

Report

1. Top 5 maximum values bigrams before smoothing:

i feel 0.020778000245168144
i am 0.0059861888611939685
feel like 0.005046377640665223
i was 0.004106566420136477
that i 0.003350631307972051

Top 5 maximum values bigrams after Laplace:

feel i 0.11043610327619874
like feel 0.0350976507217662
am i 0.03189412019960946
i that 0.02650602409638554
i and 0.023103748910200523

Top 5 maximum values bigrams after Kneser-ney:

don t 0.970523179035375
href http 0.9701841959845275
didn t 0.9585175293178609
sort of 0.9560665489257041
supposed to 0.9168508626511942

2. **Equation used for incorporation of emotional component:**

$$P(w_i|w_{i-1}) = (1 - \text{emotional_ratio}) * (\text{count}(w_{i-1}, w_i) / \text{count}(w_{i-1})) + \text{emotional_ratio} * (\text{emotion_scores}(w_{i-1}, w_i)) [\text{particular_emotion}]$$

Emotional ratio is a parameter between 0 and 1. Best results were obtained at **emotiona_ratio = 0.9**.

Due to the comprehension-accuracy tradeoff, Bigram-level integration was selected, prioritising comprehension.

3. 2 generated samples for each emotion, for a total of 12 generated samples

Fear:

i probably already deep slumber and fearful of illness when trying them being sold on indian soil till they looked .
find a mountain together with my hunger is based and inarticulate and extended time warp like the way around a state i stopped feeling pressured even drecky writers go into high school i mentioned before that has no time la .

Love:

ive already devoted my lovely polish .

doctors that read but adoring fans a naughty having two directions and soothing and really horny in high five days when hearing them on taking her sweet or caring about making out for your lovely touch ourselves up supporting walmart because not sweet gift list to fashion a longing he offers gently .

Anger:

i i threaten myself i secretly anymore .
i i hate the girls i brag and adams assistance in something often look .
him him that fact .

Sadness:

feel feel saddened or just break me yet and sore .
feeling feeling stressed whatever im aching from some really tired and awkward teenager who learns to lucy .

Joy:

this this same feelings again feeling fairly significant amount of talent on her in high hopes that without me around feeling like continuous wailing of today a cute little note cards will remain .
hope hope for you make for beauty plus the miracles it felt pretty words it started getting back next level best photo was amazingly sweet refreshed feeling hopeful we communicated with ia .

Surprise:

to to at seeing these amazing but seeing it actually curious you enthralled and a shocked feeling funny sensitive nature and maybe a curious even funny about and ni ya is funny about how stunned liv was amazed about exactly how stunned for many amazing exhibit .
refusal refusal to discover the amazingness of dazed deserted .

4.

Accuracy:74.33%

```
manas@DELL-G15:/mnt/c/Users/Gulshan Narang/Downloads$ python3 nlp_a1.py
Best Parameters: {'C': 100, 'gamma': 0.01, 'kernel': 'rbf'}
Accuracy: 0.7433333333333333
Classification Report:

```

	precision	recall	f1-score	support
anger	0.62	0.58	0.60	50
fear	0.63	0.66	0.65	50
joy	0.71	0.54	0.61	50
love	0.81	0.96	0.88	50
sadness	0.71	0.72	0.71	50
surprise	0.94	1.00	0.97	50
accuracy			0.74	300
macro avg	0.74	0.74	0.74	300
weighted avg	0.74	0.74	0.74	300

4. Emotional scores of one the samples generated for each sentence -

Emotion of Anger:

believe there wouldnt have stopped feeling resentful and drew focalors sigil with their souls .

```
[{'label': 'sadness', 'score': 0.0004484590608626604}, {'label': 'joy', 'score': 0.00023233778483700007}, {'label': 'love', 'score': 0.00023714876442681998}, {'label': 'anger', 'score': 0.998068630695343}, {'label': 'fear', 'score': 0.0008434911142103374}, {'label': 'surprise', 'score': 0.00016998843057081103}]
```

Emotion of Fear:

so indecisive and suddenly startled me cringe .

```
[{'label': 'sadness', 'score': 0.00026056956266984344}, {'label': 'joy', 'score': 0.00038022184162400663}, {'label': 'love', 'score': 0.00018943285977002233}, {'label': 'anger', 'score': 0.0023601229768246412}, {'label': 'fear', 'score': 0.9920079708099365}, {'label': 'surprise', 'score': 0.004801682662218809}]
```

Emotion of Joy:

me wherever you feeling calm my facebook right out by feeling or special gifts .

```
[{'label': 'sadness', 'score': 0.0004822932824026793}, {'label': 'joy', 'score': 0.9981325268745422}, {'label': 'love', 'score': 0.00034759752452373505}, {'label': 'anger', 'score': 0.0003590578562580049}, {'label': 'fear', 'score': 0.00045887602027505636}, {'label': 'surprise', 'score': 0.00021965877385810018}]
```

Emotion of Love:

by adrausteius and loved .

```
[{'label': 'sadness', 'score': 0.0022536241449415684}, {'label': 'joy', 'score': 0.0015135137364268303}, {'label': 'love', 'score': 0.9923316240310669}, {'label': 'anger', 'score': 0.0018298105569556355}, {'label': 'fear', 'score': 0.0009957537986338139}, {'label': 'surprise', 'score': 0.0010756350820884109}]
```

Emotion of Sadness:

finally meet you have depression cycle today s emotions there would die but after spending years but generally leaves my health going around in return .

```
[{'label': 'sadness', 'score': 0.9918203353881836}, {'label': 'joy', 'score': 0.0038152930792421103}, {'label': 'love', 'score': 0.0003875315887853503}, {'label': 'anger', 'score': 0.003061163006350398}, {'label': 'fear', 'score': 0.0007375781424343586}, {'label': 'surprise', 'score': 0.00017809213022701442}]
```

Emotion of Surprise:

it made in shock at that shocked .

```
[{'label': 'sadness', 'score': 0.0017439061775803566}, {'label': 'joy', 'score': 0.0028577495831996202}, {'label': 'love', 'score': 0.0016955860191956162}, {'label': 'anger', 'score': 0.0028717555105686188}, {'label': 'fear', 'score': 0.007355025038123131}, {'label': 'surprise', 'score': 0.9834760427474976}]
```

Individual Contributions:

Ayush Srivastava: Task-2 1,2,3

Manas Narang: Task-2 4.

Abhishek Sushil- Task-1tokenise

Kartik Gupta - Task-1 learn vocabulary