B2B Chat bot

Indian Bank

**CHAPTER 1: INTRODUCTION**

Abstract:

Banking Chat Bot- This is an AI based project which uses several ML algorithms for Natural Language Understanding which identifies intent and entities from user issues and generates dialogue. This project can help Banks to add Chabot in their web-application, and call centres so that customer can ask question to Chabot to Banks without visiting to Bank. Banking Chat Bot- This is an AI based project which uses several ML algorithms for Natural Language Understanding which identifies intent and entities from user issues and generates dialogue.

Platform Requirements Consideration:

* Python (v3.6.3) and Libraries required for AI and Natural Language Processing(NLP)
* Rasa Core (v0.11.12)
* Rasa NLU (v0.13.7)
* Bootstrap (v3.3.7)
* AngularJS (v1.6.4)
* jQuery (v1.10.2)
* SQL Server 2014
* PHP (v5.6.32)
* MongoDB

Problem Statements of Chatbot List

* 350 FAQ for which bot should respond
* Admin platform where FAQ can be edited/added/deleted
* Go Live date is 2 months from the time project is started
* SSO feature should be enabled

Solution List of Above Use Case

Project Technical stack details:

* Where stacks used is Angular, Python, and Mongo DB.

Project Schedule details:

* Gantt chart which show different activities (Ex Development, integration, deployment, testing etc...)

Project Methodologies details: -–(Separate file Attached in trail Mail)

* Involved for the project with week wise details following agile method.

Please submit below Project Communication details-–(Separate file Attached in trail Mail)

Plan for keeping all stakeholders updated

Project Resource details:

Number of resources required (front end, backend, DB)

**Problem Statements of Chabot**

Chatbot FAQs Creation: chatbot-FAQ article explains all fundamental buzzwords in plain English.

* Create 350 FAQs for which banking Chatbot should respond to customer :

Chatbot FAQs List:

1. **Welcome** – *(Hi ​​! Welcome to Exponentia Bank, I am Dev. - Exponentia Bank Chatbot.)*
2. ***What is your name?*** *(Shivangi Ranjan)*
3. ***How may I help you -***
4. *Account Opening Saving /Current / Account*
5. *Applying for Credit Card*
6. *Applying for Debit Card*
7. *Applying for Forex Card*
8. *Applying for Home Loan*
9. *Applying For Personal loan*
10. *Applying for Business loan*
11. *Information On others Product/Services*
12. ***Also, I can help you with things like:***
13. ***Online banking Login – Personal / Corporate***
14. *Secure Login – User Name / Password / Security Check/* *Audio Captcha*
15. *Forgot Username / Password*
16. *Enter Details*
17. *Credit Card Numbers*
18. *Debit Credit Card Numbers*
19. *PIN: Enter any number*
20. *Verify Mobile Number*
21. *Enter Temporary Password*
22. *Create Personal Login*
23. *Reset Username and*
24. *Password Complete*
25. ***Offers – Deals & discount / Cash back***
26. ***Whatsapp banking***
27. *I can help you with that! Please enter your registered 10 digit mobile number.*
28. *How can I unsubscribe from WhatsApp Banking?*
29. *Is WhatsApp Banking secure?*
30. ***Fastag***
31. *Do you have a HDFC Bank Savings Account? -Yes/no*
32. *Enter your Customer ID\**
33. *Send the verification code on mobile enter the number*
34. *Fill the details of application Name / Mobile / email /DOB/ ID Proof-DL/PAN/ADHAAR /*
35. *UPLOAD Proof*
36. *Vehicle Information – Upload Vehicle Required documents*
37. *Select the Amount –Transaction*
38. *Confirmation -* *Enjoy automatic and cashless toll\* payments in easy steps*
39. ***Book/tickets - Please choose one of the following –***
40. *Train – (Train Website Opens- in association with rail organization )*
41. *Bus - (Bus traveling Website Opens- in association with bank tie up)*
42. *Flight (Goair /indigo/spicejet/vistara etc airlines booking portal will open in association with bank)*
43. *Hotel (Smilarly various hotel booking websites will open )*
44. ***Paybills/Recharge***
45. *Mobile Prepaid /post recharge –*
46. *(Enter mobile number >>Select the operator >> Select Connection time>> Select plan >> Amount of Recharge*
47. *Gas Recharge*
48. *(>> Select the Gas provider list >> Enter Account Number >> Fill the application consumer details >> Select the payment method >> Get the transcation>> Messages of successful.)*
49. *DTH Recharge >>*
50. *( Select the Service provider >> Put the recharge number which is visible on TV >> Select the payment method with Netbanking / UPI Login)*
51. *Electricity bill*
52. *( Select the Service provider >> Put the recharge number which is visible on TV >> Select the payment method with Net banking / UPI Login)*
53. ***Track Application -To check the status of your application, please use the appropriate link -***
54. *Credit card application status (Mobile Number / Application number / DOB)*
55. *Loan application status*
56. *Current Account application status*
57. *Savings and Salary Account application status.*
58. ***Make Deposit : Please choose from a service below to get started****:*
59. ***Fixed Deposit –***
60. *Happy to be of service! You can book a Fixed Deposit online by following these steps:*
61. *Login to NetBanking*
62. *Under the Accounts Tab select 'Transact'*
63. *Click on the option 'Open Fixed Deposit > Rs 5 cr'*
64. *Fill in the details required and click on 'Continue' and then 'Confirm'*
65. *Please note that you can book an FD through Netbanking provided:*
66. *You have registered for the facility with necessary online financial transaction rights.*
67. *Your PAN number is updated under your Customer Identification Number in Bank records.*

***Physical advice will not be sent for Fixed Deposits booked through NetBanking. You can view your FD summary on NetBanking under 'Enquire' in Accounts tab. In case you want physical advice, you can get one from your nearest HDFC bank branch. You can also book a Fixed Deposit using Mobile App.***

1. *Login to Mobile Banking App*
2. *Go to Menu*
3. *Click on Save*
4. *Select Open Fixed Deposit*
5. *Enter Deposit details and Confirm*
6. ***Recurring***
7. *To open a Recurring Deposit account you can apply online as follows:.*
8. *Login to Netbanking > Accounts Tab > Transact (left hand side margin) > Open Recurring Deposit.*
9. *Fill in the required details and you are good to go!.*
10. ***Deposit Dream Deposit*** *: Dream Deposits can only be booked through NetBanking as follows:*
11. *Login to NetBanking with your Customer ID and IPIN (NetBanking password)*
12. *Click on Transact Tab under Accounts Tab on the left hand side of the web page*
13. *Select "Open Dream Deposit" option*
14. *Select the Dream Deposit amount and target date*
15. *Once complete, click on "Continue" and "Confirm" the details entered*
16. ***5 Year Tax Saving Fixed Deposit***
17. *Online: You can open your 5 year Tax Saving FD through NetBanking.*
18. *Login to NetBanking and follow this path:*
19. *>Accounts Tab>Transact (left hand side margin)>Open Fixed deposit < 5 cr (first option)>You will get the page to open a fixed deposit, select the tax saving deposit option and fill in the necessary details and make your submission.*
20. *Branch: You can also visit the nearest branch and fill the fixed deposit booking account opening form to open a 5 Year Tax Saving Fixed Deposit.*
21. ***Interest Rates & Eligibility***
22. ***Interest Rates***

|  |  |
| --- | --- |
| **Tenor** | **MCLR in %** |
| Overnight | 7.8 |
| 1 month | 7.85 |
| 3 month | 7.9 |
| 6 month | 8 |
| 1 year | 8.15 |
| 2 year | 8.25 |
| 3 year | 8.35 |

*Note: Effective Date: November 29, 2019​​​​​​​ Base Rate - 8.85% PLR (BPLR) - 17.35%*

1. ***Savings Account interest rate***

|  |  |
| --- | --- |
|  |  |
| **Savings Bank balance** | **Revised Rate w.e.f 7th January, 2019** |
| Rs. 500 Crore and above | RBI Repo rate + 2 basis points |
| Rs. 50 lakh and above but less than Rs. 500 Crore | 4% |
| Below Rs 50 lakh | 3.50% |

***Note: Savings Bank interest will be calculated on the daily balances maintained in your account.***

1. ***Fixed deposit less than 5 Crores***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Period | < 2 Crore | | >=2 Crore to < 5 Crores | |
|  | Interest Rate (per annum) | \*\*Senior Citizen Rates (per annum) | Interest Rate (per annum) | \*\*Senior Citizen Rates (per annum) |
| 7 - 14 days | 3.50% | 4.00% | 4.00% | 4.50% |
| 15 - 29 days | 4.00% | 4.50% | 4.00% | 4.50% |
| 30 - 45 days | 4.90% | 5.40% | 4.50% | 5.00% |
| 46 - 60 days | 5.40% | 5.90% | 5.00% | 5.50% |
| 61 - 90 days | 5.40% | 5.90% | 5.00% | 5.50% |
| 91 days - 6 months | 5.40% | 5.90% | 5.00% | 5.50% |
| 6 months 1 days - 9 months | 5.80% | 6.30% | 5.50% | 6.00% |
| 9 month’s 1 day < 1 Year | 6.05% | 6.55% | 5.75% | 6.25% |
| 1 Year | 6.30% | 6.80% | 6.00% | 6.50% |
| 1 year 1 day - 2 years | 6.30% | 6.80% | 6.00% | 6.50% |
| 2 years 1 day - 3 years | 6.40% | 6.90% | 6.10% | 6.60% |
| 3 year 1 day- 5 years | 6.30% | 6.80% | 6.10% | 6.60% |
| 5 years 1 day - 10 years | 6.30% | 6.80% | 6.10% | 6.60% |

1. ***Recurring Deposit Rates***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Period** | **Interest Rate (per annum)** | **\*\*Senior Citizen Rates (per annum)** | **Interest Rates p.a. for NRIs** | **Effective From** |
|  |  |  |  |  |
| 6 Months | 5.40% | 5.90% | N.A. | Nov 16, 2019 |
| 9 Months | 5.80% | 6.30% | N.A. | Nov 16, 2019 |
| 12 Months | 6.30% | 6.80% | 6.30% | Nov 16, 2019 |
| 15 Months | 6.30% | 6.80% | 6.30% | Nov 16, 2019 |
| 24 Months | 6.30% | 6.80% | 6.30% | Nov 16, 2019 |
| 27 Months | 6.40% | 6.90% | 6.40% | Nov 16, 2019 |
| 36 Months | 6.40% | 6.90% | 6.40% | Nov 16, 2019 |
| 39 Months | 6.30% | 6.80% | 6.30% | Nov 16, 2019 |
| 48 Months | 6.30% | 6.80% | 6.30% | Nov 16, 2019 |
| 60 Months | 6.30% | 6.80% | 6.30% | Nov 16, 2019 |
| 90 Months | 6.30% | 6.80% | 6.30% | Nov 16, 2019 |
| 120 Months | 6.30% | 6.80% | 6.30% | Nov 16, 2019 |

1. ***Base Rate : The base rate of the bank is 8.85% with effect from 29/11/2019***
2. ***Benchmark PLR - 17.35 % p.a. with effect from 29/11/2019***
3. ***Forex Rate***

|  |  |  |
| --- | --- | --- |
| **January 30, 2020** | | |
| **Currency (quoted vs. INR)** | **Currency** | **Rate applicable** |
| United States Dollar | USD | 70.85 |
| Euro | EUR | 77.94 |
| Great Britain Pound | GBP | 92.17 |
| Japanese Yen | JPY | 0.65 |
| Australian Dollar | AUD | 47.51 |
| Canadian Dollar | CAD | 53.42 |
| Swiss Francs | CHF | 72.61 |
| Hong Kong Dollar | HKD | 9.06 |
| Singapore Dollar | SGD | 51.84 |
| New Zealand Dollar | NZD | 45.1 |
| Swedish Kroner | SEK | 7.2 |
| U.A.E. Dirham | AED | 19.1 |
| Danish Krone | DKK | 10.21 |
| Norwegian Krone | NOK | 7.52 |
| Saudi Riyal | SAR | 18.77 |
| Omani Rial | OMR | 182.92 |
| South African Rand | ZAR | 4.7 |
|  |  |  |
|  |  |  |
| **Swap Cost** | | |
| **Currency (quoted vs. INR)** | **Tenor in months** | **Cost** |
| USD | 6 Months | 4.28% |
| USD | 12 Months | 4.26% |
| GBP | 12 Months | 5.71% |
| EUR | 12 Months | 6.96% |

***Eligibility:*** *Please use the following links to check the eligibility for different products -*

1. *Personal Loan Eligibility*
2. *Home Loan Eligibility*
3. *Car Loan Eligibility*
4. *Eligibility for various Credit Cards*
5. *Super Bike and Two wheeler loan Eligibility*
6. *Check Eligibility - Loans and* ***Cards***

***The following product(s) against which you have a pre-approved offer.***

1. *You are pre-approved for a Personal loan of upto ₹.8,00,000*
2. *You are pre-approved for a Auto loan of upto ₹.19,29,030*
3. *You are pre-approved for a Two wheeler loan of upto ₹.6,43,010*
4. ***Block debit/credit Card:***

*You can use the following processes for Hotlisting/blocking Debit Cards:*

1. ***Mobile App:***

*1. Login to MobileBanking App*

*2.Go to Menu*

*3.Click on PAY and then Cards*

*4.Select Card*

*5. Select Block*

1. ***NetBanking:***
2. *Login to NetBanking using your NetBanking Id and Password*
3. *Click on the new Debit Card tab and then on Debit Card Hotlisting at the left hand side. This will give you the Debit Cards that are linked to your account.*
4. *If there are more than one Debit Card linked to your account, you will get a list of the same. Click on the Debit Card No. you wish to hotlist.*
5. *Select the reason for hotlisting onvey your remarks and confirm.*
6. *You will receive confirmation that the Card has been hotlisted online. You can also simultaneously place a request for a replacement card.*
7. ***PhoneBanking:***
8. *You can report to our PhoneBanking unit to have the card hotlisted (cancelled). This facility is available round the clock. Simultaneously, you may also place your card replacement request. Please click here to find the Phone Banking number for your city.*
9. ***At the Branch:*** *An application form for blocking your debit card can be obtained at your nearest branch, or you can download it here and submit it at the nearest branch to hotlist your card*
10. ***Investment :***
11. *Mutual Fund*
12. *Gold Bonds*
13. *Investment Linked insurance*
14. ***Insurance***
15. *Travel Insurance*
16. *Health Insurance*
17. *Home Insurance*
18. *Term Insurance*

*(Please visit to branch Relationship manager for get the full information or visit our websites)*

1. ***Need Help***
2. *24/7 Phone Assistance*
3. *Order cheque book*
4. *Branch /ATM locator nearby – (Internet +GPS)*
5. *Please call Phone Banking or email us*
6. *PIN RESET -How do you want to reset your IPIN?*
7. *Online*
8. *ATM*
9. *Phone Banking*
10. *Branch*
11. *Frequently Asked Questions*
12. *Website Maintenance Schedule*
13. ***Careers***
14. *Bank is constantly looking for talented and motivated new employees who can contribute to the success of our company. To view the current openings available at below link.*
15. [*www.exponentia.ai/careers*](http://www.exponentia.ai/careers)

Project Resource detail Required

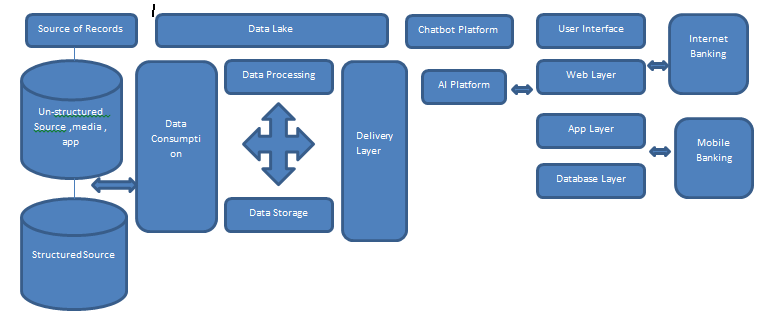
1. ***Data scientists -****There are many different flavours of data scientists with* ***Python, Angular.Js”*** *but they’ll all be using your* ***front-end scripting*** *data to answer questions or solve problems. In general, once you have a significant amount of data flowing through your conversational AI system, you might want a data scientist (or several) to analyze and improve its performance. For instance, you might task a data scientist with:*
2. *Segmenting your users into groups based on their behavior.*
3. *Analyzing the other data you have about a user to inform future conversations.*
4. *Understanding how people are using your conversational AI application.*
5. ***Data engineers:*** *Data engineers do the heavy lifting to manage your* ***data storage*** *and get it aggregated, cleaned up and ready to use in your conversational AI application. You might need a data engineer if you have data spread across a lot of different* ***back-end source of database)*** *or if your data scientists find they’re spending more time cleaning data than actually analyzing it or using it in models.*
6. ***NLP scientists****: Although terminology varies, I’m talking about someone who has a deep knowledge of linguistics combined with technical chops. Consider adding someone like this to your team if you’re building a broader conversational experience vs. one with only a few options.*

*1. You’d also bring people in this area on board if improving your performance on key language technology components would yield meaningful business results. For instance, let’s say you’re building a customer service experience that routes users differently if they’re unhappy vs. happy.*

*2. In this case, you want to invest in someone who deeply understands sentiment analysis and can build a really accurate classifier.*

1. ***Conversational UX designer / researchers:*** *If your conversational AI experience isn’t meeting your goals for user engagement, you might invest in a designer with previous background in designing conversational experiences for text or speech. Designers with a background in call centre or IVR applications or video game dialogue often have highly relevant skill sets.*
2. ***Script writers***
3. *For some conversational AI applications, you’ll have access to ample training data. For instance, you can develop content for a customer support chatbot from your existing customer support conversations. However, if you’re starting a totally new type of conversation, an experienced writer might be required to handle what you’re going to communicate in a way that is consistent with the persona of your bot.*
4. *If you’re ready to hire for one of these roles or a Conversational Product Manager, Integration Engineer, Audio Designer / Engineer, Taxonomist or Conversational Success Manager, you’ll find job descriptions and sample interview questions in our guide which you can access here.*

***Chatbot Architecture***



**Chatbot Admin platform where SSO feature should be enabled:**

1. **Create Page for Chatbot administration Page**
2. **User Management Module -SSO**
3. **Managing FAQs data – Edit/delete /Add**

*User Management involves managing users and user groups*

* *From Users section, you can view and manage user roles, status, and monitor user message activity.*
* *From User Settings section, you can define the user profile fields displayed to the user in their profile, for example, address information, and if the user can edit those fields.The following list describes the columns displayed for each user.*

|  |  |
| --- | --- |
| *COLUMN* | *DESCRIPTION* |
| *Name* | *Displays the username, presence indicator, and selection box.* |
| *Email Id* | *Registered email id of the user.* |
| *Bot Builder Access* | *They type of access user has to Bot Builder. Can be* |
|  |  |
|  | *none,* |
|  | *only Bot Builder Access, or* |
|  | *along with New Bot Creation* |
|  |  |
| *Status* | *Displays the user status. One of:* |
|  |  |
|  | *Active – The user is active and can interact with other users.* |
|  | *Not Active – Users invited by the Admin, but who are yet to join or accept the invitation.* |
|  | *Suspended – The user is suspended by an administrator. The user cannot log on to Kore.ai, however, messages can still be sent to the suspended user. The Status of a Suspended user can be Activated*. |
|  | *Locked – The user exceeded the maximum number of logon attempts. The Status of a locked user can be changed to Unlock, Suspend, or Deactivate.* |

***Customizing the User Profile*** *-Clicking on a specific User row from the Users page opens the User Details page from where you can modify the User Profile, Sessions/Devices, and Manage Bots access.*

***Modify a User Profile*** *-you can modify the user profile information of a specific user in your account, for example, to update an address or title. The following fields are accessible from this page:*

1. ***Active:*** *hovering over the information icon displays the last logged in date and time.*
2. ***Not Active****: hovering over the information icon displays when the invite to join the account was sent.*
3. ***Suspended:*** *hovering over the information icon displays the last logged in date and time. You can*
4. ***Activate User*** *either using the more icon on this dialog or using the ACTIVATE button displayed when you hover over the user row in the Users page.*
5. ***Groups*** *to which the user is assigned. Using the Edit link you can select or deselect the groups for the given User. Refer here for more on Managing Groups*
6. ***Admin Role*** *status, can be added or removed using the Edit link. Refer here for more on Role Management.*
7. ***User Details*** *like First Name, Last Name, email id, etc. can be viewed and modified.*

***Reset a User Password***

1. *As a Bots Admin, you can send a password reset email to any user, including yourself, from the Bots Admin Console if Single Sign-On (SSO) is not enabled. When SSO is enabled, password policies are not in effect for Bots Admins or users. You can reset the password using the more icon from the User Profile page.*

***Using Single Sign-On***

*Single Sign-On page, in the Security & Control module of the Bots Admin Console, you can configure Single Sign-On (SSO) authentication for your managed users using the following:*

1. ***Open ID Connect***

*With SSO, your users can log on once, for example, to your company account, and when accessing their interface application, the same login credentials can be used automatically by the system.* *SSO enables easy access to the application using your existing identity provider. The following illustration shows the Single Sign-On page in the Bots Admin Console Security & Control module.*

***Enable or Disable SSO***

1. *Depending on the security required for your company, you may need to enable or disable Single Sign-On (SSO) for your managed users accessing the integrated application.*
2. *When you disable SSO or when the SSO authentication validity period expires, managed users must create and log on using their credentials. If no account specific password policies have been defined, then default password policies are automatically enabled for the managed users.*

***To enable Single Sign-On***

1. *In the Security & Control module, on the Single Sign On page, click Enable SSO.Enable SSO*

***To disable Single Sign-On***

1. *In the Security & Control module, on the Single Sign On page, click Disable SSO, and then configure user password policies****.***

***OpenID Connect***

1. *Complete the steps in the following procedure to configure SSO using Open ID Connect protocol in the Security & Control module of the Bots Admin Console. In the Security & Control module on the Single Sign On page in the Bots Admin Console, click Enable SSO.*
2. *In the Select suitable Sign-On Protocol section, select OpenID Connect.*
3. *In the Configure SSO for OpenID Connect section, select an identity provider, for example, Sign in with Google. Click Save. The Identity Provider information successfully updated message is displayed at the top of the page.*

***Admin Managing FAQs Data – ( edit / delete/Add )***

1. ***Create Agent*** *this feature will help you to operate multiple agents or departments and create default intent questionnaires. If you have multiple departments or agents here you can include your different departments or agents' names and can edit or delete those names. Just you need to write your agent or department name and click on the Create button.*
2. *About agent build the option of FAQs Questionnaire for banking Product &Service ,*

|  |  |
| --- | --- |
| **Question** | **Answer** |
| Welcome | High My name is Expoenetia.ai Chatbot |
| Who are you? | I am Represnetative for your help support |
| Status | Display FAQs List given by bank |
|  | Add - the super admin panel have right to add the question |
|  | Edit -the super admin panel have right to add the question |
|  | Delete-the super admin panel have right to add the question |
|  | Save -Click Save button |

1. *Similarly it will implement in manner* ***“Courtesy / Emotion / Goodbye / About User /Confirmation / Other question phrases. Which will reflect for UI .***

***Intent***

*You can set your default intent questionnaires from two pages, one from agent page and second from the direct intent page. This default intent questionnaires setting will assist you to support your customer spontaneously and firstly.*

1. ***Create Intent / Edit / Delete***
2. ***Intent Name (Regular Welcome Fallback)***
3. ***Training Phrases***
4. ***Response Phrases***

|  |  |
| --- | --- |
| **Question Training Phrase** | **Answer** |
| Default Welcome Intent | Hi ,Hello ,Hey |
| **Response Phrase** | **Answer** |
| How are you? | I am good |
| Status | Regular , Welcome Fallback |
|  | Add - the super admin panel have right to add the question |
|  | Edit -the super admin panel have right to add the question |
|  | Delete-the super admin panel have right to add the question |
|  | Save -Click Save button |

**Alternate Option of B2B Chat bot solution for call centre executive:**

1. ***Amazon Connect / Lex -( I have builded for Customer Support in Ecommerce domain )***
2. ***IBM Watson Assistant***