

Analysis of Happy Moments

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What is Happiness? Why is it important?

1. Feelings of happiness and thoughts of satisfaction with life are major components of subjective well-being.
2. Understanding happiness can help us build applications that make people happy.
3. Extracting happiness from text enables us to find when a writer is unhappy and needs help.

HappyDB is a corpus of 100,000 happy moments:

1. Within 24hrs
2. Within last 3 months

Objectives:

- ★ Analyzing happy moments among people of different age groups, gender, nationality etc. to understand their source of happiness.
- ★ Categorizing each happy moment.
- ★ Building a heuristics to score positivity or negativity of a sentence.

PART I : ANALYSING HAPPY MOMENTS

Get most often words occurring in happy moments of particular section of society. We built a QueryBuilder where you can filter data and get word cloud for that.

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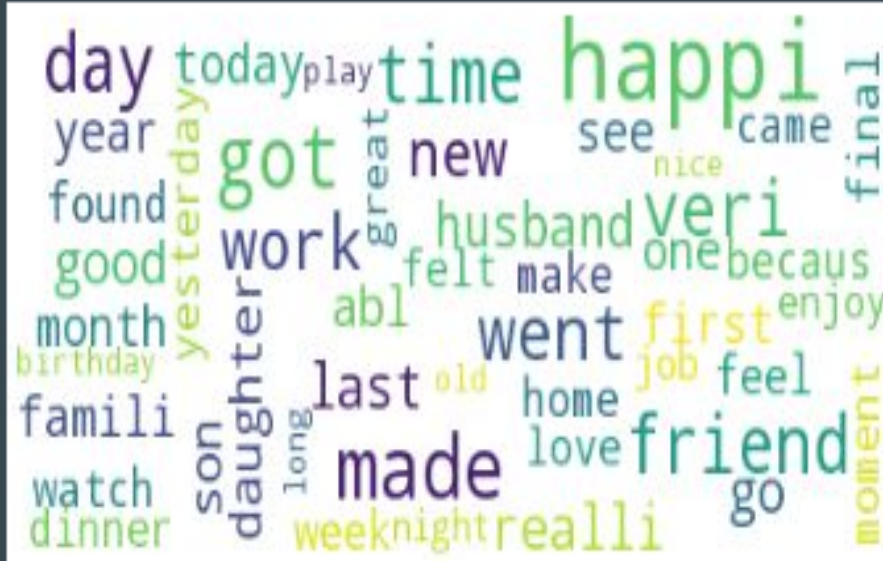
Lets play a Game!!!

A Guessing Game ...

What makes a Man Happy???

What makes a Woman Happy???

What makes a Woman Happy???



- Friend
- Husband
- Son
- Daughter
- Work
- Family

Note that son, daughter was missing from a man's top list.

On Heavier note !!



This is happy words for Indians with category affection.

See the size of SON compared to the DAUGHTER.

PART II : CLASSIFYING HAPPY MOMENTS

Objective: Dividing happy words into the following categories:-

1. Achievement
2. Affection
3. Bonding
4. Enjoying the moment
5. Exercise
6. Leisure
7. Nature

Achieving the task

We trained a Long Short Term Memory (LSTM) for categorizing happy moments to seven categories mentioned above. We did this by:-

- A. Each happy moment (set of sentences) is represented by a integer vector which is frequencies of corresponding words of sentences.
- B. An embedding layer projects each of the these vectors into a d-dimensional continuous vector space. This is done by multiplying the these vector from left with weight matrix W .
- C. After the embedding layer, the input sequence of vectors becomes a sequence of dense, real valued vectors
- D. Output y_i for each happy moment i is represented as one hot vector for example, $[1, 0, 0, 0, 0, 0, 0]$ denotes achievement.

Output

	hmid	wid	reflection_period	original_hm	cleaned_hm	modified	num_sentence	ground_truth_category	predicted_category	our_prediction
0	27673	2053	24h	I went on a successful date with someone I fel...	I went on a successful date with someone I fel...	True	1	NaN	affection	bonding
1	27674	2	24h	I was happy when my son got 90% marks in his e...	I was happy when my son got 90% marks in his e...	True	1	NaN	affection	affection
2	27675	1936	24h	I went to the gym this morning and did yoga.	I went to the gym this morning and did yoga.	True	1	NaN	exercise	nature
3	27676	206	24h	We had a serious talk with some friends of our...	We had a serious talk with some friends of our...	True	2	bonding	bonding	bonding
4	27677	6227	24h	I went with grandchildren to butterfly display...	I went with grandchildren to butterfly display...	True	1	NaN	affection	enjoy_the_moment
5	27678	45	24h	I meditated last night.	I meditated last night.	True	1	leisure	leisure	leisure
6	27679	195	24h	I made a new recipe for peasant bread, and it ...	I made a new recipe for peasant bread, and it ...	True	1	NaN	achievement	achievement
7	27680	740	24h	I got gift from my elder brother which was rea...	I got gift from my elder brother which was rea...	True	1	NaN	affection	affection
8	27681	3	24h	YESTERDAY MY MOMS BIRTHDAY SO	YESTERDAY MY MOMS BIRTHDAY SO	True	1	NaN	enjoy_the_moment	affection

The accuracy of the output is around 80%

PART III : SCORING HAPPY MOMENTS

1. Initial algorithm:

- a. Tokenize a sentence
- b. Find positive - negative score for every token.
- c. Find normalized score for the sentence.

2. Drawbacks:

- a. The following sentences were given positive score :
 - i. I am barely happy these days. (Presuppositional)
 - ii. I used to be happy but I'm not frolic anymore. (Connector, Negative)
- b. The following sentences were given negative score :
 - i. I am never sad. (Negative)
 - ii. I used to be depressed however I feel better now. (Connector)

Final Algorithm

1. Find the score of every token as done before.
2. Find proper Contextual Valence Shifter to shift score
 - a. If the word is presuppositional (eg. barely, merely, almost, recover)
 - i. Flip the score of the next word with non-zero score
 - b. If the word is intensifier (eg. very, deeply, amazing)
 - i. Increase the score of the next word by 50%
 - c. If the word is negative (eg. no, neither, nobody)
 - i. Flip the score of the next word
 - d. If the word is connector (eg. but, however)
 - i. Make the score of all the words before this word to be zero

Test Cases : Presuppositional

1	# Presuppositional : recover
2	score_sentence ('It was nice to see my mother recover from a disease')

The score for the sentence is : 0.08107142857142857

1	# Presuppositional : barely
2	score_sentence ('I am barely happy these days')

The score for the sentence is : -0.09801136363636363

Test Case : Intensifier

```
1 # Intensifier : amazing
2 score_sentence ('Scored two amazing goals while playing football')
```

The score for the sentence is : 0.05056390977443609

```
1 # Intensifier : very
2 score_sentence ('I was very happy to see my son come first in class in a test')
```

The score for the sentence is : 0.1564073542198542

```
1 # Intensifier : deeply
2 score_sentence ('I was deeply saddened to learn about the untimely death of my neighbour')
```

The score for the sentence is : -0.06048044217687075

Test Case : Connector

```
1 # Connector : however
```

```
2 score_sentence ('I had a very bad day, however, my wife gifted me chocolates which made me smile')
```

The score for the sentence is : 0.021474358974358974

```
1 # Connector : but
```

```
2 score_sentence ('I was having a very good day but I met with an accident which fractured my hand')
```

The score for the sentence is : -0.04162660256410256

Test Case : Negative

```
1 # Negative  
2 score_sentence ('I am never sad')
```

The score for the sentence is : 0.20833333333333334

**Thank You
and
Be Happy**