

Ideation Phase

Brainstorm & Idea Prioritization Template

Date	29 October 2023
Team ID	Team-592277
Project Name	End-To-End Deep Learning Project For Detecting Melanoma Diseases.
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.

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

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Problem statement

"Melanoma is a highly malignant form of skin cancer with a significant impact on public health. Early detection and accurate diagnosis are essential for improving patient outcomes and reducing mortality rates. However, current melanoma detection methods can be subjective and error-prone, often leading to late diagnoses. This project aims to develop an automated, accurate, and non-invasive system for early melanoma detection using machine learning and computer vision techniques. The system will analyze dermatological images and patient data to identify potential melanoma cases, facilitating timely intervention and treatment."

PROBLEM

**How might we detect
Melanoma disease using
Deep Learning ?**

Step-2: Brainstorm, Idea Listing and Grouping

2

Brainstorm

Alex

Gather information about melanoma, its prevalence, and the current methods of detection.

- Outline your approach for splitting data into training, validation, and test sets.
- Define evaluation metrics (e.g., accuracy, precision, recall, F1-score) for model performance.

Consider various sources of data:

- Dermatological images
- Patient history
- Biopsy results

Prabhat

Brainstorm various machine learning and deep learning models:

- Convolutional Neural Networks (CNNs)
- Support Vector Machines (SVM)
- Decision Trees
- Ensemble methods

Explore the importance of early detection and its impact on patient outcomes.

- Explore techniques for hyperparameter tuning.
- Consider data augmentation methods to improve model performance.

Saifulla

- Explore techniques for hyperparameter tuning.
- Consider data augmentation methods to improve model performance.

- Describe the testing process, including user testing and clinical validation.
- Address any feedback and make necessary improvements.

- Create documentation for the project, including code, model details, and user guides.
- Prepare a final report summarizing the project's findings and outcomes.

3

Group ideas

- Create a timeline with milestones for different project phases.
- Ensure a realistic and achievable project schedule.

- List the resources required, including hardware, software, and funding.
- Estimate the budget needed for the project.

- Identify potential risks and challenges, such as data privacy issues or model performance limitations.
- Develop strategies to mitigate these risks.

Step-3: Idea Prioritization

4

Prioritize

