Ideation Phase

Brainstorm & Idea Prioritization

Date	06 November 2023
Team ID	Team-591563
Project Name	Lymphography Classification using Machine Learning
Maximum Marks	2 Marks

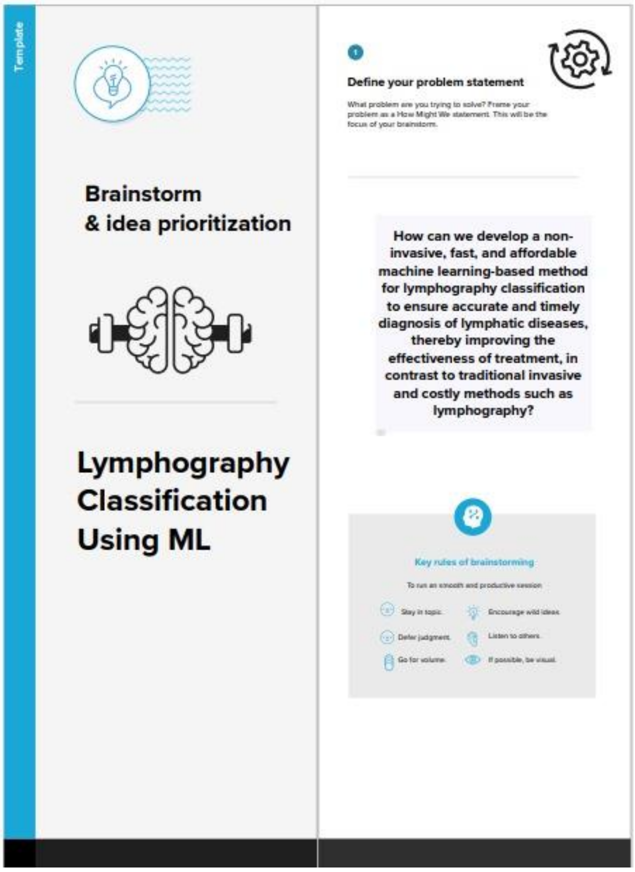
Brainstorm & Idea Prioritization:

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.

Reference Link:

https://drive.google.com/file/d/1bb68IXOfo0jjsZlYmmcPK7bhAW0tXdTc/view?usp=drive_link

Team Gathering, Collaboration and the Problem Statement:



Brainstorm
& idea prioritization

Lymphography
Classification
Using ML

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.

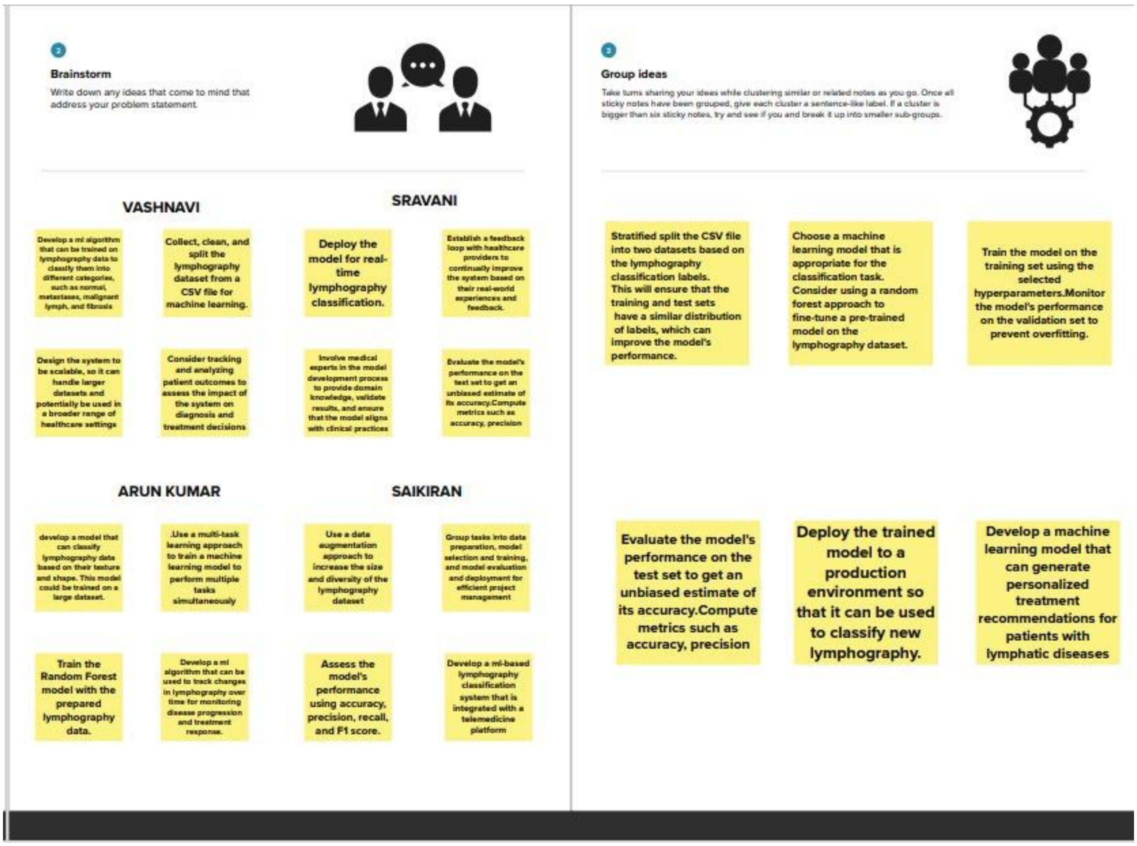
How can we develop a non-invasive, fast, and affordable machine learning-based method for lymphography classification to ensure accurate and timely diagnosis of lymphatic diseases, thereby improving the effectiveness of treatment, in contrast to traditional invasive and costly methods such as lymphography?

Key rules of brainstorming

To run an smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

Brainstorm, Idea Listing and Grouping:



2

Brainstorm

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

VASHNAVI

Develop a ml algorithm that can be trained on lymphography data to classify them into different categories, such as normal, metastases, malignant lymph, and fibrosis

Collect, clean, and split the lymphography dataset from a CSV file for machine learning.

Design the system to be scalable, so it can handle larger datasets and potentially be used in a broader range of healthcare settings

Consider tracking and analyzing patient outcomes to assess the impact of the system on diagnosis and treatment decisions

SRAVANI

Deploy the model for real-time lymphography classification.

Establish a feedback loop with healthcare providers to continually improve the system based on their real-world experiences and feedback.

Involve medical experts in the model development process to provide domain knowledge, validate results, and ensure that the model aligns with clinical practices

Evaluate the model's performance on the test set to get an unbiased estimate of its accuracy.Compute metrics such as accuracy, precision

ARUN KUMAR

develop a model that can classify lymphography data based on their texture and shape. This model could be trained on a large dataset.

.Use a multi-task learning approach to train a machine learning model to perform multiple tasks simultaneously

Train the Random Forest model with the prepared lymphography data.

Develop a ml algorithm that can be used to track changes in lymphography over time for monitoring disease progression and treatment response.

SAIKIRAN

Use a data augmentation approach to increase the size and diversity of the lymphography dataset

Group tasks into data preparation, model selection and training, and model evaluation and deployment for efficient project management

Assess the model's performance using accuracy, precision, recall, and F1 score.

Develop a ml-based lymphography classification system that is integrated with a telemedicine platform

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 and break it up into smaller sub-groups.

Stratified split the CSV file into two datasets based on the lymphography classification labels. This will ensure that the training and test sets have a similar distribution of labels, which can improve the model's performance.

Choose a machine learning model that is appropriate for the classification task. Consider using a random forest approach to fine-tune a pre-trained model on the lymphography dataset.

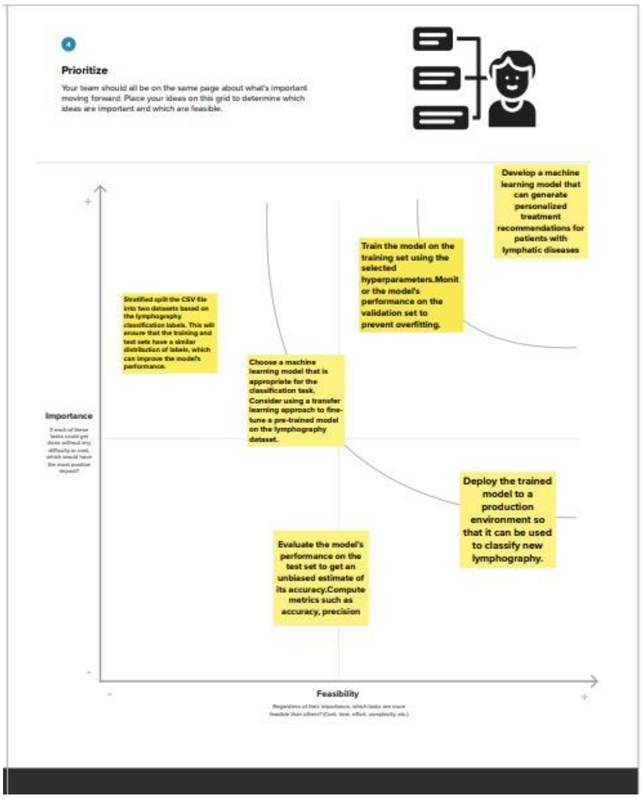
Train the model on the training set using the selected hyperparameters.Monitor the model's performance on the validation set to prevent overfitting.

Evaluate the model's performance on the test set to get an unbiased estimate of its accuracy.Compute metrics such as accuracy, precision

Deploy the trained model to a production environment so that it can be used to classify new lymphography.

Develop a machine learning model that can generate personalized treatment recommendations for patients with lymphatic diseases

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.

Develop a machine learning model that can generate personalized treatment recommendations for patients with lymphatic diseases

Train the model on the training set using the selected hyperparameters.Monitor the model's performance on the validation set to prevent overfitting.

Stratified split the CSV file into two datasets based on the lymphography classification labels. This will ensure that the training and test sets have a similar distribution of labels, which can improve the model's performance.

Choose a machine learning model that is appropriate for the classification task. Consider using a transfer learning approach to fine-tune a pre-trained model on the lymphography dataset.

Deploy the trained model to a production environment so that it can be used to classify new lymphography.

Evaluate the model's performance on the test set to get an unbiased estimate of its accuracy.Compute metrics such as accuracy, precision

+
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.)
+