

Ideation Phase

Brainstorm & Idea Prioritization Template

Date	18 October 2023
Team ID	Team-593093
Project Name	Eye Disease Prediction Using Deep Learning
Maximum Marks	5 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://www.mural.co/templates/empathy-map-canvas>

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

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.

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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

The aim of this project is to develop and deploy a robust **deep learning model for the early prediction of eye diseases**, leveraging medical imaging data such as retinal scans and patient history. This model will assist healthcare professionals in providing timely and accurate diagnoses, thereby improving patient outcomes and reducing the burden on healthcare systems.



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 and Grouping

2 Brainstorm

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

⌚ 10 minutes

Dharani Harshitha

Mobile App for Early Self-Screening

Develop a user-friendly mobile application that allows individuals to take retinal images using their smartphone cameras. The app could use computer vision and deep learning to screen for common eye diseases, providing users with immediate feedback or recommendations to seek professional medical evaluation if necessary. This empowers users to proactively monitor their eye health and seek early intervention.

Bhavya Sri Duggina

Telemedicine Integration with AI Diagnostic Tool

Integrate the AI model into telemedicine platforms, allowing remote healthcare providers to upload retinal images and patient data for real-time diagnosis during virtual consultations. This not only aids in extending healthcare access to remote areas but also enables rapid eye disease detection, especially in situations where in-person visits are challenging.

Maride Harshith

AI-Based Triage System for Eye Clinics

Develop an AI triage system for eye clinics and hospitals. Upon a patient's arrival, retinal images and medical history could be input into the system, which would prioritize cases based on the likelihood of severe eye diseases. This optimizes clinic workflows, ensuring that patients with potentially critical conditions are seen promptly by healthcare professionals.

Dushyanth Narendra

Cross-Modal Predictive Model

Create a deep learning model that takes a multi-modal approach by incorporating data from not only retinal images but also genetic information and lifestyle factors. By integrating diverse data sources, the model can provide more comprehensive and accurate predictions of eye disease risk, enabling personalized prevention strategies and early intervention plans for individuals.

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.

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graph TD
    A((Ideas from group discussion)) --> B[Model Development and Enhancement]
    A --> C[User-Centric Solutions]
    A --> D[Remote Healthcare and Telemedicine]
    A --> E[Collaboration and Ethical Considerations]
    A --> F[Data Collection and Preprocessing]
    B --> B1[Identify key features and functionalities required for the AI model.]
    B --> B2[Research and select appropriate machine learning algorithms and frameworks.]
    B --> B3[Build a prototype model using a subset of the dataset.]
    B --> B4[Iteratively refine and improve the model based on feedback and performance metrics.]
    C --> C1[Design a user-friendly interface for patients and healthcare providers.]
    C --> C2[Develop a secure and scalable backend system for data storage and processing.]
    C --> C3[Implement a robust authentication and authorization mechanism.]
    C --> C4[Ensure compliance with relevant regulations and standards.]
    D --> D1[Identify potential telemedicine platforms for integration.]
    D --> D2[Develop a secure and scalable telemedicine platform.]
    D --> D3[Implement a robust authentication and authorization mechanism.]
    D --> D4[Ensure compliance with relevant regulations and standards.]
    E --> E1[Identify potential collaborators and stakeholders.]
    E --> E2[Develop a clear communication and collaboration plan.]
    E --> E3[Implement a robust authentication and authorization mechanism.]
    E --> E4[Ensure compliance with relevant regulations and standards.]
    F --> F1[Identify potential data sources and collection methods.]
    F --> F2[Develop a secure and scalable data collection system.]
    F --> F3[Implement a robust authentication and authorization mechanism.]
    F --> F4[Ensure compliance with relevant regulations and standards.]
    
```

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

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.

Importance

If each of these tasks could get done without any difficulty or cost, which would have the most positive impact?

Feasibility

Regardless of their importance, which tasks are more feasible than others? (Cost, time, effort, complexity, etc.)

User Interface and Training:

- Create a user-friendly interface for healthcare professionals.
- Train healthcare professionals and patients in using the AI tool.

Model Development and Validation:

- Choose a deep learning architecture (e.g., CNN).
- Train, validate, and fine-tune the model using the dataset.

Continuous Monitoring and Improvement:

- Establish a system for ongoing model monitoring and updates.

Data Collection and Preprocessing:

- Collect a diverse dataset of retinal images and patient records.
- Preprocess data, ensuring quality and privacy.