Optimizing Spam Filtering with Machine Learning

Introduction

1.1 Overview

Over recent years, as the popularity of mobile phone devices has increased, Short Message Service (SMS) has grown into a multi-billion dollar industry. At the same time, reduction in the cost of messaging services has resulted in growth in unsolicited commercial advertisements (spams) being sent to mobile phones. Due to Spam SMS, Mobile service providers suffer from some sort of financial problems as well as it reduces calling time for users. Unfortunately, if the user accesses such Spam SMS they may face the problem of virus or malware. When SMS arrives at mobile it will disturb mobile user privacy and concentration. It may lead to frustration for the user. So Spam SMS is one of the major issues in the wireless communication world and it grows day by day.

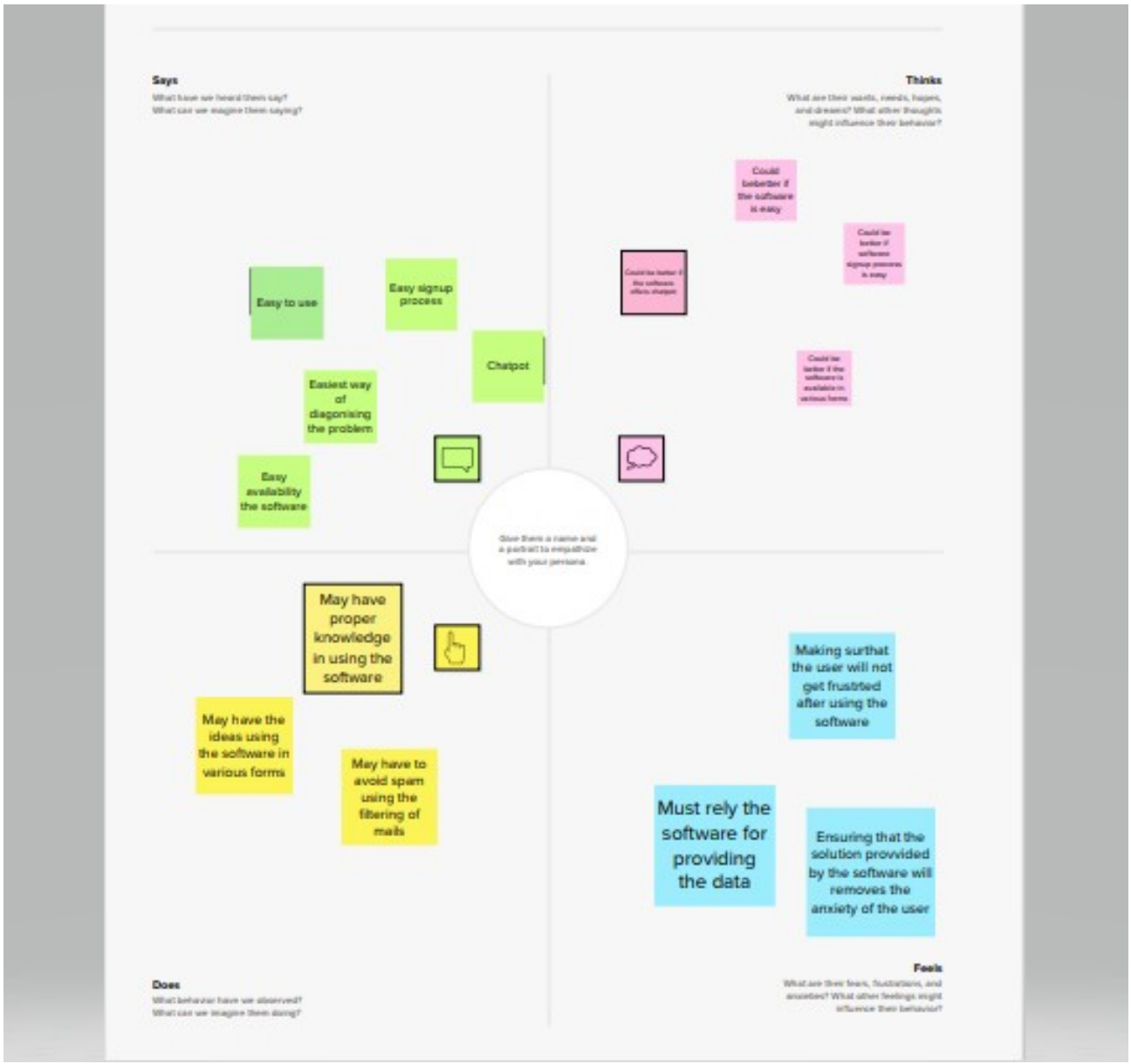
To avoid such Spam SMS people use white and black list of numbers. But this technique is not adequate to completely avoid Spam SMS. To tackle this problem it is needful to use a smarter technique which correctly identifies Spam SMS. Natural language processing technique is useful for Spam SMS identification. It analyses text content and finds patterns which are used to identify Spam and Non-Spam SMS.

1.2 Purpose

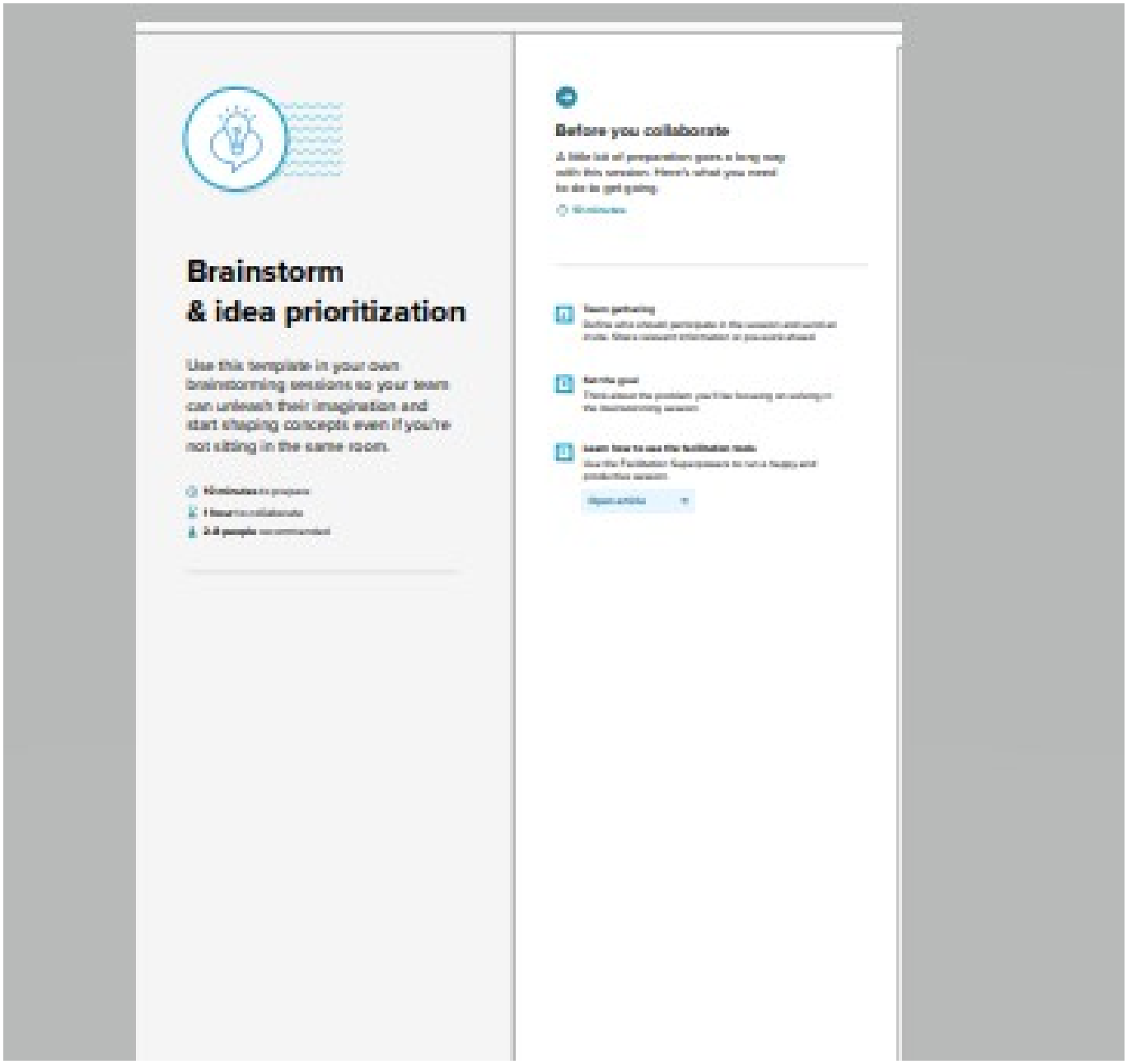
Image processing is the process of transforming an image into a digital form and performing certain operations to get some useful information from it. The image processing system usually treats all images as 2D signals when applying certain predetermined signal processing methods.

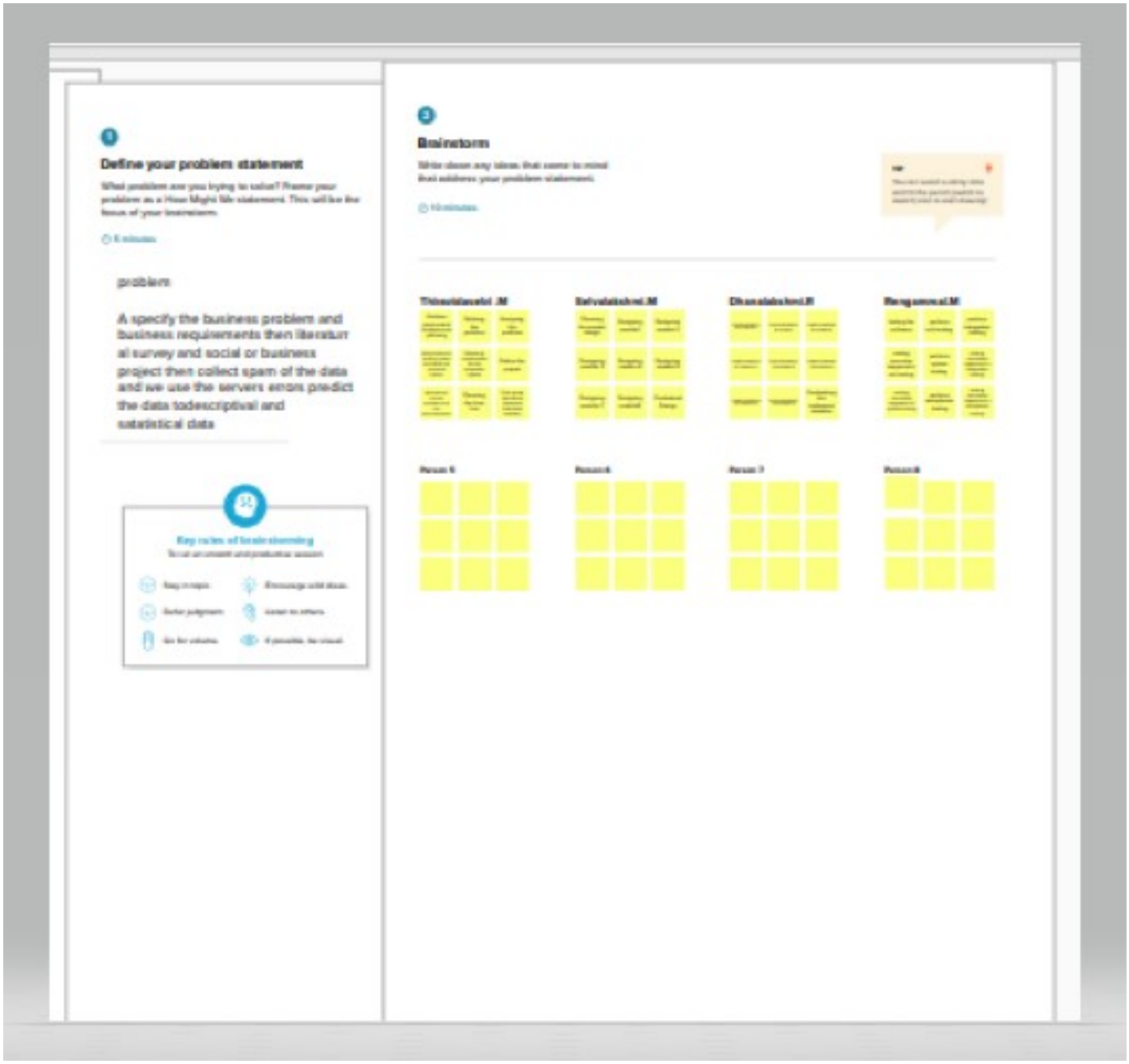
Problem Definition & Design Thinking

2.1 Empathy Map



2.1 Problem Definition & Design Thinking





1

Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

problem

A specify the business problem and business requirements then literature survey and social or business project then collect spam of the data and we use the servers errors predict the data todescriptival and statistical data

Key rules of brainstorming

To run an smooth and productive session

Stay in topic.

Encourage wild ideas.

Defer judgment.

Listen to others.

Go for volume.

If possible, be visual.

3

Brainstorm

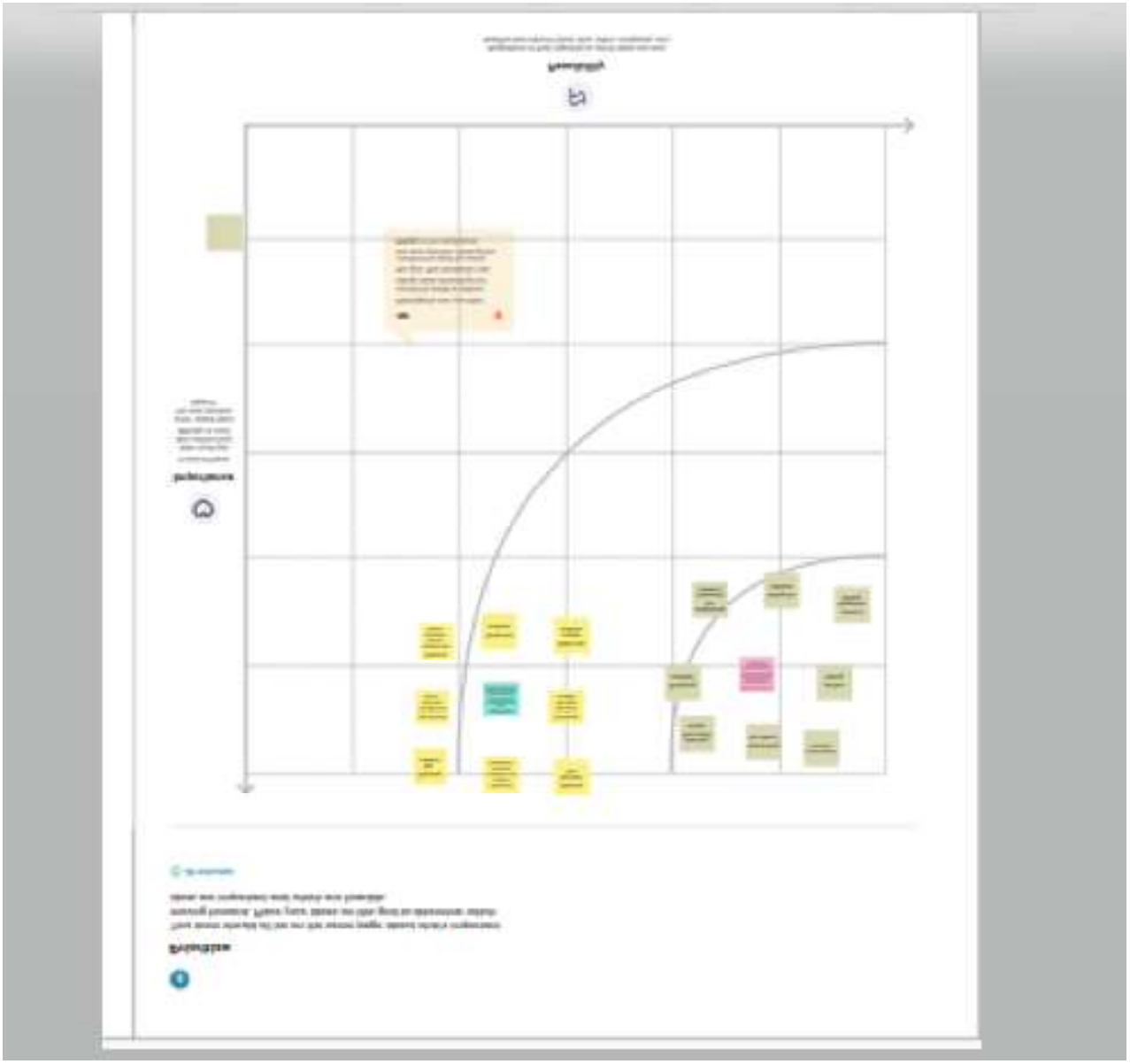
Write down any ideas that come to mind that address your problem statement.

10 minutes

Group ideas

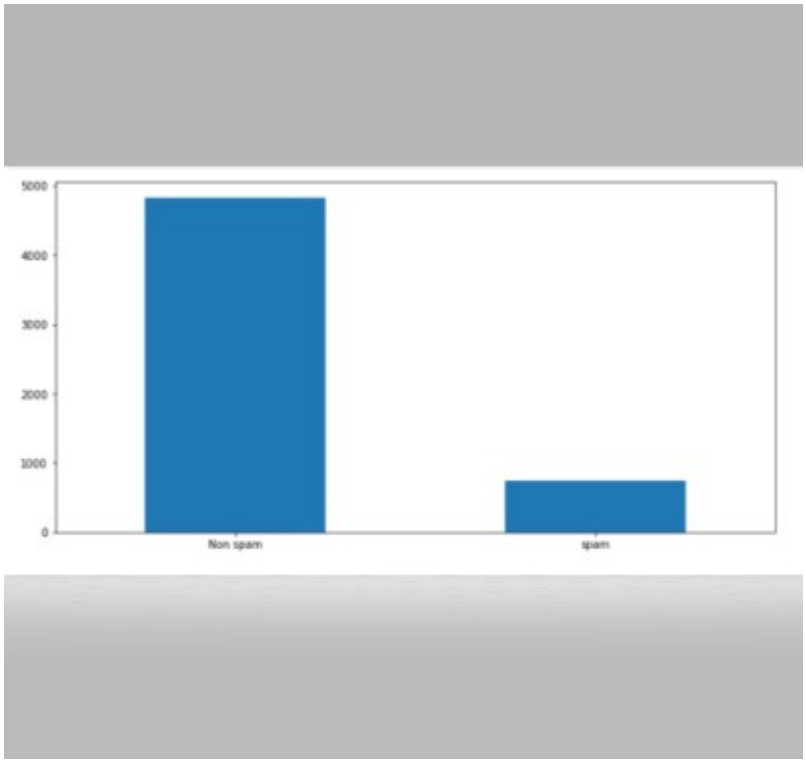
Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

20 minutes



Result

Output



ADVANTAGES & DISADVANTAGES

Advantages

However,naïve bayes is very efficient. It is a model you can train in a single iteration(no iteration)-fast to execute. Easily parallelizable. Works where there is less data and lots of features,like bag of words with text data. Its model size/n. Of parameters is small and constant w.r.t data(unlike some others like decision trees),and tends to not to overfit(more likely to underfit).

Disadvantages

Naïve bayes is based on the conditional independence of features assumption –an assumption that is not valid in many real world scenarios. Hence it sometimes oversimplifies the problem by saying features are independent and gives sub performance.

APPLICATION

Image processing has been extensively used in medical research and has enabled more efficient and accurate treatment plans. For example, it can be used for the early detection of breast cancer using a sophisticated nodule detection algorithm in breast scans. Since medical usage calls for highly trained image processors, these applications require significant implementation and evaluation before they can be accepted for use.

CONCLUSION

Using image processing techniques, we can sharpen the images, contrast of memory requirement for staring image in for mation, etc., due to such techniques, image processing is applied in reconition of images as in factory floor quality assurance system image enhancement, as in law enforcement suspect identification system, and image construction as in plastic surgery design system.

FUTURE SCOPE

The future of image processing will involve scanning the heavns for other intelligent life out in space. Also new intelligent, digital species created entirely by research scientists in various nations of the world will include advances in image processing applications.
Due to advances in image processing and related technologies there will be millions and millions of robots in the world in a few decades time, transforming the way world is managed.