


# Ideation Phase

## Brainstorm & Idea Prioritization Template

Date	19 September 2022
Team ID	PNT2022TMID04836
Project Name	AI-powered Nutrition Analyzer for Fitness Enthusiasts
Maximum Marks	4 Marks

### 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

Share template feedback

→

**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**

To build a model which is used for classifying the fruit depends on the different characteristics like colour, shape, texture etc. Here the user can capture the images of different fruits and then the image will be sent to the trained model. The model analyses the image and detect the nutrition based on the fruits like (Sugar, Fibre, Protein, Calories, etc.).

PROBLEM

How might we [your problem statement]?



### 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

**TIP**

Don't let select a sticky note and hit the point button to select it. Don't let select it again!

**Person 1**

Use a neural network to recognize fruit

Deep learning algorithm

Compare with the database

Data processing and output

**Person 2**

Using image as input

Convolutional Neural Network

Train the neural network to detect fruit

Answering the question: what is the result?

**Person 3**

Using image classification

Using Convolutional Neural Network

Compare supervised learning and unsupervised learning

Machine learning with the dataset and gives result

**Person 4**

Using 3D fruit as input

K-Nearest Neighbours Algorithm

Answer the question: what is the result?

Compare the supervised learning and unsupervised learning

### 3 Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. In the last 10 minutes, 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

**Idea 1**

An automated system is used for classification of fruits. A dataset containing five different fruits was constructed using an ordinary camera. GLCM is used to calculate texture features. Best accuracy was achieved by support vector machine. All the processing was carried out in Matlab. The main objective of these systems is to understand and perceive an image as done by humans i.e. understanding the symbolic meaning of images by the help of statistics, models, geometry. The main goal of it

**Idea 2**

Fruit classification is done by an algorithm based on convolutional neural network has been applied for fruit detection. In this we use high-quality, fruit-containing image dataset for training a neural network to detect fruits. The efficiency of CNN can match human level perfection. Convolutional neural network algorithm in DNN which also performs efficiently for visual recognition including photo and video, face recognition, handwritten digit recognition. This model works efficiently with this architecture for fruit recognition.

**Idea 3**

Co-occurrence matrices are quite effective for discriminating different textures in the paper a fast algorithm for calculating parameters of co-occurrence matrices is presented. This classification, based on co-occurrence matrix parameters, is implemented pixel-by-pixel by using supervised learning and maximum likelihood estimates. The problem of texture boundary recognition has also been considered and a classification scheme based on more than one window for each pixel is presented.

**Idea 4**

A new Fruit recognition system which combines three features analysis methods: colour-based, shape based and size based in order to increase accuracy of recognition. Proposed method classifies and recognizes fruit images based on obtained features values by using nearest neighbours classification. Consequently, system shows the fruit name and a short description to user. Proposed fruit recognition system analyses, classifies and identifies fruits successfully up to 90% accuracy. The K-Nearest Neighbours algorithm as a classifier to classify fruit based on mean color values, shape roundness value, area and perimeter values of the fruit.

## 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 markers to point at ideas. sticky notes should go on the grid. The facilitator can confirm the sticky notes, the user can follow the H key on the keyboard.

**Importance**

Users of these ideas should get done without any difficulty or cost, which would free the user from the need to do anything.

**Feasibility**

Regardless of the importance, which takes the most resources to do, it is the most likely to be done.

**IDEA 1**

**IDEA 2**

**IDEA 4**