

Brainstorm & Idea Prioritization Template


Date	19 September 2022
Team ID	PNT2022TMID03378
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.

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



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

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

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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 digit ranges from zero to nine through raw data. 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.

🎯

How might we [your problem statement]?

Key rules of brainstorming

To run an smooth and productive session:

- 🗣️ Stay in topic
- 💡 Encourage wild ideas
- 🙅 No self-censorship
- 👂 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 statement.

10 minutes

2

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

10 minutes

Sudarson	Sanjay Kumar	Sumer Singh	Praveen Kumar
<div>online characters suffer from dynamic of poor feature selection</div> <div>slow convergence</div> <div>affect training time</div> <div>Huge variability from person to person</div> <div>Cursive handwriting marks separation and recognition is challenging</div> <div>Difficult due to heavy printing resulting from the typewriter impact</div> <div>The sheets must be placed properly in tray</div> <div>Otherwise it would unnumbered the scanning</div> <div>Difficult to recognize the digits in the image</div>	<div>lack of recognition accuracy</div> <div>complexity of noise from data</div> <div>variations in character styles</div> <div>The issue is that there's a wide range of handwriting good or bad</div> <div>This makes it tricky for programmers of how every character might look</div> <div>Heavy-tailed distributions remain a major challenge for modelers</div> <div>Handwriting style of an individual person varies</div> <div>There is no possibility of obtaining information about the type of the input</div> <div>Stress on some parts of numbers</div>	<div>variations in mood of writers make it difficult</div> <div>heavy-tailed distributions</div> <div>no sufficient mechanism to effectively manage uncertainty</div> <div>Alpha numeric characters are not recognised well</div> <div>difficult due to shape variance and skewing</div> <div>Collecting a good labelled dataset to train is not cheap compared to synthetic data</div> <div>Huge ambiguity of strokes from person to person</div> <div>The handwriting must be dark enough</div> <div>Otherwise it would be hard to read the data and generate a report</div>	<div>Pattern analysis is complex</div> <div>very limited number of characters is offered by this</div> <div>difficult due to broken edges touching characters</div> <div>Poor quality of source document due to degradation over time</div> <div>There is a probability of the potential of collapse</div> <div>Difficult to predict the future behavior of complex system</div> <div>It is more expensive method of data entry</div> <div>It is not done in real time as a person writes and therefore not immediate text input</div> <div>Need to develop an efficient algorithm</div>
<div>Helps to transform the writings in the papers to a text document format</div> <div>mainly used in banking sector</div> <div>Large quantities of text are often input quickly</div> <div>AHD fulfil the need of today's business world need</div> <div>Removing background using machine learning algorithms</div> <div>The process is much faster</div> <div>Greater security technology</div> <div>Printed characters can not be altered</div> <div>Improving photography practices</div>	<div>Ability to scan the characters accurately</div> <div>CNN network is used</div> <div>Moreover it takes less time to convert within the electronic form</div> <div>Handwriting recognition is important for genealogy</div> <div>Using higher-quality images that are easier for character recognition as inputs</div> <div>Feasible for large volume of data set</div> <div>The document is not easy to forge</div> <div>Processing of information is fast</div> <div>Advanced version can even recreate tables, columns and even produce files</div>	<div>Online and offline detection is available</div> <div>Information can be readable with high degree of accuracy</div> <div>Very accurate and may produce reasonably top quality images</div> <div>It is fast</div> <div>Easy to implement and support</div> <div>The latest software can recreate tables also as original layout</div> <div>Developing more advanced recognition algorithms to manage task accurately</div> <div>It is cheaper than paying amount to manually enter great deal of text data</div> <div>State of art strategy</div>	<div>Online procedure is easier than offline procedure</div> <div>100% Textsearchable documents</div> <div>It is in electronic form which is straightforward to store and send by email</div> <div>Cost effective</div> <div>Used to verify the originality of paper documents</div> <div>Used to verify the originality of paper documents</div> <div>In spite of rough handling, one can read the information with high degree of accuracy</div> <div>Designing documents in this is a friendly way</div> <div>Flexible to access anywhere</div>

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

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

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

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

Used to augment the existing datasets.

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

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

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

