

Library Management System using Alexa

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Abstract— Amazon Alexa, proverbial merely as Alexa, could be a virtual assistant AI developed by Amazon, 1st utilized in the Amazon Echo and therefore the Amazon Echo Dot sensible speakers developed by Amazon Lab126. it's capable of voice interaction, music playback, creating hoo-ha lists, setting alarms, streaming podcasts, taking part in audiobooks, and providing weather, traffic, sports, and different time period info, like news. Alexa may management many sensible devices exploitation itself as a home automation system. Most devices with Alexa allow users to activate the device using a wake-word (such as Alexa); other devices (such as the Amazon mobile app on iOS or Android and Amazon Dash Wand) require the user to push a button to activate Alexa's listening mode, although, some phones also allow a user to say a command, such as "Alexa" or "Alexa Currently, interaction and communication with Alexa are available only in English, German, French, Italian, Spanish, Portuguese, Japanese, and Hindi. In Canada, Alexa is available in English and French (with As of November 2018, Amazon had more than 10,000 employees working on Alexa and related products. The new Echo Studio became the first smart speaker with 360 sound and Dolby sound. Other new devices included an Echo dot with a clock behind the fabric, a new third-generation Amazon Echo, Echo Show 8, a plug-in Echo device, Echo Flex, Alexa built-in wireless earphones, Echo buds, Alexa built-in spectacles, Echo frames, an Alexa built-in Ring, and Echo Loop.

Keywords: How an Alexa Skill Works, What Are the Steps to Build a Skill? What is Library Management System, Modules, Background of Project-R Diagram, Activity Diagram, Class Diagram, Use Case Diagram, DFD Diagram

I. INTRODUCTION

A. How an Alexa Skill Works?

- 1) To launch the ability, the user says, "Alexa, open greeting World."
- 2) The Alexa-enabled device sends the auditory communication to the Alexa service in cloud. There, the auditory communication is processed via automatic speech recognition, for conversion to text, and linguistic communication understanding to acknowledge the intent of the text.
- 3) Alexa sends a JavaScript Object Notation (JSON) request to handle the intent to associate degree AWS Lambda operates within the cloud. The Lambda operate acts because the backend and executes code to handle the intent. during this case, the Lambda operate returns, "Welcome to the greeting World ability."

The associate degree Imation below demonstrates what happens once a user interacts with an Alexa ability. It assumes you're exploitation AWS Lambda, serverless cloud computing, to host your ability code.

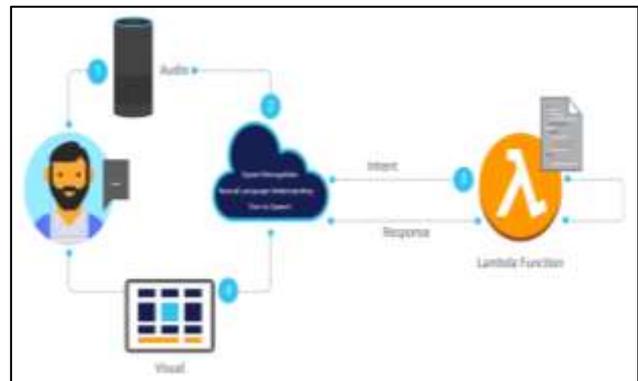


Fig. 1: Working of Alexa Skills[14]

II. WHAT ARE THE STEPS TO BUILD A SKILL?

A. Step 1: Design the Voice User Interface

Begin by coming up with the voice interaction model of your talent. Once you begin coming up with, you may quickly perceive that coming up with for voice is totally different than coming up with mobile or web-based apps. you wish to have confidence all the various ways that a user may move together with your voice talent. to produce a fluid and natural voice expertise, it's vital to script so act out the various ways that a user may sit down with Alexa. Also, if you have got a multi-modal expertise (voice and visual), you wish to think about totally different workflows to navigate through your talent.

B. Step 2: Build

Once your interaction model is prepared, build the utterances, intents, and slots within the Alexa developer console. The interaction model is saved in JSON format, and you'll edit the model with any edit tool. once your JSON interaction model is prepared, build the backend Lambda perform within the AWS Management Console.

Select the programming language of your selection and therefore the corresponding raise computer code development kit (SDK), and start writing your ability. The raise SDK and Lambda conjointly support Node.js, Python, and Java.

You can build and host most skills at no cost with AWS Lambda, that is free for the primary a meg calls per month. you'll provision your own Lambda terminus or use Alexa-hosted skills, that provisions one for you while not the necessity to make Associate in Nursing AWS account. Once the backend Lambda perform is prepared, integrate the Lambda perform to your ability and take a look at it within the Alexa developer console. Take module three, four and five of this course to find out the way to integrate the console and host your ability.

C. Step 3: Test

The Alexa developer console has a built-in Alexa simulator, which is similar to testing on an actual Alexa-enabled device.

After testing your skill with the Alexa simulator, we recommend gathering user feedback to resolve issues and make improvements before submitting your skill for certification.

D. Step 4: Certification and launch

After beta testing your skill, submit it for certification. Once your skill passes certification, it will be published in the Alexa Skills Store for anyone to discover and use. Start promoting it to reach more customers.

III. WHAT IS LIBRARY MANAGEMENT SYSTEM?

A college library management could be a project that manages and stores books data electronically consistent with students wants. The system helps each students and library manager to stay a continuing track of all the books obtainable within the library. It permits each the admin and also the student to look for the required book. It becomes necessary for schools to stay a continual check on the books issued and came and even calculate fine. This task if applied manually are going to be tedious and includes probabilities of mistakes. These errors are avoided by permitting the system to stay track of knowledge like issue date, last date to come back the book and even fine data and therefore there's no got to keep manual track of this data that thereby avoids probabilities of mistakes.

Thus, this method reduces manual work to a good extent permits sleek flow of library activities by removing probabilities of errors within the details.

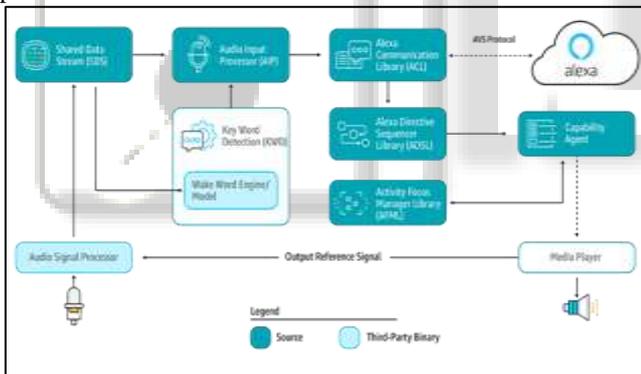


Fig. 2: Library Management System Using Alexa[14]

IV. MODULES

Admin login: Admin is that the one UN agency administers the system by adding or removing e-books into and from the system severally.

- User login: Students ought to register themselves into the system to make Associate in Nursing account. when registering with success, they'll then login into the system by getting into ten-digit mobile range and their email id.
- Add and Update Books: The admin will add books to the system by getting into the small print of the books and might even update the small print.
- Search option: Admin and Students will even seek for books by getting into the name of the book.
- View Order-The admin will read order for the books.

- Place order- the scholars will place order for the books and at the same time the number of the book ordered are going to be decremented.

Calculate Fine- the coed will read the problem and expiration date for the book issued and might even calculate fine.

V. BACKGROUND OF PROJECT

Library Management System is an application which refers to library systems which are generally small or medium in size.

It is used by librarian to manage the library using a computerized system where he/she can record various transactions like issue of books, return of books, addition of new books, addition of new students etc. Books and student maintenance modules are also included in this system which would keep track of the students using the library and also a detailed description about. With this computerized system there will be no loss of book record or member record which generally happens when a non-computerized system is used. In addition, report module is also included in Library Management System. Admin, the user is able to generate different kinds of reports like lists of students registered, list of books, issue and return reports. All these modules are able to help librarian to manage the library with more convenience and in more efficient way as compared to library systems which are not computerized

VI. ER DIAGRAM

ER Diagram shows the entity relationship among the system

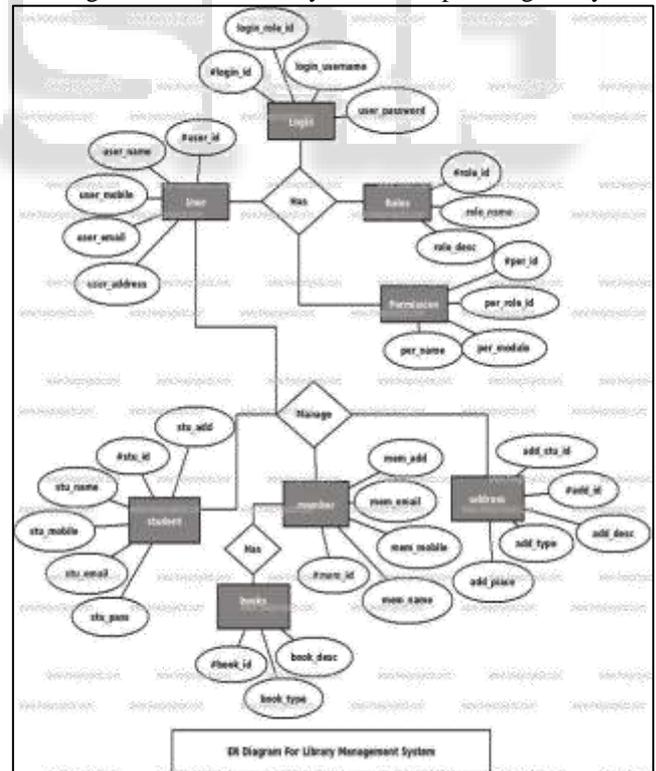


Fig. 3: ER-Diagram of Library Management System [15]

A. Activity diagram

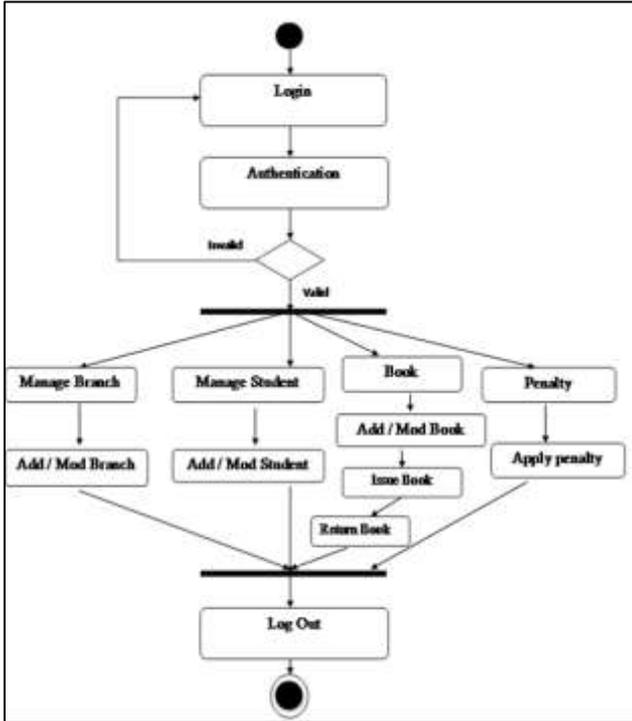


Fig. 4: Activity Diagram

B. Class Diagram

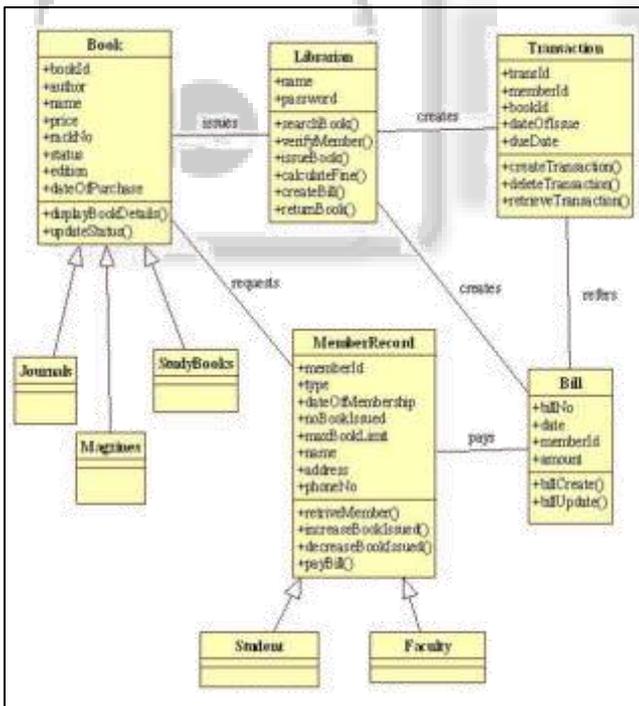


Fig. 5: Class Diagram

C. Use case diagram

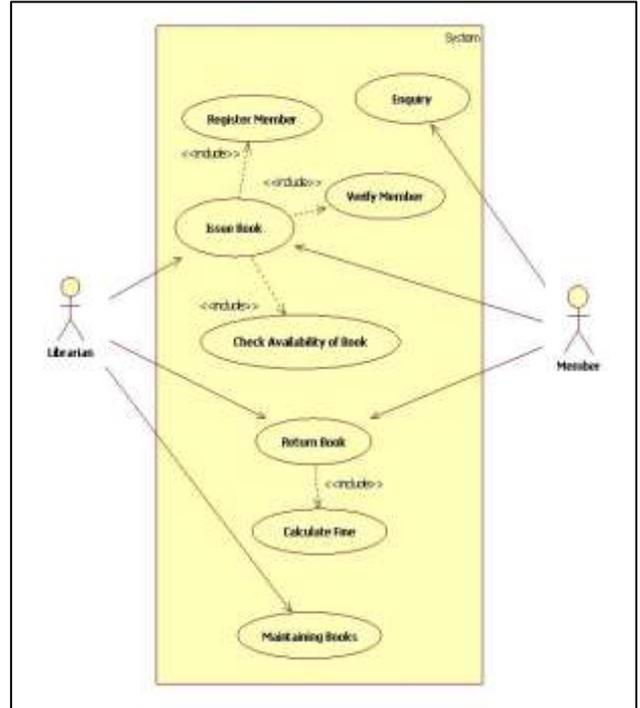


Fig. 6: Use Case Diagram of Library Management System

D. DFD diagram

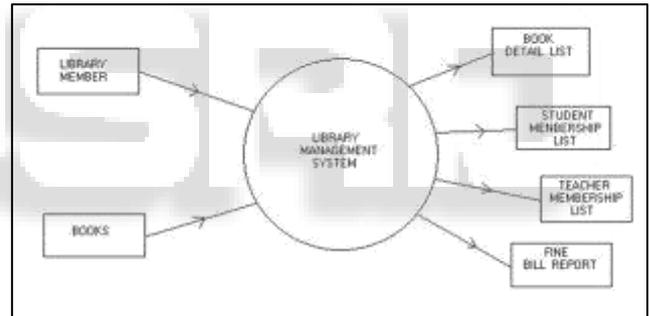


Fig. 7: Level 0 DFD Library Management System

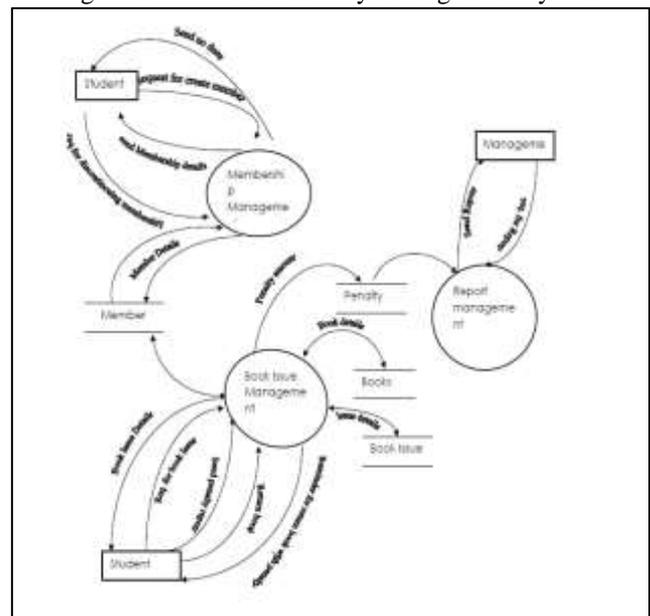


Fig. 8: Level 1 DFD Library Management System

VII. ADVANTAGE OF LIBRARY MANAGEMENT SYSTEM USING ALEXA

- 1) The system excludes the utilization of paper work by managing all the book data electronically.
- 2) Admin will keep change the system by providing the new books arrival in system and their availableness so students needn't to travel to library for issue purpose.
- 3) The system has books well organized and consistently organized in several classes within the system so user will simply search and notice the book.
- 4) It saves human efforts and resources.

VIII. CONCLUSION

The Library Management System allows the user to store the book details and the person's details. This software allows storing the details of all the data related to library. The implementation of the system will reduce data entry time and provide readily calculated reports. Library Management System with the functional modules was successfully developed as a secured, digitalized and user-friendly system for the governing of public. Thus, the system created to overcome the problems effectively without any corrupted data or information.

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