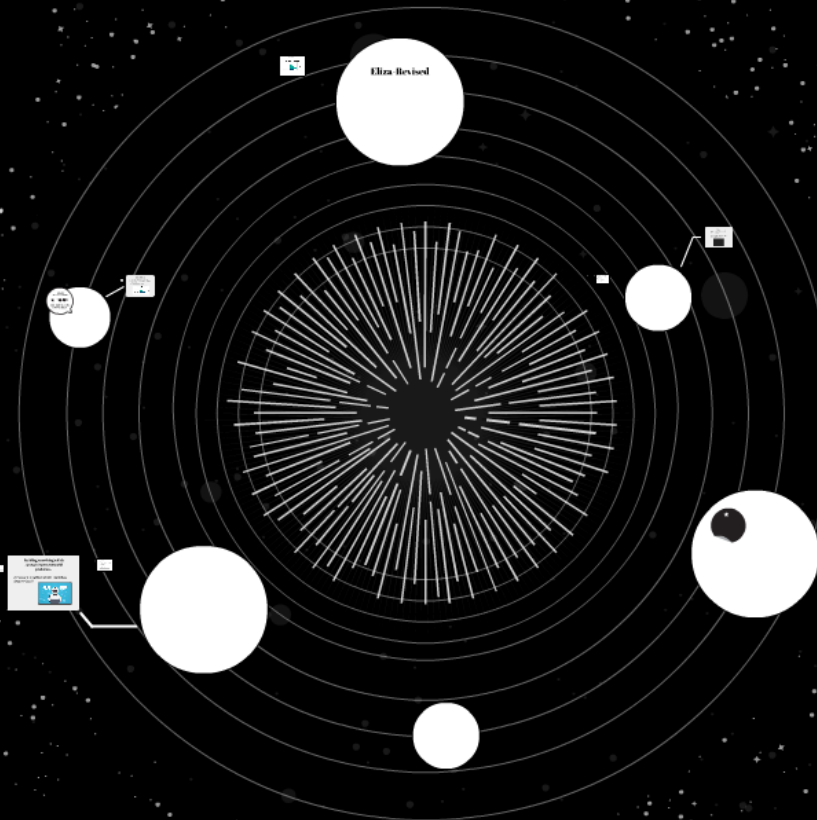


Rohit Gollarahalli
Boo779758

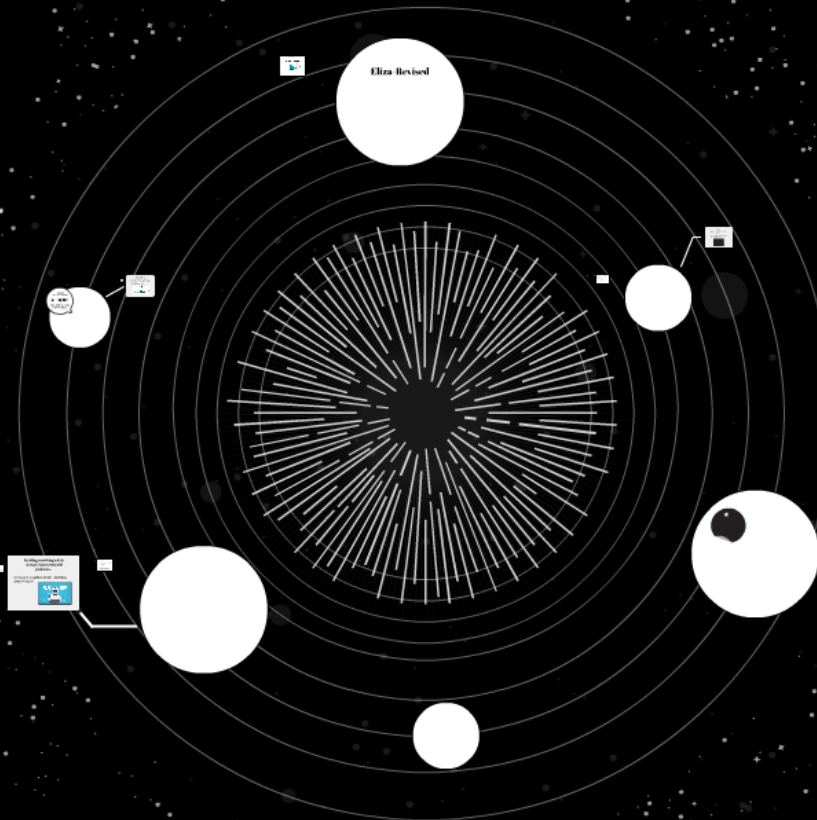
Nibir Mukherjee
Boo768437



**Chatbot which
Identifies
Depression-P02**

Rohit Gollarahalli
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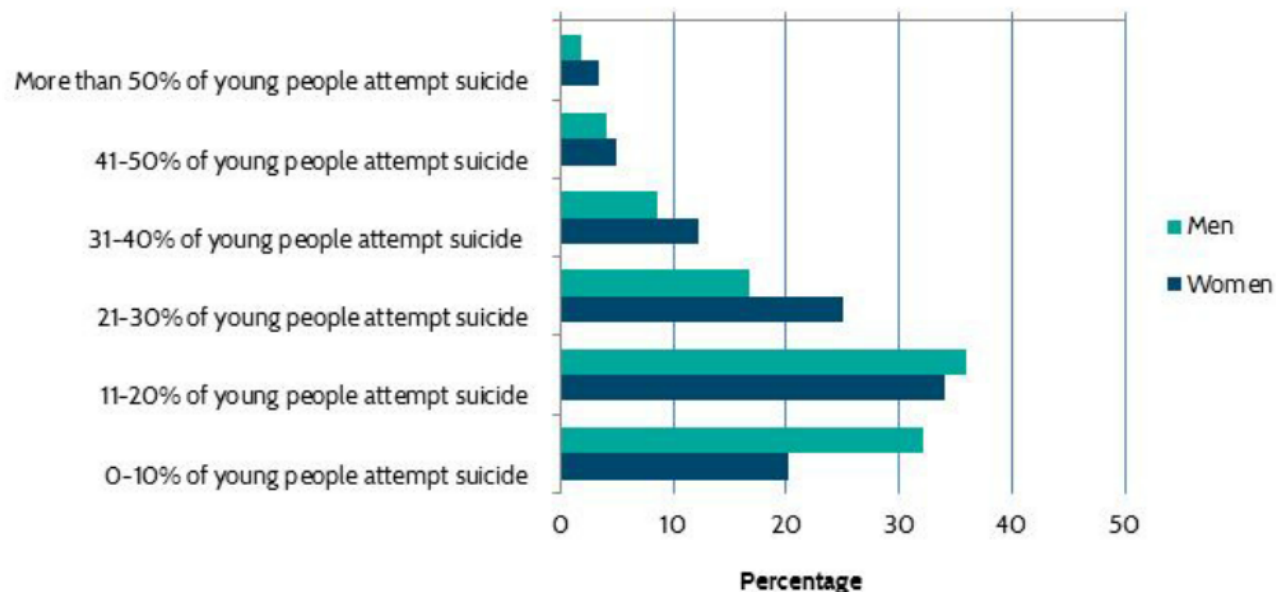
**Chatbot which
Identifies
Depression-P02**

Introduction

- Depression is a very common mood disorder.
- Has become one of the major reason for suicides in young generation.
- And, shortage of psychotherapist

Figure 2. Subjective estimates of suicide attempts by young people

Monthly online survey, July 2017, final survey results



An era of text rather than speaking in person...

- Young generation engrossed in text chatting
- Shy/hesitant to discuss their problems in person



Eliza

- A primitive chatbot built to mock a real-world therapist
- Works on Pattern Matching
- Lacks conditions which represents trending problems of the present generation and lacks the ability to classify a person as depressed or not-depressed

```
Welcome to

EEEEEE LL      IIII ZZZZZZZZ AAAAA
EE      LL      II      ZZ  AA  AA
EEEEEE LL      II      ZZZ  AAAAAA
EE      LL      II      ZZ  AA  AA
EEEEEE LLLLLL IIII ZZZZZZZZ AA  AA

Eliza is a mock Rogerian psychotherapist.
The original program was described by Joseph Weizenbaum in 1966.
This implementation by Norbert Landsteiner 2005.

ELIZA: Is something troubling you ?
YOU:   Men are all alike.
ELIZA: What is the connection, do you suppose ?
YOU:   They're always bugging us about something or other.
ELIZA: Can you think of a specific example ?
YOU:   Well, my boyfriend made me come here.
ELIZA: Is it important to you that your boyfriend made you come here ?
YOU:   He says I'm depressed much of the time.
ELIZA: I am sorry to hear that you are depressed.
YOU:   It's true. I am unhappy.
ELIZA: Can you explain what made you unhappy ?
YOU:   █
```

Building something which can tackle present world problems..

A modern ChatBot which identifies
depression...!!



Let's make people happy...

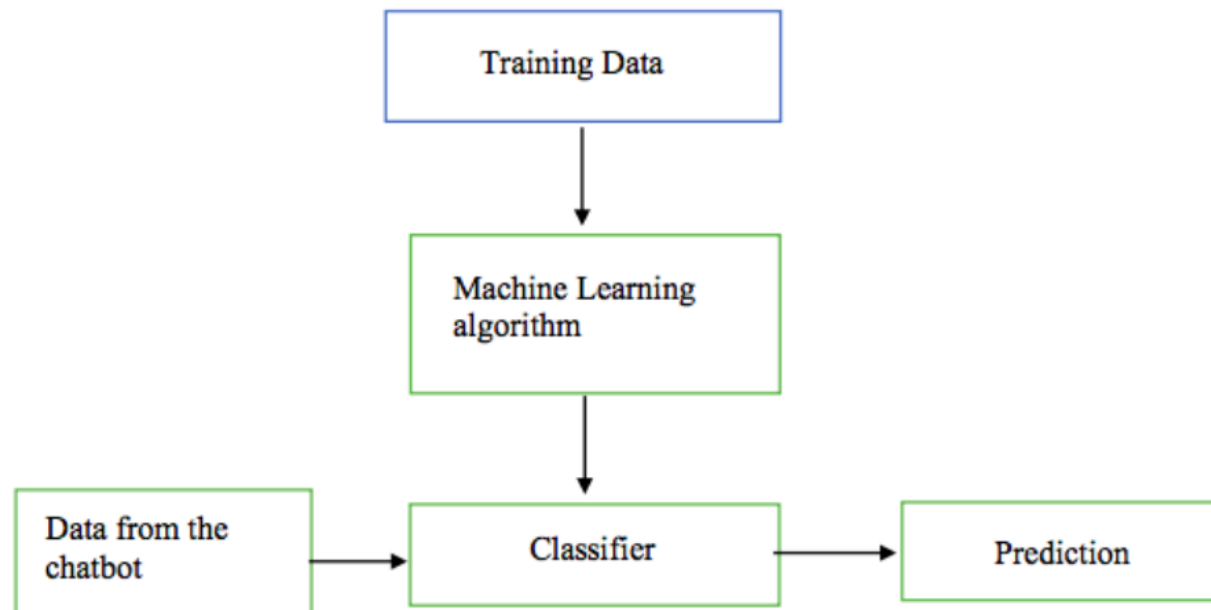
- Acts as a text therapist.. but deals with modern problems
- Done chatting? Get to know whether you are depressed or not.

Our Enhanced ChatBot..

- Inspired by Eliza
- Implemented in Python
- Works on Pattern Matching
- Contains pattern matching conditions related to current generation problem, taken from depression-handling blogs and forums

Identifying Depression

We saw this mainly as a classifier problem.



Preprocessing our data

1. Removing of Numbers, punctuations, special characters.
2. Tokenizing
3. Stemming
4. Removal of stop words

Our Corpus

Non Depressed :

https://raw.githubusercontent.com/rit-public/HappyDB/master/happydb/data/original_hm.csv

Depressed:

<https://www.reddit.com/r/depression/>

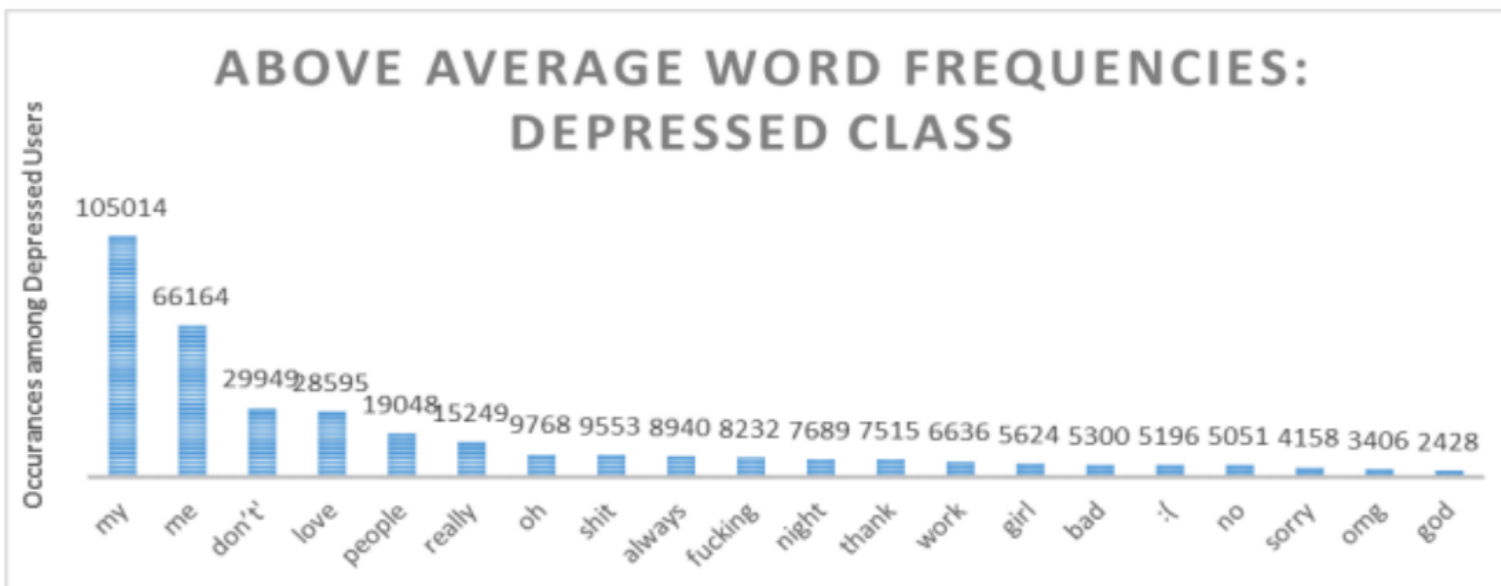


Figure 2 demonstrates abnormally high word occurrences within the depressed class.

Our Results

Unigram

Machine Learning Algorithm	Random Forest	Multinomial Naïve bayes	Gaussian Naïve bayes	MLP Classifier	SVM
TfidfVectorizer	0.75	0.75	0.70	0.741	0.7616
CountVectorizer	0.7422	0.75077	0.7188	0.7437	0.7593

Bigram

Machine Learning Algorithm	Random Forest	Multinomial Naïve bayes	Gaussian Naïve bayes	MLP Classifier	SVM
TfidfVectorizer	0.89953	0.90186	0.91433	0.91510	0.9018
CountVectorizer	0.87277	0.895638	0.92133	0.909657	0.89485

References

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3.<https://mobile-text-alerts.com/blog/youth-texting-ever-must-adapt/>

4.<https://www.relationships.org.au/what-we-do/research/online-survey/july-2017-youth-suicide>

5.<https://arxiv.org/pdf/1607.07384.pdf>

Questions?

Thank you!!