

Ideation Phase

Brainstorm & Idea Prioritization Template

Date	19 September 2022
Team ID	PNT2022TMID36066
Project Name	A Novel Method For Handwritten Digit Recognition System
Maximum Marks	4 Marks

Brainstorm & Idea Prioritization Template:

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

Reference:

<https://app.mural.co/t/brainstorm2821/m/brainstorm2821/1664864847249/24b53b16ef970067ddbbd74b24b176265b67adf8?sender=u120cd7f143892485069f4869>

Step-1: Team Gathering, Collaboration and Select the Problem Statement

Template

Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

- 10 minutes to prepare
- 1 hour to collaborate
- 2-8 people recommended

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

10 minutes

- A Team gathering**
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.
- B Set the goal**
Think about the problem you'll be focusing on solving in the brainstorming session.
- C Learn how to use the facilitation tools**
Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#)

1 Define your problem statement

The problem statement is to classify the handwritten digits. The goal is to take an image of a handwritten digit and determine what the digit is. This digits range from zero to nine. It is a hard task for the machine. ~~Because~~ Handwritten digits are not perfect and can be made with many different shapes and sizes. The handwritten digit recognition system is a way to tackle this problem which uses the image of a digit and recognizes the digit present in the image.

Problem

How might we [your problem statement]?

Key rules of brainstorming

To run an smooth and productive session

- Stay on topic
- Encourage wild ideas
- Defer judgment
- Listen to others
- Go for volume
- If possible, be visual

Step-2: Brainstorm, Idea Listing and Grouping

2

Brainstorm

Write down any ideas that address your problem

🕒 10 minutes

2

Brainstorm

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

🕒 10 minutes

Brindha

order character after trace dynamic of post feature selection	time consuming	affect training time
High variability from person to person	Complex handwriting leads to complex and sometimes conflicting	Difficult due to noisy output resulting from the complex input
The sheets must be placed properly in the	Ordering is needed to understand the learning	Difficult to recognize the digits in the image

Dhivya Bharathi

lack of recognition accuracy	complexity of noise from data	variations in character styles
The need to deal with a wide range of handwriting and so on	The system is noisy for comparison of features (complex input)	Recognized characters contain a large challenge for machines
Interpreting style of pen technique at person level	Time in the usability of writing recognition need to be used in the	Given as some parts of numbers

Sathya

variations in style of letters make it difficult	Many handwritten characters	no system that focuses on effectively manage automatically
Style based characters are not recognized well	Difficult due to different background and coloring	Choosing a good model system to handle a complex problem is difficult due
High ambiguity of digits from person to person	The handwriting itself is not designed	Choosing a good model system to handle a complex problem is difficult due

Divya

Pattern analysis is complex	very limited number of characters is offered by the	difficult due to broken edges resulting inaccuracy
High quality of writing document due to recognition error	There is a probability of the probability of collapse	Difficult to understand the behavior of complex system
It is more expensive method of data entry	It is not easy to learn the use of a system or how to use the system (no instructions are given)	Need to develop an efficient algorithm

Brindha

Handwritten characters in the image are not in a fixed document format	Handwritten used in banking sector	Large quantities of text are often illegible
AND with the need of today's business world need	Recognizing background using machine learning algorithms	The process is much faster
Greater security technology	Printed characters can not be altered	Improving photo entry practices

Dhivya Bharathi

Ability to scan the characters accurately	ONN network is used	However it takes less time to convert with the document flow
Handwriting recognition is important for knowledge	Some documents require handwritten text to ensure recognition is correct	Provides for large volume of data set
The document is not easy to store	Processing of information is fast	Handwritten characters can be written with handwritten text

Sathya

Order and other information is available	Information can be written with high degree of accuracy	Very accurate and long documents necessarily have quality images
It is fast	Easy to implement and support	The handwritten text can be written with high degree of accuracy
Handwritten text is not always recognized accurately	It is important to understand the handwriting style and so on	State of an strategy

Divya

Order procedure is faster than other procedures	PDF documents are used	It is not always clear which is the original document and which is the copy
Cost effective	Used to verify the originality of paper documents	Used to verify the originality of paper documents
Handwritten text is not always recognized accurately	Designing documents in this is a friendly way	Flexible to access anywhere

3

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 can break it up into smaller sub-groups.

⌚ 20 minutes

TIP

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mind.

Feature extraction step varies for every individual language and hence is not scalable

The performance of artificial learning models is pretty limited due to manual feature extraction phase and their limited capacity of learning.

Used to augment the existing datasets.

Training sets are used to train and adjust the weights of Artificial Neural Network

It involved Machine learning methods like Hidden Markov Models(hmm) svm etc.

AI requires a lot of data to train while obtaining huge corpus of labelled handwriting images for different languages is a cumbersome task

With the advent of deep learning came tremendous improvements in accuracy of handwriting recognition.

Step-3: Idea Prioritization

4

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

⌚ 20 minutes

