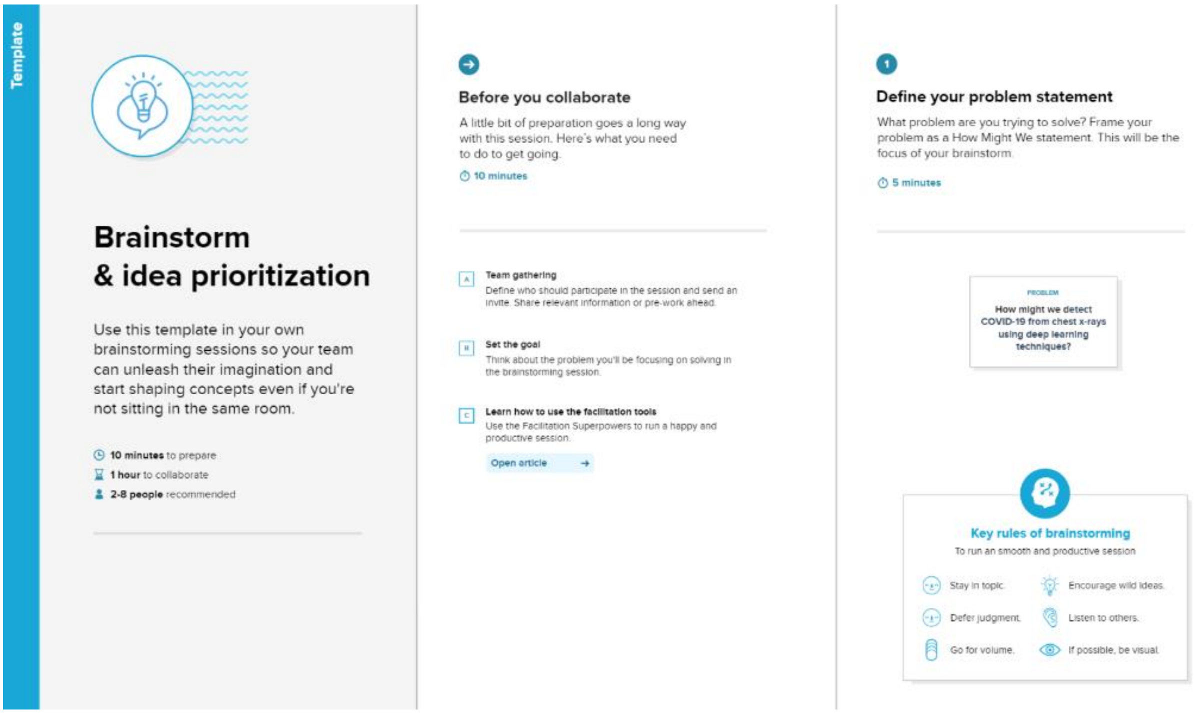
Ideation Phase
Brainstorm & Idea Prioritization Template

Date	17 October 2023
Team ID	Team-592696
Project Name	Detecting COVID-19 From Chest X-Rays Using Deep Learning Techniques
Maximum Marks	4 Marks

Referencelink: https://app.mural.co/t/covid190147/m/covid190147/1697534938582/78ee72fff6d8c6624bf9d77bd811cd49aa8259b2?sender=u0e44d796451c02b208399984

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

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.

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.

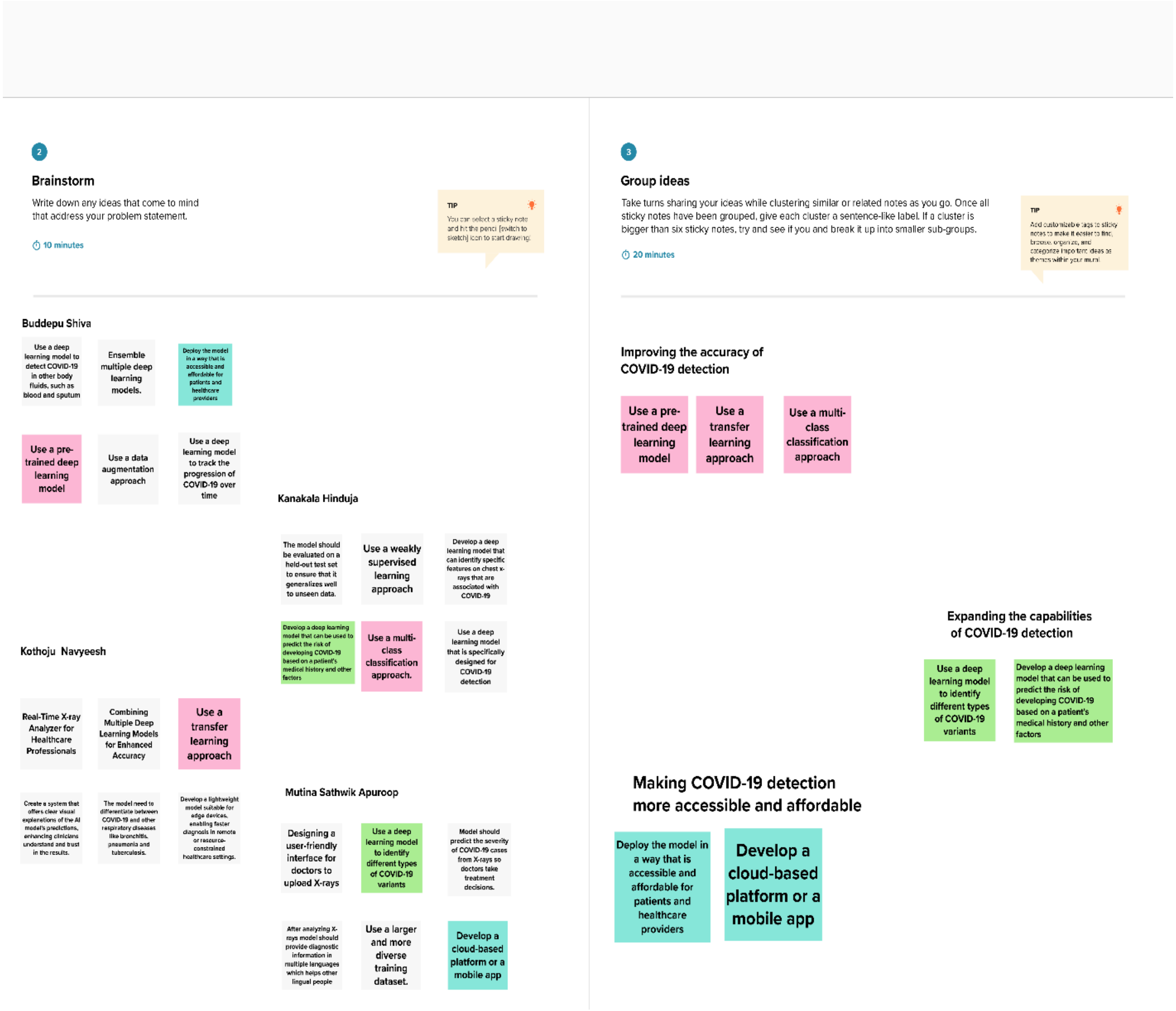
5 minutes

PROBLEM
How might we detect COVID-19 from chest x-rays using deep learning techniques?

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.

Step-2: Brainstorm, Idea Listing and Grouping



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!

Buddepu Shiva

Use a deep learning model to detect COVID-19 in other body fluids, such as blood and sputum

Ensemble multiple deep learning models.

Deploy the model in a way that is accessible and affordable for patients and healthcare providers

Use a pre-trained deep learning model

Use a data augmentation approach

Use a deep learning model to track the progression of COVID-19 over time

Kanakala Hinduja

The model should be evaluated on a held-out test set to ensure that it generalizes well to unseen data.

Use a weakly supervised learning approach

Develop a deep learning model that can identify specific features on chest x-rays that are associated with COVID-19

Develop a deep learning model that can be used to predict the risk of developing COVID-19 based on a patient's medical history and other factors

Use a multi-class classification approach.

Use a deep learning model that is specifically designed for COVID-19 detection

Kothoju Navyeesh

Real-Time X-ray Analyzer for Healthcare Professionals

Combining Multiple Deep Learning Models for Enhanced Accuracy

Use a transfer learning approach

Create a system that offers clear visual explanations of the AI model's predictions, enhancing clinicians understand and trust in the results.

The model need to differentiate between COVID-19 and other respiratory diseases like bronchitis, pneumonia and tuberculosis.

Develop a lightweight model suitable for edge devices, enabling faster diagnosis in remote or resource-constrained healthcare settings.

Mutina Sathwik Apuroop

Designing a user-friendly interface for doctors to upload X-rays

Use a deep learning model to identify different types of COVID-19 variants

Model should predict the severity of COVID-19 cases from X-rays so doctors take treatment decisions.

After analyzing X-rays model should provide diagnostic information in multiple languages which helps other lingual people

Use a larger and more diverse training dataset.

Develop a cloud-based platform or a mobile app

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.

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.

Improving the accuracy of COVID-19 detection

Use a pre-trained deep learning model

Use a transfer learning approach

Use a multi-class classification approach

Expanding the capabilities of COVID-19 detection

Use a deep learning model to identify different types of COVID-19 variants

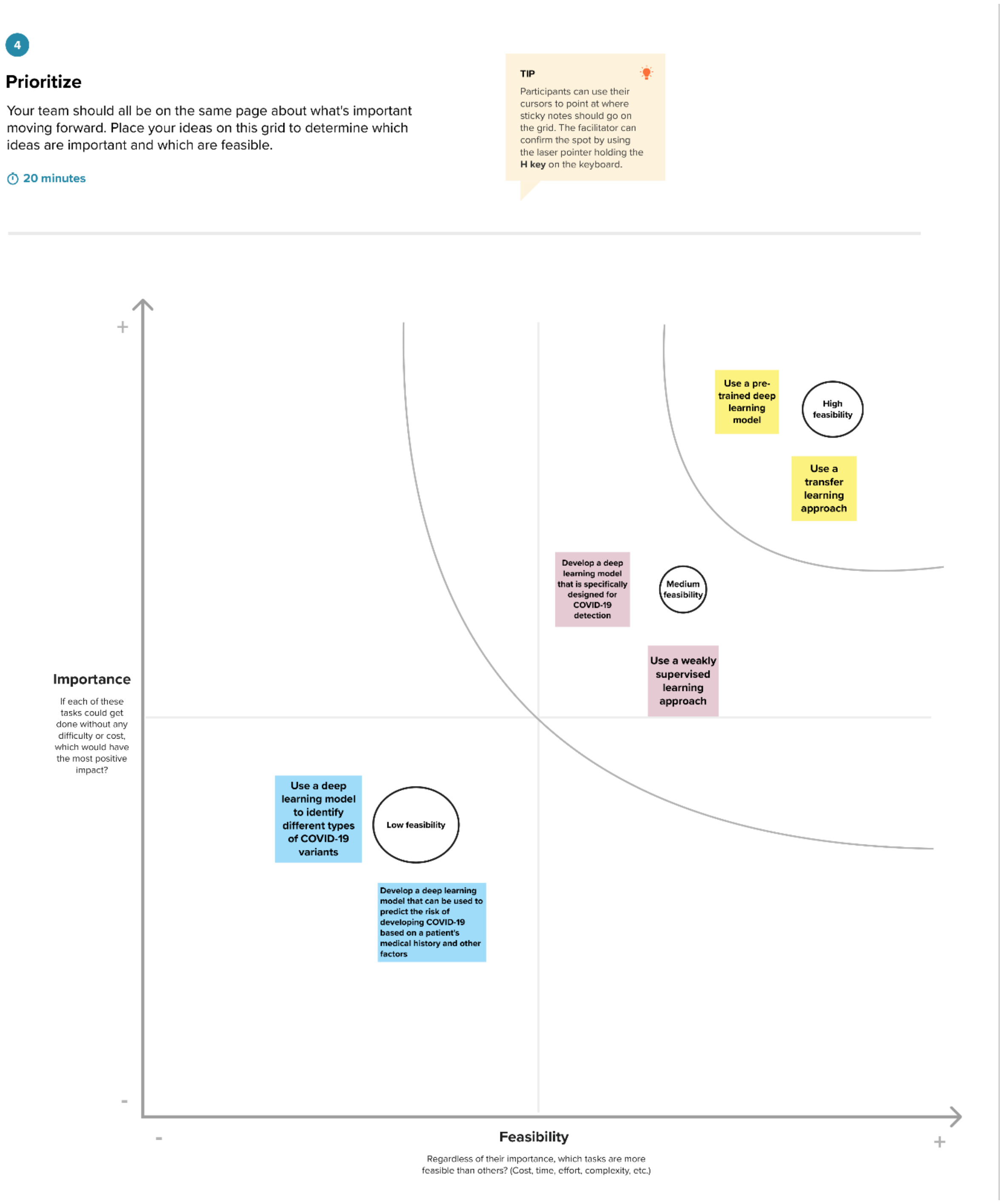
Develop a deep learning model that can be used to predict the risk of developing COVID-19 based on a patient's medical history and other factors

Making COVID-19 detection more accessible and affordable

Deploy the model in a way that is accessible and affordable for patients and healthcare providers

Develop a cloud-based platform or a mobile app

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.)

+
-
-
+
Use a pre-trained deep learning model
High feasibility
Use a transfer learning approach
Develop a deep learning model that is specifically designed for COVID-19 detection
Medium feasibility
Use a weakly supervised learning approach
Use a deep learning model to identify different types of COVID-19 variants
Low feasibility
Develop a deep learning model that can be used to predict the risk of developing COVID-19 based on a patient's medical history and other factors