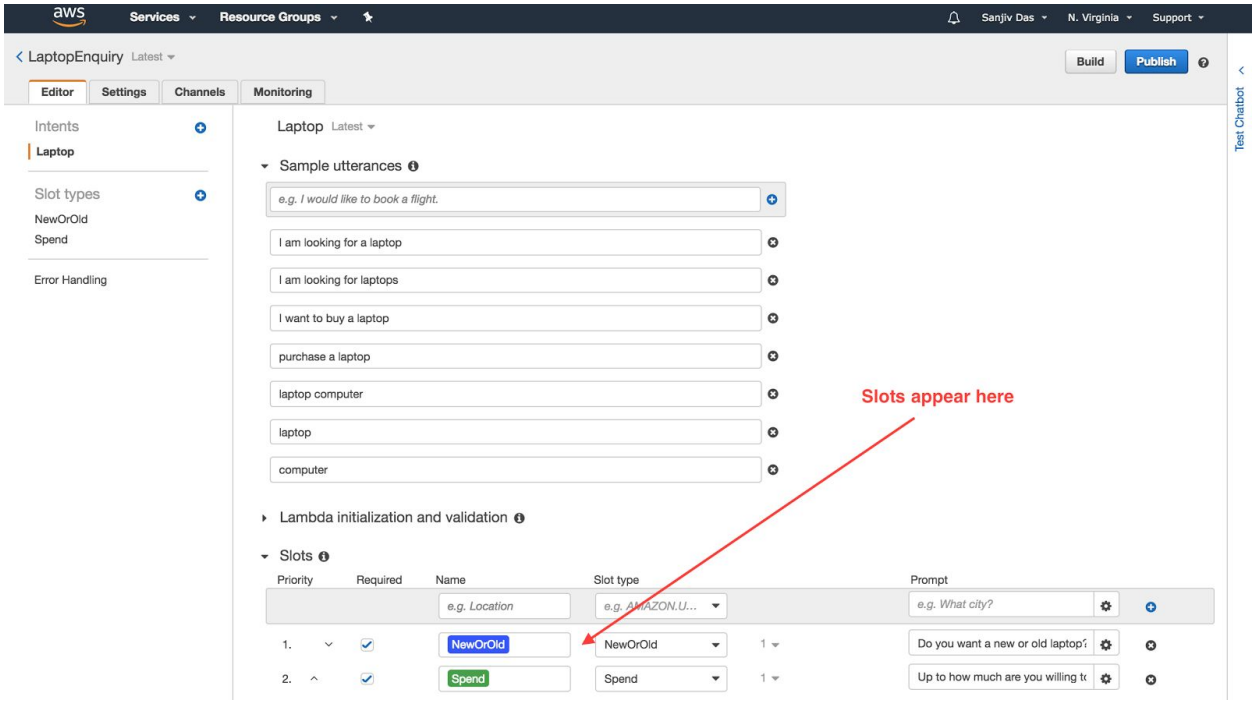


Next, we define multiple utterances so that the user may ask for any information in many different ways from the system.

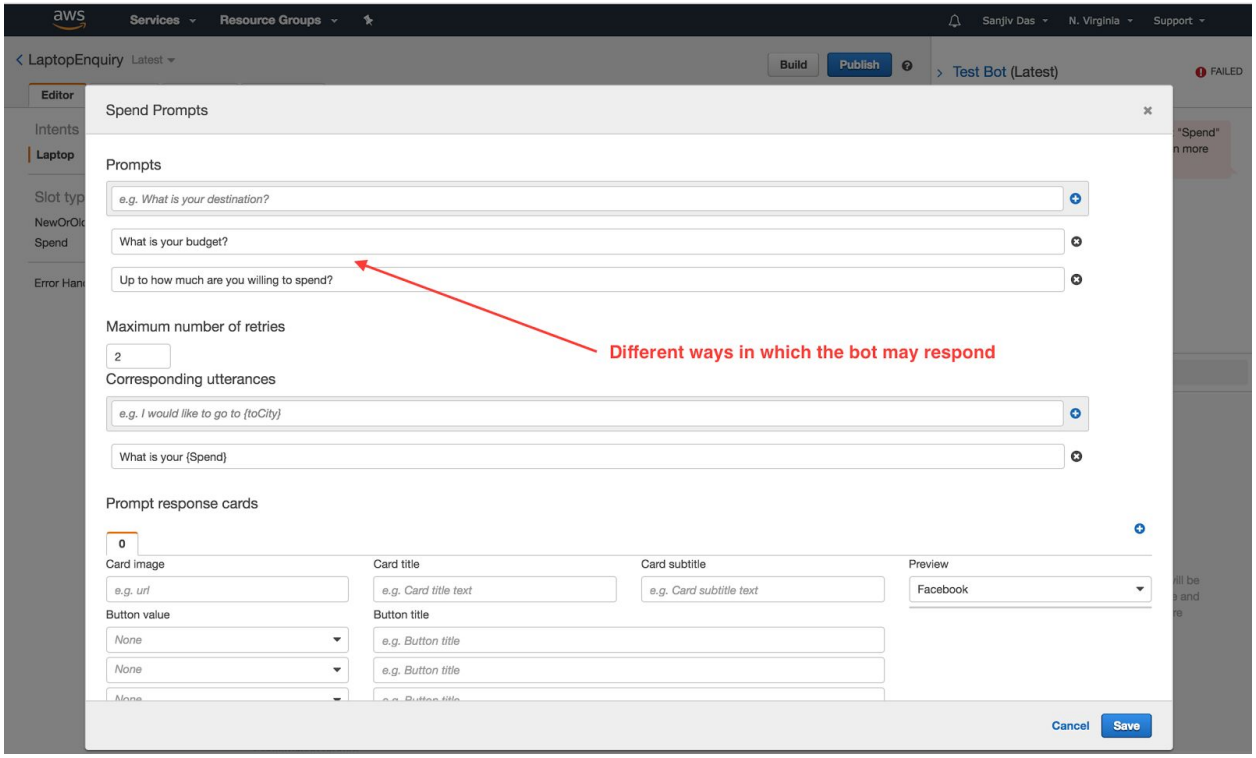


We add in new **slots**.

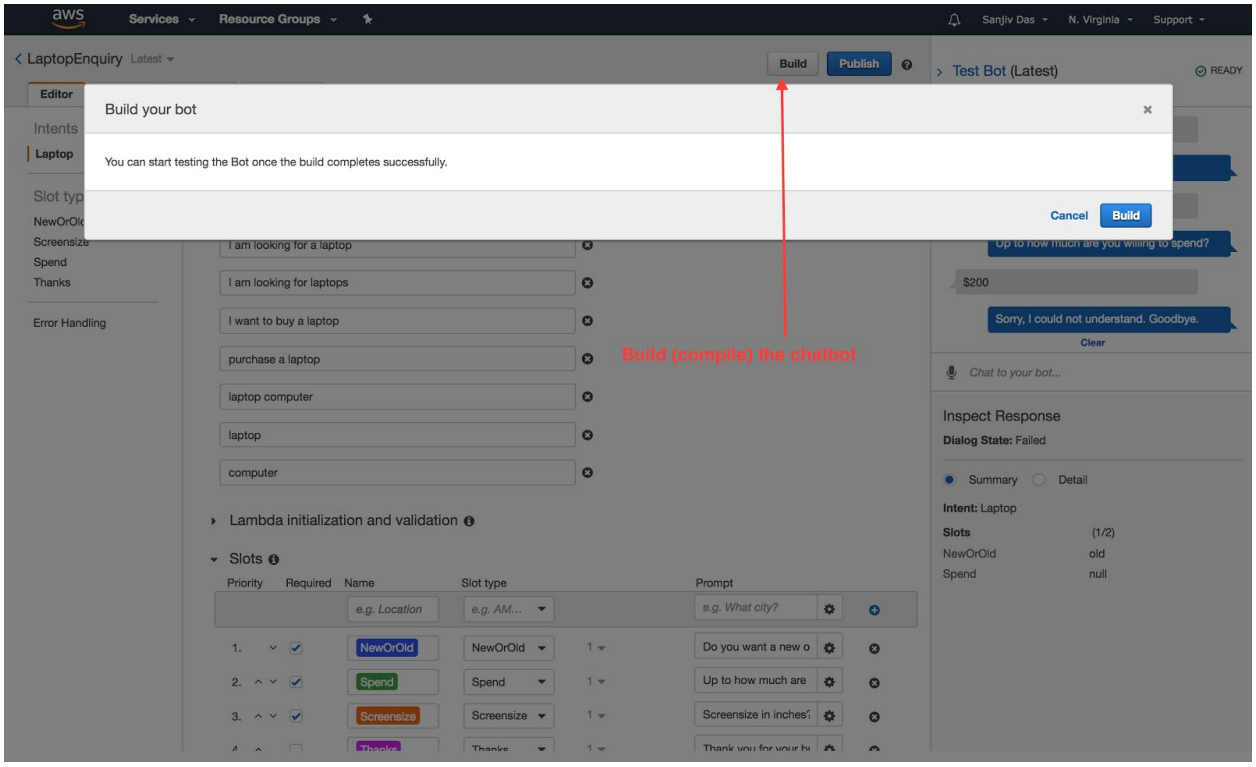




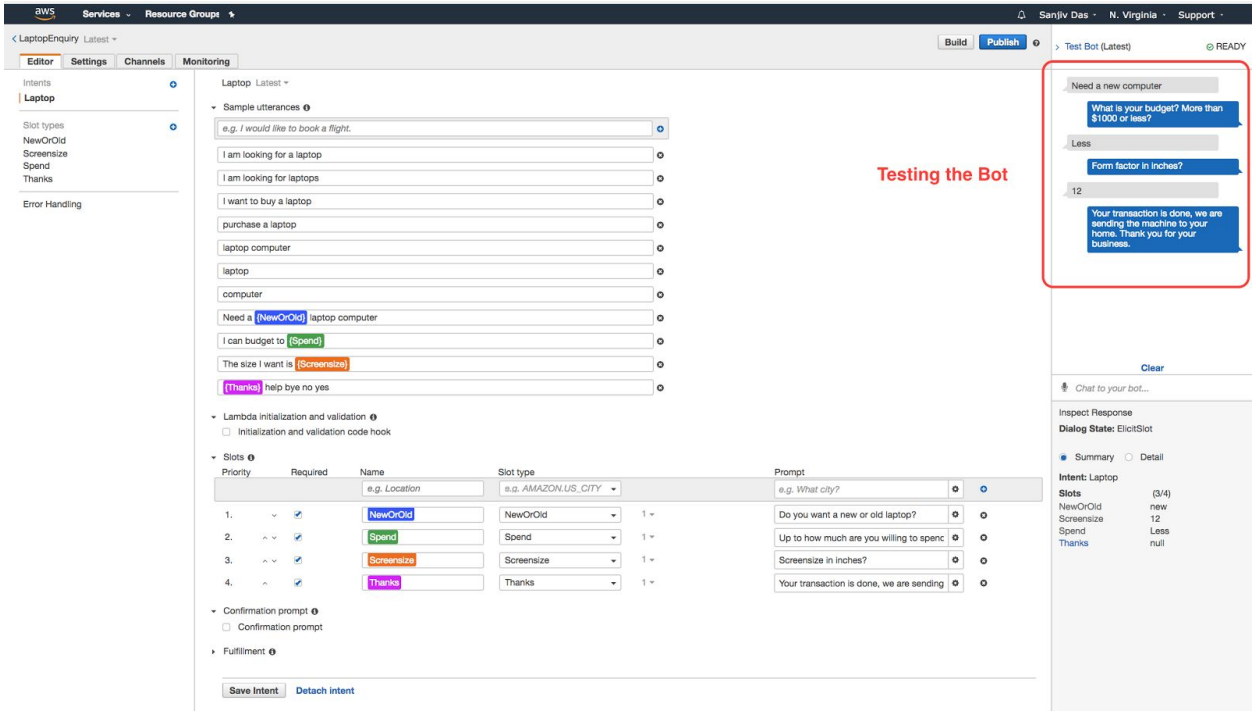
Now, add in all possible ways in which you may want the bot to respond.



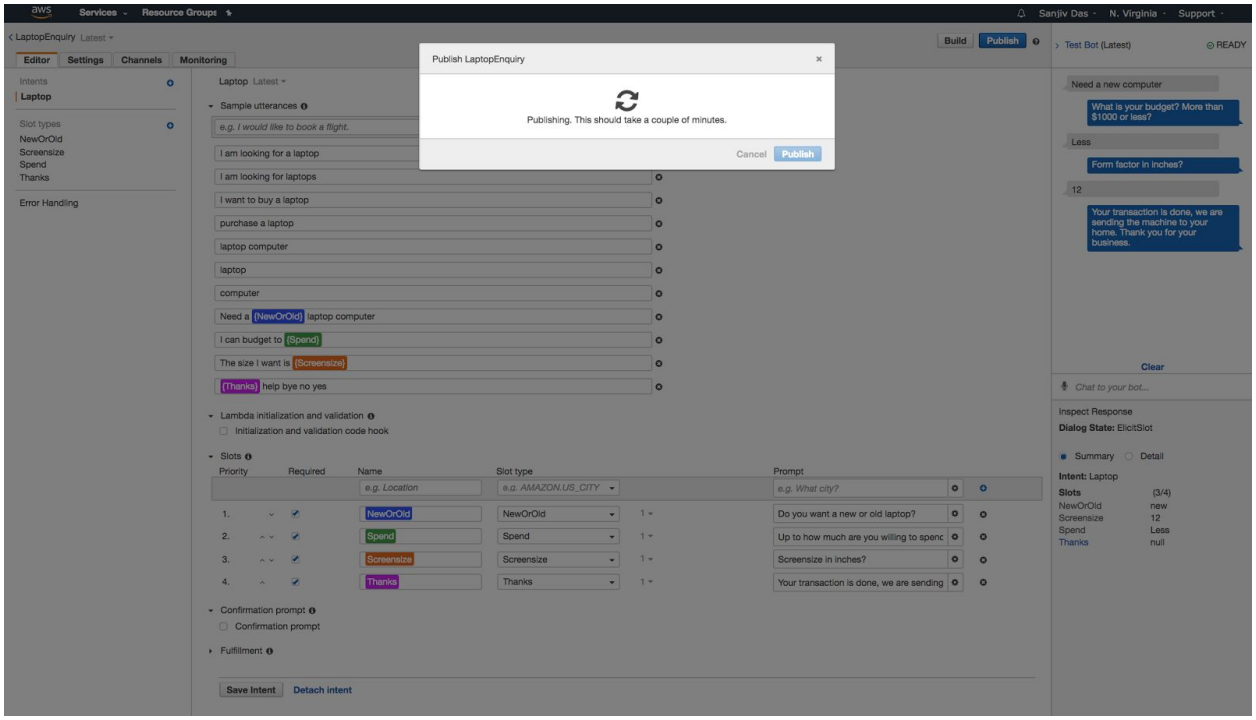
Then, build the chatbot.



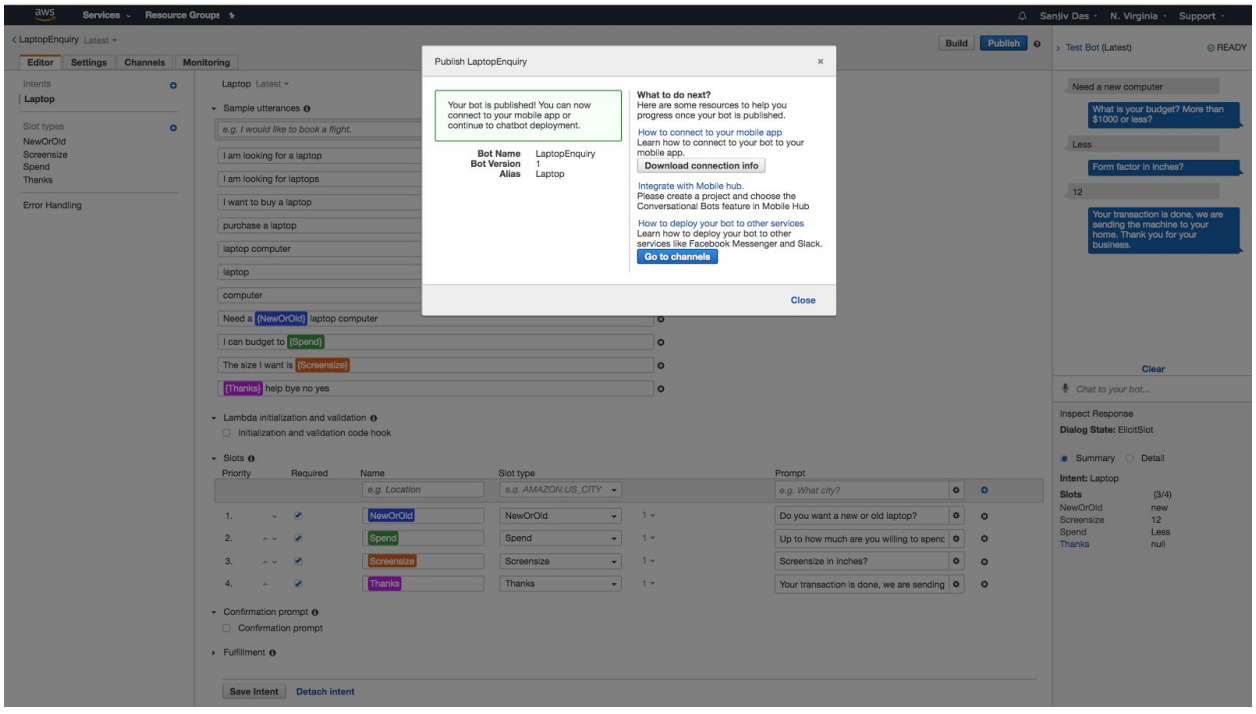
Finally, we test the bot.



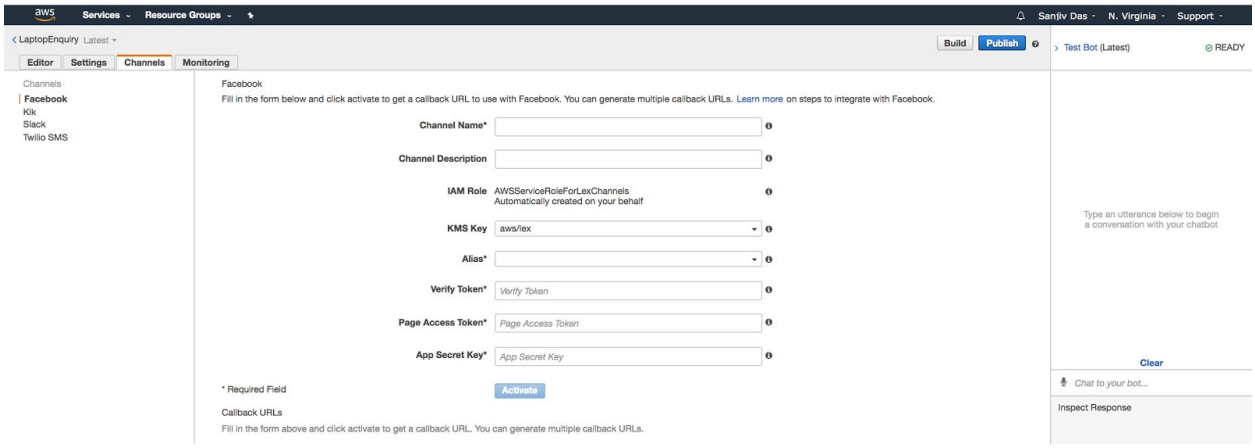
We may then publish the bot.



Here is what you get after publishing the bot.

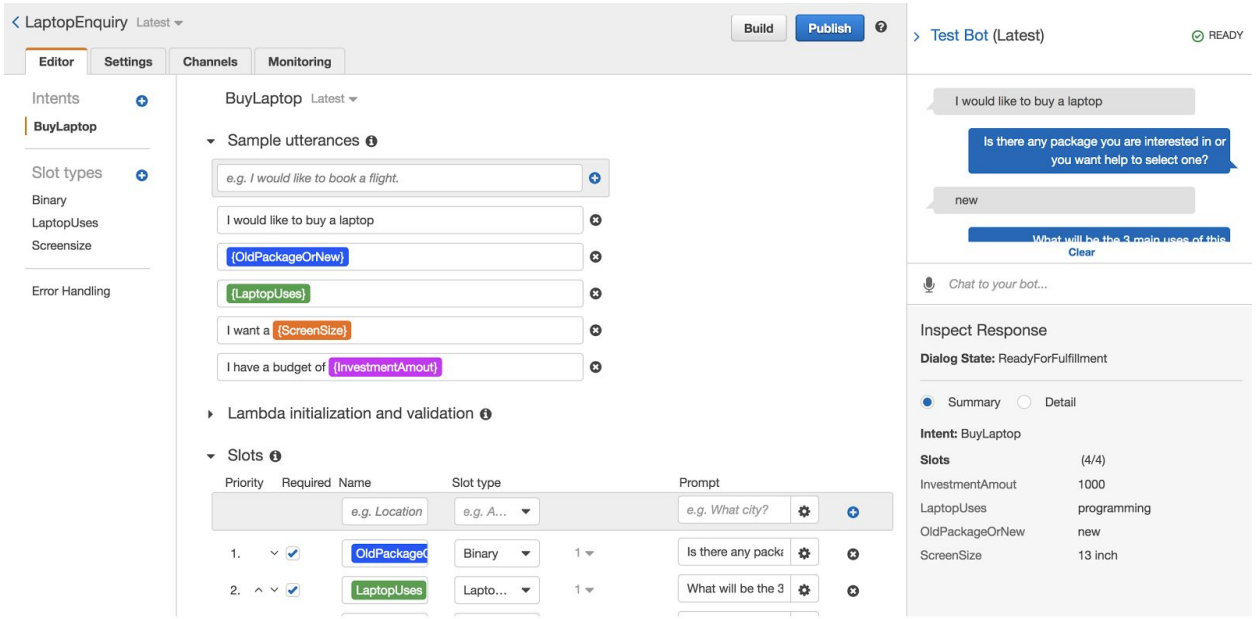


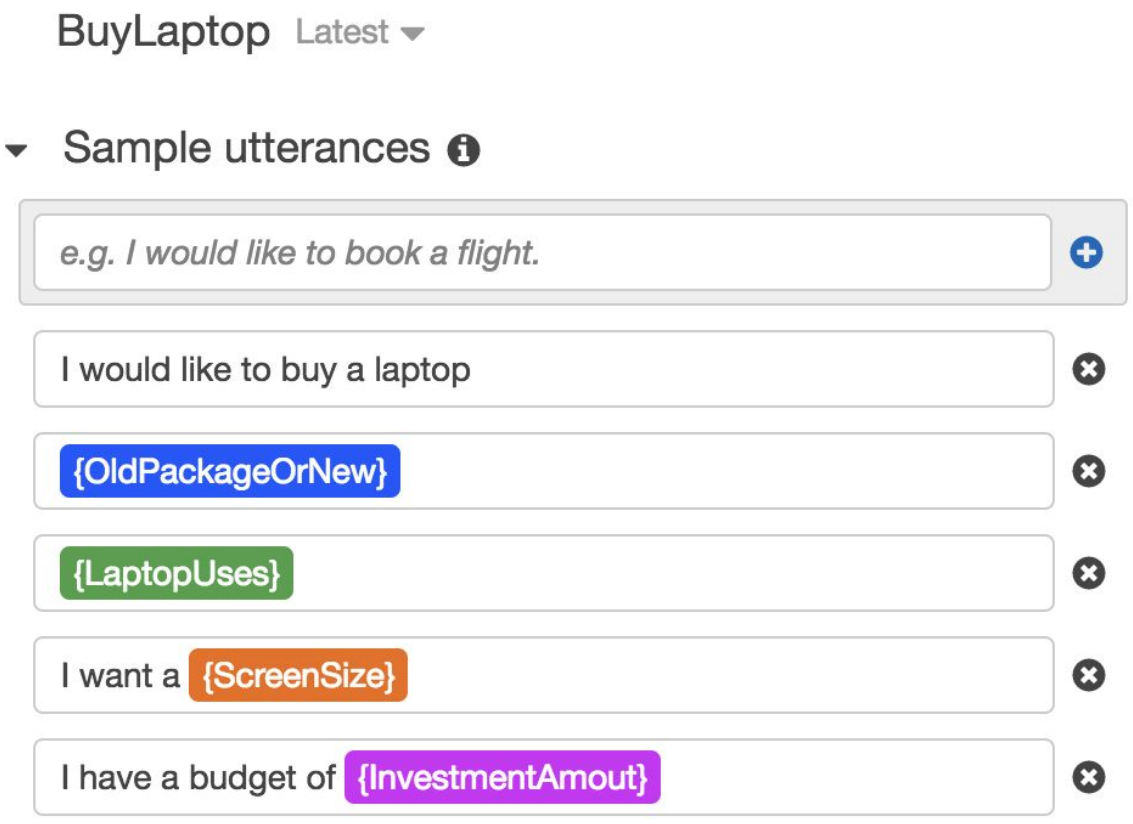
You can set up a callback URL in the channels tab.

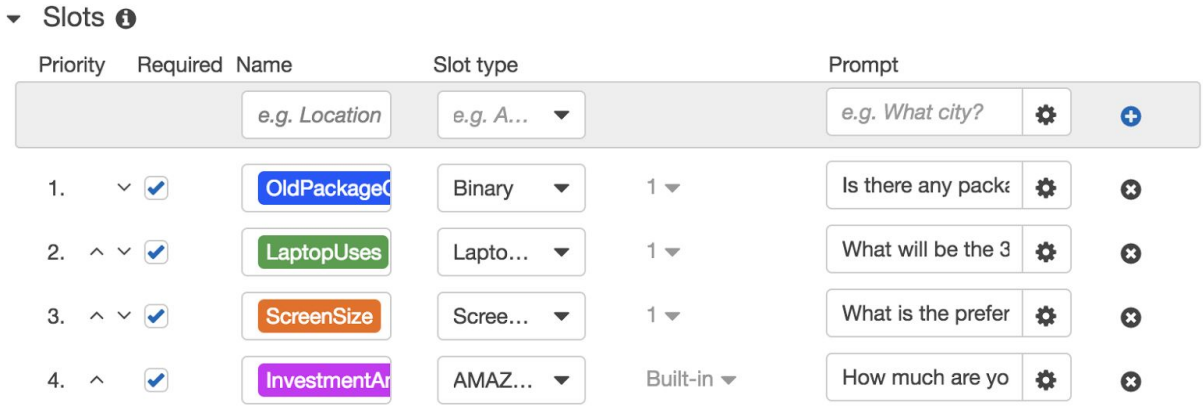

aws
Services
Resource Groups
Sanjiv Das
N. Virginia
Support
LaptopEnquiry
Latest
Build
Publish
Test Bot (Latest)
READY
Editor
Settings
Channels
Monitoring
Channels
Facebook
Kik
Slack
Twilio SMS
Facebook
Fill in the form below and click activate to get a callback URL to use with Facebook. You can generate multiple callback URLs. Learn more on steps to integrate with Facebook.
Channel Name*
Channel Description
IAM Role
AWSServiceRoleForLexChannels
Automatically created on your behalf
KMS Key
aws/lex
Alias*
Verify Token*
Verify Token
Page Access Token*
Page Access Token
App Secret Key*
App Secret Key
* Required Field
Activate
Callback URLs
Fill in the form above and click activate to get a callback URL. You can generate multiple callback URLs.
Type an utterance below to begin a conversation with your chatbot
Clear
Chat to your bot...
Inspect Response

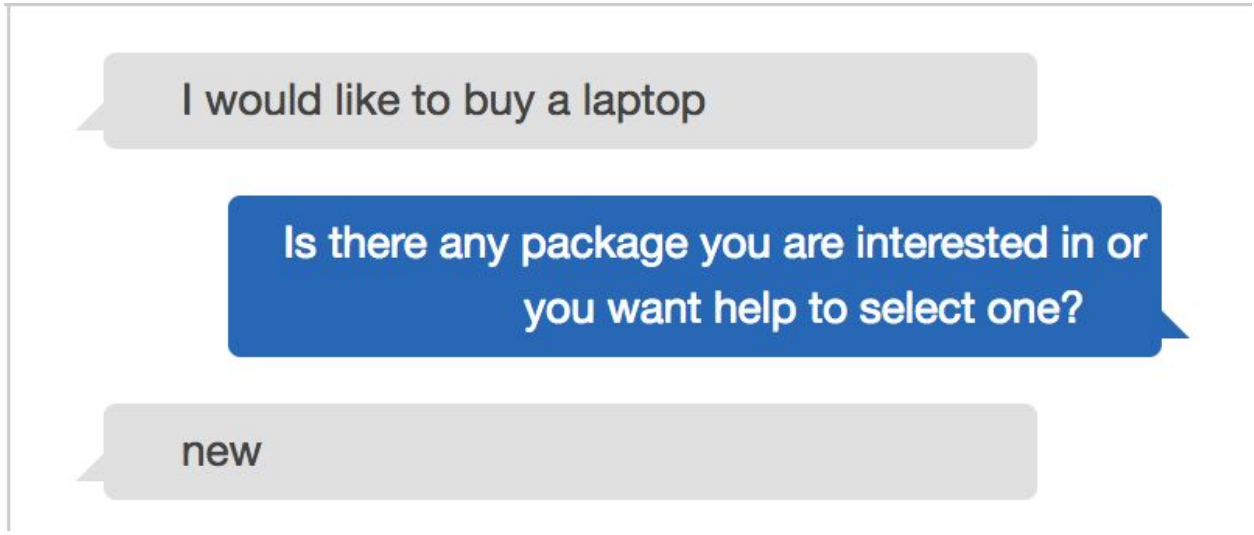
Done!

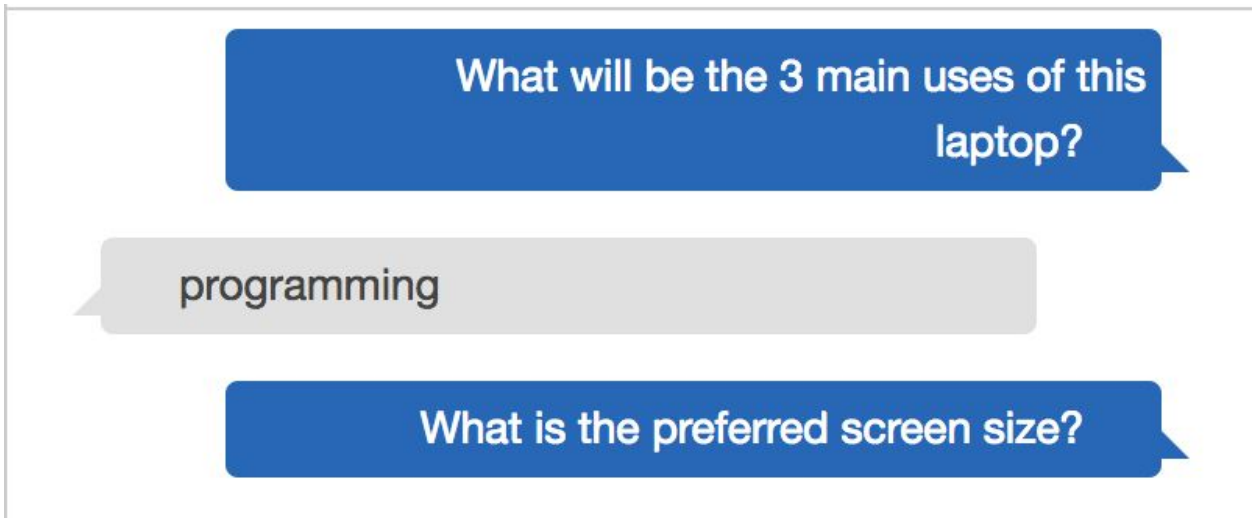
Edited out material


LaptopEnquiry Latest
Build
Publish
Editor
Settings
Channels
Monitoring
Intents
BuyLaptop
Slot types
Binary
LaptopUses
Screensize
Error Handling
BuyLaptop Latest
Sample utterances
e.g. I would like to book a flight.
I would like to buy a laptop
{OldPackageOrNew}
{LaptopUses}
I want a {ScreenSize}
I have a budget of {InvestmentAmout}
Lambda initialization and validation
Slots
Priority
Required
Name
Slot type
Prompt
e.g. Location
e.g. A...
e.g. What city?
1.
OldPackageO
Binary
1
Is there any packa
2.
LaptopUses
Lapto...
1
What will be the 3
Test Bot (Latest)
READY
I would like to buy a laptop
Is there any package you are interested in or you want help to select one?
new
Clear
Chat to your bot...
Inspect Response
Dialog State: ReadyForFulfillment
Summary
Detail
Intent: BuyLaptop
Slots
(4/4)
InvestmentAmout
1000
LaptopUses
programming
OldPackageOrNew
new
ScreenSize
13 inch


BuyLaptop Latest
Sample utterances
e.g. I would like to book a flight.
I would like to buy a laptop
{OldPackageOrNew}
{LaptopUses}
I want a {ScreenSize}
I have a budget of {InvestmentAmout}


Slots
Priority
Required
Name
Slot type
Prompt
e.g. Location
e.g. A...
e.g. What city?
1.
OldPackageC
Binary
1
Is there any packa
2.
LaptopUses
Lapto...
1
What will be the 3
3.
ScreenSize
Scree...
1
What is the prefer
4.
InvestmentAr
AMAZ...
Built-in
How much are yo


I would like to buy a laptop
Is there any package you are interested in or you want help to select one?
new


What will be the 3 main uses of this laptop?
programming
What is the preferred screen size?

13 inch

How much are you planning to invest?

1000$

Intent BuyLaptop is ReadyForFulfillment:
InvestmentAmout:1000
LaptopUses:programming
OldPackageOrNew:new ScreenSize:13
inch