

Personalised Financial Advice Chatbot Using NLP

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What have
we
achieved ?



Chatbot model responding to
general banking queries



Website to deploy the model.



Make the interface interactive.

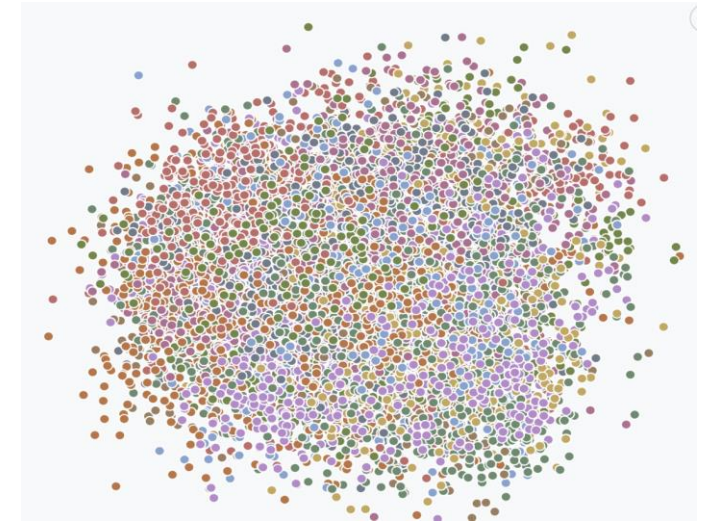
Dataset

- Obtained from Hugging Face Library
- Preprocessed to remove stop words
- Negations were not removed

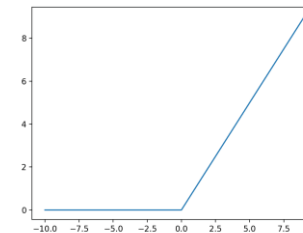


Model, Optimizer and Activation Selection

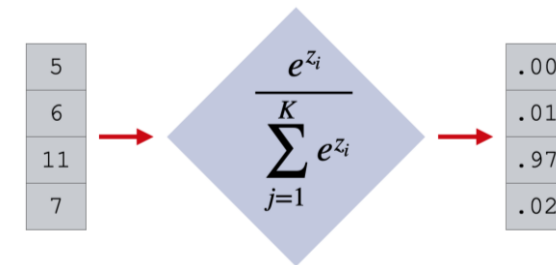
- No Linear or Clustering relation observed
- Use of Neural Network
- Adam Optimizer and ReLU for Optimization and Activation Function.
- Softmax Layer for Final Output



Embeddings



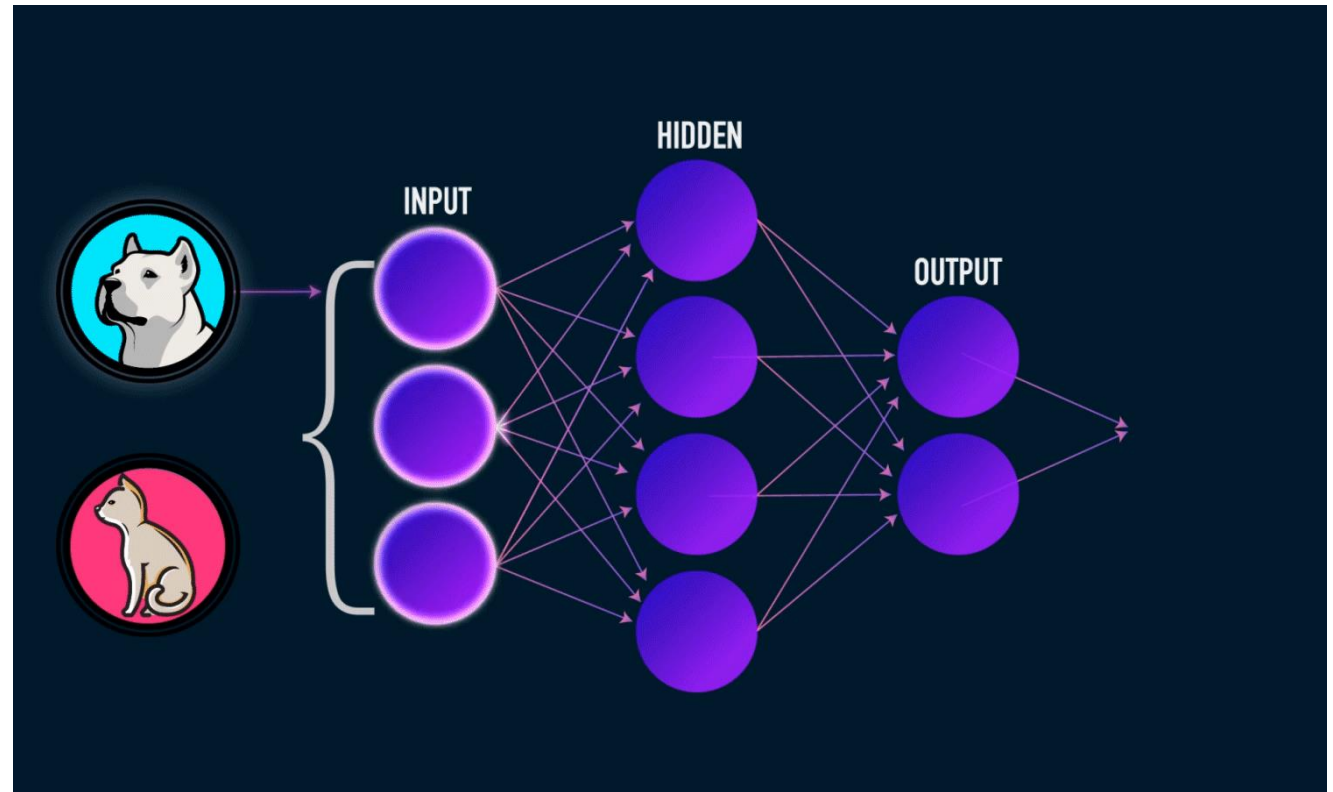
ReLU



Softmax

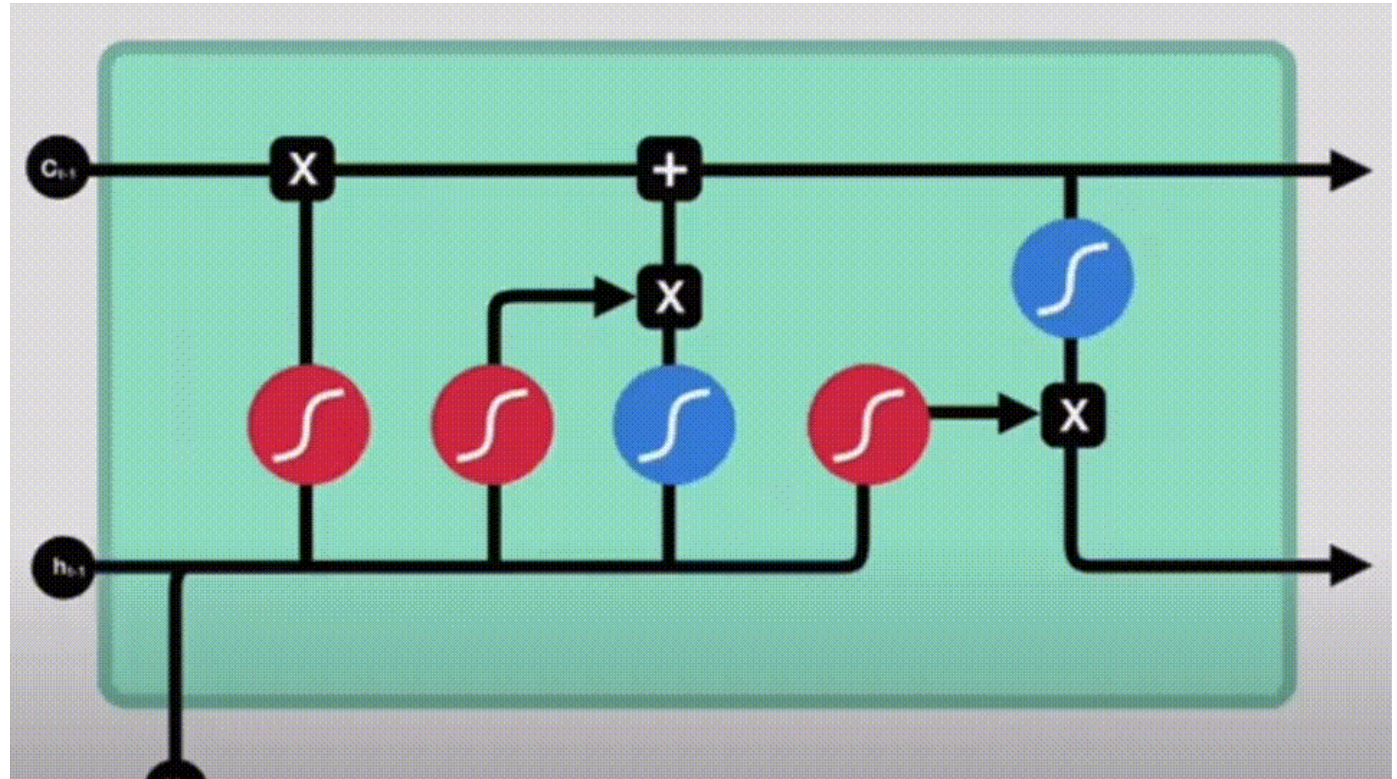
Model
Architectures
Used for
Training

Simple Neural Network



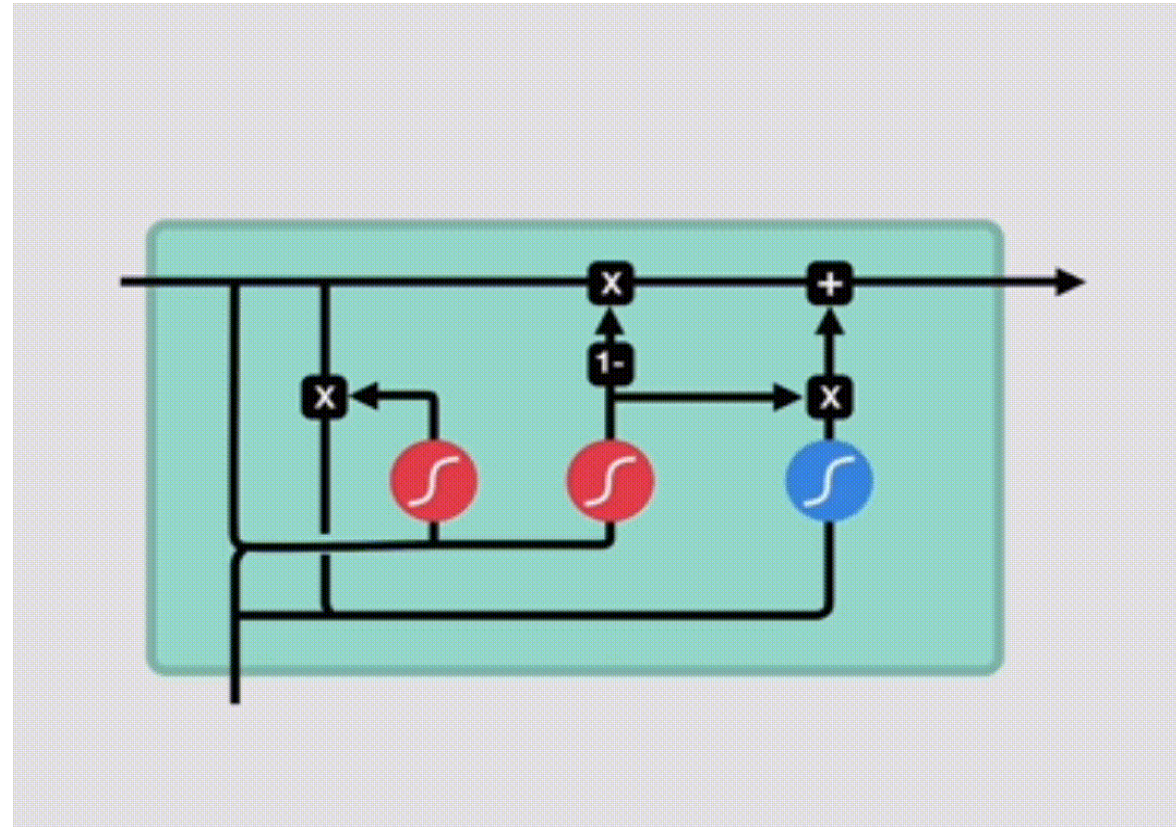
Model
Architectures
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Training

RNN (LSTM)



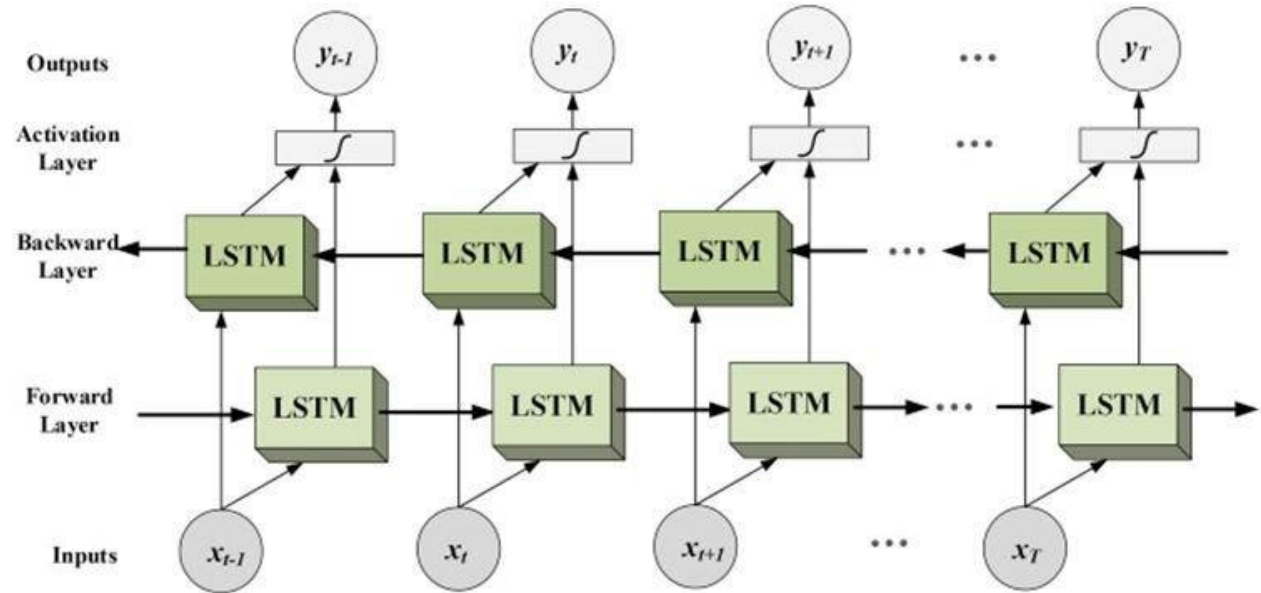
Model
Architectures
Used for
Training

RNN (GRU)



Model Architectures Used for Training

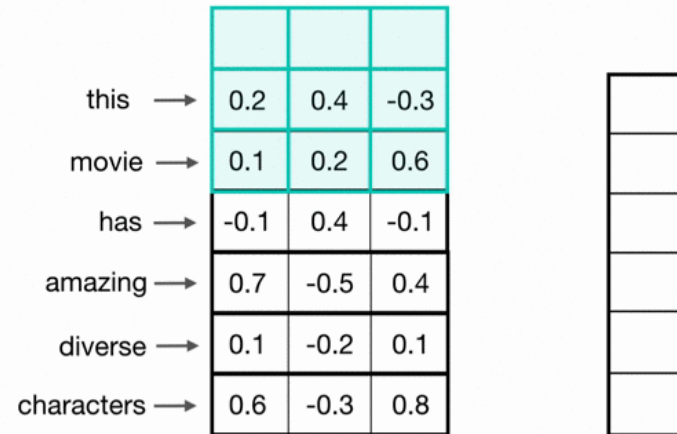
Bidirectional LSTM



He said , "Teddy bears are on sale!"

Model Architectures Used for Training

1D CNN



Evaluation

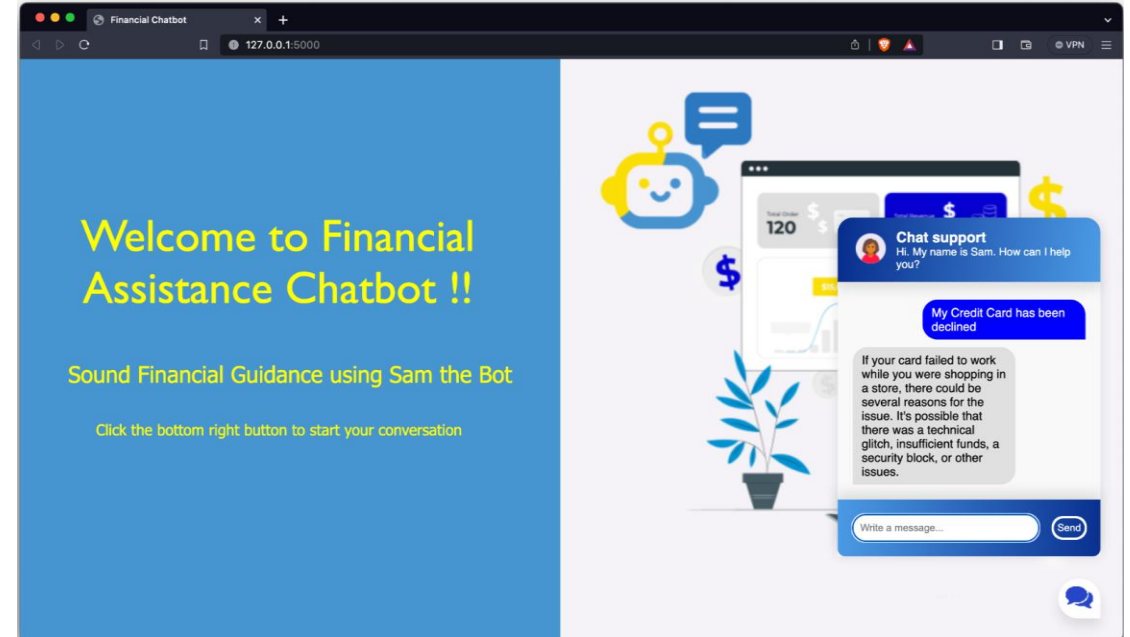
- Simple Neural Network performs best
- 1D and Bi-Directional LSTM are also quite good
- RNN's (Single Direction) possibly suffering Vanishing Gradient Problem

Models	Precision	Recall	F1-Score	Accuracy (mAP)
Simple Neural network	0.979	0.979	0.979	0.979
Bi-directional LSTM	0.961	0.959	0.959	0.959
RNN (LSTM)	0.000	0.019	0.001	0.019
1D CNN	0.969	0.968	0.968	0.968
RNN (GRU)	0.011	0.018	0.001	0.018

Website

- 4 Responses for each label for randomness
- Backend runs Model to predict label
- Any 1 of 4 Responses chosen and displayed

Label Number	Response 1	Response 2	Response 3	Response 4
1	<p>It seems like there might have been an issue with the ATM transaction. In such cases, it's advisable to contact your bank's customer service immediately. They will be able to assist you in resolving the discrepancy and ensuring that the correct amount is credited back to your account.</p>	<p>If you received the wrong amount of cash from the ATM or the amount doesn't match your transaction history, it's important to keep your transaction receipt and contact your bank's customer support as soon as possible. They will guide you through the process of resolving the issue and getting the correct amount credited to your account.</p>	<p>In the event that you requested a certain amount from the ATM but received a different amount, and your app also reflects the incorrect transaction, reach out to your bank's customer service without delay. Provide them with the relevant details such as the transaction time, location, and the discrepancy amount. They will investigate and work towards rectifying the situation.</p>	<p>If the ATM didn't dispense the full amount you requested, and your app indicates the wrong transaction, it's recommended to act promptly. Contact your bank's customer support, and explain the situation with all the necessary details. They are equipped to investigate the issue and help you recover the missing funds or correct any discrepancies in your account.</p>
2	<p>If your passcode is not working, you might want to consider resetting it. Most applications and services have a "Forgot Password" or "Reset Password" option on their login page. This will usually involve verifying your identity through an email or mobile number linked to your account.</p>	<p>Certainly, you can reset your passcode. Look for the "Forgot Password" link on the login screen of the app or website. This will typically guide you through the steps to reset your passcode by providing your email address or other account details.</p>	<p>It's frustrating when your passcode isn't working. To get assistance, try reaching out to the app's customer support. They can help explain why your passcode isn't functioning and guide you through the process of resetting it, ensuring you regain access to your account.</p>	<p>If you're unable to recall your password, don't worry. Most apps and platforms offer a way to reset it. On the login page, you'll usually find an option like "Forgot Password" or "Reset Password." This will initiate a process to verify your identity and allow you to set a new passcode. If you're having trouble, don't hesitate to seek help from the app's support team.</p>
3	<p>One possible reason your ATM withdrawal or transaction was declined could be due to insufficient funds in your account. It's important to check your bank balance to ensure you have enough funds available for the</p>	<p>If your card was declined at the ATM, it's a good idea to verify your bank balance. Insufficient funds in your account could be the reason for the decline. Make sure you have enough funds to cover the withdrawal</p>	<p>When your card is declined during an ATM transaction, it might be because your bank balance is too low to complete the transaction. To avoid such issues, regularly monitor your account balance and ensure you have sufficient funds before attempting</p>	<p>A possible explanation for your ATM withdrawal being declined is that your bank balance might be below the required amount for the transaction. To resolve this, consider checking your account balance through online banking or contacting your bank's customer service to get a clear</p>



Thank You

