


# Ideation Phase

## Brainstorm & Idea Prioritization Template

|               |   |
|---------------|---|
| Date          | 23 September 2022                                       |
| Team ID       | PNT2022TMID07719  |
| Project Name  | A Novel Method for Handwritten Digit Recognition System |
| Maximum Marks | 4 Marks   |

### 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

[Share template feedback](#)

**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

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- 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**

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

DEFINITION ON THE PROBLEM

**How might we provide a well effective novel digit recognition?**

PROBLEM STATEMENT 1


**Bank cheque automation system –**  
Entering the bank account details manually leads to many errors and it is a tedious process. So, automating it with Digit Recognition System would be a highly useful process which can be used to save time and make the process free from errors.

PROBLEM STATEMENT 2

**Sorting posts with Postal codes –** The first process in distributing posts to their spots is sorting them according to their postal codes. This is currently manual and it requires a lot of time in sorting all the posts. Handwritten Digit recognition system would really speed up the process and can reduce the delivery time.

PROBLEM STATEMENT 3

**Automating Data Entry works –** In most of the data entry jobs, the work is to read numerical values and enter it into a computer and store it digitally. This can be automated by using Handwritten Digit Recognition System. When the sheet is scanned once, the data in the sheet can be recognized and it can be used to fill the form automatically.



**Need some inspiration?**

See a finished version of this template to kickstart your work.

[Open example](#) →

## Step-2: Brainstorm:

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### Brainstorm

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

🕒 10 minutes

#### TIP

You can select a sticky note and hit the pencil (switch to sketch) icon to start drawing!

### Akash Iyer

|   |   |   |
|---|---|---|
| System to recognize illegible handwriting | Automated system                          | Use neural networks to identify illegible handwriting |
| Use MINST database to store data          | SVM to approach a data in a different way | Use barcode for easy recognition                      |

### Tharun Kumar P

|                        |                                      |                                   |
|------------------------|--------------------------------------|-----------------------------------|
| E Cheque               | Dedicated lens for scanning cheque   | Usage of SVM classifier           |
| Usage of CTC algorithm | To use CNN for process cheque digits | OCR for font and text recognition |

### Narayanan M S

|  |   |  |
|--|---|--|
| Develop and app which detect handwriting | Usage of Gaussian Naive Bayes                     | Using CNN we can feed image data into the predictive analysis model. |
| Using KNN we can recognize the digits    | Use decision tree to classify the text in subsets | Using Time Series Algorithm we can forecast continuous values        |

### Ramalingam V

|                                       |  |  |
|---------------------------------------|--|--|
| Use pattern recognition applications. | Use CNN to provide 99% accuracy in digit recognition     | Use OpenCV for recognition                                 |
| Use yolo to detect handwriting        | Find the best model by experimenting with various models | Use Wiener filter to reduce the noises in the written data |



## Step-3: Idea Listing and Grouping

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### Group ideas

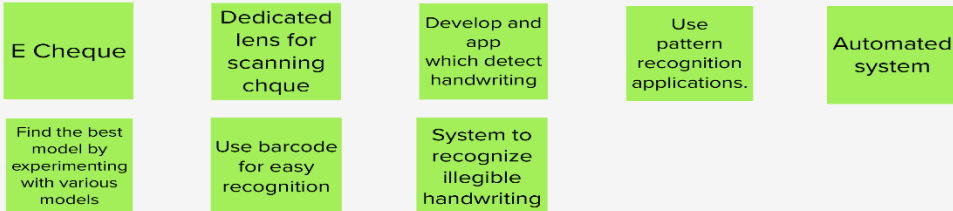
Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

🕒 20 minutes

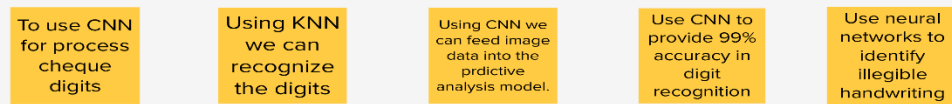
#### TIP

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

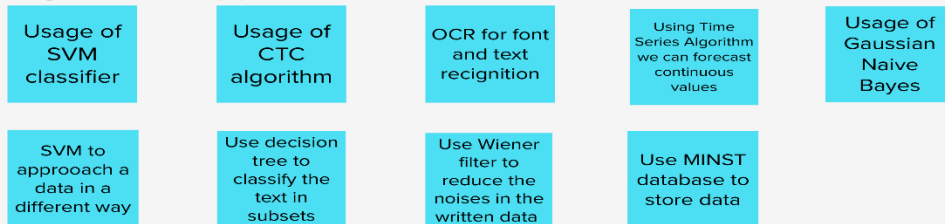
### General Ideas



### Neural Networks Approach



### Algorithmic Approach



### In built packages



## Step-4: Idea Prioritization

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### 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

**TIP**  
Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the **H** key on the keyboard.

