

Brainstorm & Idea Prioritization Template:

Date	30-10-2023
Team ID	Team-592095
Project Name	Image Caption Generation
Maximum Marks	4 Marks

Step-1: Select the Problem Statement

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

This project aims to create a system that can produce insightful captions for photos. This entails using sophisticated computer vision techniques to assess an image's visual content and natural language processing to provide captions that make sense and are relevant to the context. The system must be capable of managing a wide variety of photos from various domains. The project's objectives are to improve the overall user experience in apps including image content as well as accessibility for people who are visually impaired.



Key rules of brainstorming

To run a smooth and productive session



Stay in topic.



Encourage wild ideas.



Defer judgment.



Listen to others.



Go for volume.



If possible, be visual.

Step-2: Brainstorm, Idea Listing.

2

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!

G V S S Deepak

Deep Learning with Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs)

Utilize attention mechanisms to focus on different parts of the image.

Develop a system where generated captions are reviewed and corrected by human annotators

A V V T Saiteja

use of GANs to generate images that complement the generated captions

Combine multiple caption generation models with different architectures

Apply techniques like data augmentation, resizing, and normalization

Chandrabhas

Fine-tune the model on specific domain to improve performance

Incorporate information from other modalities

pre-trained models like VGG, ResNet, or Inception for image feature extraction and fine-tune

Sagar

Investigate techniques that allow the model to generate captions

Implement dynamic learning rate techniques to fine-tune

Incorporate user feedback on generated captions

Step-3: Grouping

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 mural.

Deep learning models, specifically a combination of Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs), can be used to solve the problem of image caption generation. The CNN extracts features from the image, while the RNN generates a descriptive caption based on these features. This approach has shown promising results in accurately and coherently generating captions for images.

Step-4: 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

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.

