Intent Classification Model

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Problem Approach: I have considered the problem as a multi label classification model where the four classes are Churn, Escalation, Church and Escalation and No Intent Found.

I have bootstrapped around 150 customer statements with different classes.
For example:

{"text": "I'm not sure if I'll continue using this IT support service.", "intent": "Churn"},

{"text": "I'm getting nowhere with you. I need a competent representative who can help.", "intent": "Escalation"},

{"text": "I've been a loyal customer for years, but recently I've been extremely frustrated with your poor service and thinking of opting out. I want to discuss this issue with your team leader, someone who can understand the complexities and provide an appropriate solution.", "intent": "Churn and Escalation"}

For Training:

- I have split my data into training and test data.
- Given the labels and mapped them with class numbers
- Used **BertTokenizer** for tokenizing the text data and **BertModel** for embedding generation for the created tokens.
- Used torch Dataloader and Dataset to load the data to pass to the model for training.
- Written the Custom **SequenceClassifier** model with layers–LSTM layer,Linear layer and Softmax layer
- LSTMlayer is with input dimension 768 and hidden dimensions 64.
- Used CrossEntropy loss function.
- Used Adam optimizer for training with learning rate 1e-3.

For Prediction:

- The POST method takes the user statement as query
- Query is passed to the classify_text function, where the query is converted into tokens and then into embeddings by using BertTokenizer and BertModel.

- Then the embeddings are passed to the pre-trained **SequenceClassifier** model that is loaded from the system.
- The SequenceClassifier predicts the Intent of the statement.
- Intent is shown as the output.