AI-FOR SOCIAL INNOVATION HACKATHON

Team Name: Atul's Team

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1) Part-1:
   - We model the problem as a binary classification problem.
   - The architecture of our model is BERT based.
   - We extract the CLS embedding of the input text (the tweet) from bert. Then we pass the embedding into a softmax classifier. Note bert isn't trained in the process.

```
BertClassifier(
  (fc1): Linear(in_features=768, out_features=256, bias=True)
  (relu): ReLU()
  (fc2): Linear(in_features=256, out_features=2, bias=True)
  (softmax): Softmax(dim=None)
)
```

   - We use learning rate of 0.0005, Adam optimizer and crossentropy loss, Num_epochs=10-15.
2) Part-2
   - We model the problem as predicting 0 or 1 for each token of the input.
   - The architecture of our model is LSTM based.
   - We lemmatize the input and create a vocabulary.
   - We use a learnable embedding layer and then pass the input into a LSTM.
   - For each output of the LSTM corresponding to each input token we use a feedforward network to classify as 0 or 1.
   - Loss=crossentropy, optimizer='adam', learning_rate=0.001, epochs=10.

```
lstm_model2.summary()
```

```
Model: "sequential_8"
```

Layer (type)	Output Shape	Param #
embedding_9 (Embedding)	(None, 86, 128)	3,449,600
lstm_14 (LSTM)	(None, 86, 64)	49,408
dense_7 (Dense)	(None, 86, 1)	65

```
Total params: 10,497,221 (40.04 MB)
Trainable params: 3,499,073 (13.35 MB)
Non-trainable params: 0 (0.00 B)
Optimizer params: 6,998,148 (26.70 MB)
```