

**Ideation Phase**  
**Brainstorm & Idea Prioritization Template**


Date	18 October 2023
Team ID	Team-593201
Project Name	Predicting Mental Health Illness Of Working Professionals Using Machine Learning
Maximum Marks	4 Marks

**Brainstorm & Idea Prioritization Template:**

Mental Health First Aid teaches participants how to notice and support an individual who may be experiencing a mental health or substance use concern or crisis and connect them with the appropriate employee resources. Employers can offer robust benefits packages to support employees who go through mental health issues. That includes Employee Assistance Programs, Wellness programs that focus on mental and physical health, Health and Disability Insurance, or flexible working schedules or time off policies. Organizations that incorporate mental health awareness help to create a healthy and productive work environment that reduces the stigma associated with mental illness, increase the organizations' mental health literacy, and teaches the skills to safely and responsibly respond to a co-worker's mental health concern. The main purpose of the Mental Health Prediction system is to predict whether a person needs to seek Mental health treatment or not based on inputs provided by them.

## 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 ➔




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#### Define your problem statement

Design and implement a machine learning-based solution to accurately identify and predict the onset of mental health challenges among working professionals, utilizing diverse data sources such as workplace performance metrics, biometric data, and self-reported well-being surveys. The goal is to develop a proactive and personalized intervention system that can enhance early detection and support for individuals facing mental health issues in the workplace, ultimately fostering a healthier and more resilient professional environment.


PROBLEM


How might we [your problem statement]?





#### 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

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### 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!

#### yash

Gather data related to mental health illness of working professional, family history, work interfere, care options, wellness programs, and coworkers

Acquire datasets for mental health interview, physical health interview and mental vs physical health interview.

Design a user-friendly interface for predictions

Implement input fields and output field for treatment.

Import Python libraries like Pandas, NumPy, Matplotlib, Seaborn, Scikit-Learn for data analysis and machine learning.

#### srinath

Create relevant features.

Transform or encode categorical variables as needed.

Choose a web framework (Flask or Streamlit) for creating a user interface.

Prepare the selected model for deployment.

Handle missing data if any

#### vamshi

Identify and handle outliers in the dataset.

Implement strategies like removing outliers or transforming data

Assess the model's performance on test data

Investigate model bias, variance, and accuracy.

Evaluate model performance using metrics like Accuracy Score, Confusion matrix, AUC-ROC curve, Classification report

#### sourav

Normalize or scale numerical features.

Select the best-performing model for predicting mental health illness of working professional

Also analyse the cross tab for more detailed information on each and every model built.

Use Matplotlib, Seaborn, or other visualization libraries.

Split data into training and testing sets.

## Step-2: Brainstorm, Idea Listing and Grouping

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### 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.

Data Collection	Feature Engineering	Outlier Detection and Treatment	Data Preprocessing	Model Deployment
Gather data related to mental health illness of working professional, family history, work interfere, care options , wellness programs, and coworkers.	Create relevant features.	Identify and handle outliers in the dataset	Normalize or scale numerical features.	Prepare the selected model for deployment
Acquire datasets for mental health interview , physical health interview and mental vs physical health interview.	Transform or encode categorical variables as needed	Implement strategies like removing outliers or transforming data.	Split data into training and testing sets.	<b>Best Model Selection</b>
<b>Model Building</b>	Handle missing data if any.	<b>Performance Testing</b>	<b>Integration with Flask or streamlit</b>	Evaluate model performance using metrics like Accuracy Score, Confusion matrix, AUC-ROC curve , Classification report.
Logistic Regression	<b>Data Visualization</b>	Assess the model's performance on test data.	Choose a web framework (Flask or Streamlit) for creating a user interface.	Also analyse the cross tab for more detailed information on each and every model built.
Explore various machine learning classification algorithms, including:	Create visualizations to understand the relationships between input features and resource allocation.	Investigate model bias, variance, and accuracy.	<b>Deployment and Monitoring</b>	Select the best-performing model for predicting mental health illness of working professional.
Decision Tree Support vector machine	Use Matplotlib, Seaborn, or other visualization libraries.	<b>User Testing</b>	Deploy the model and user interface.	
<b>Creating User Interface</b>	<b>Feedback Iteration</b>	Invite users to interact with the interface and provide feedback.	Continuously monitor the system's performance	
Design a user-friendly interface for predictions.	Use user feedback to make improvements and updates to the system.	<b>Documentation</b>	<b>Final Testing</b>	
Implement input fields and output field for treatment.		Create documentation detailing the project, data sources, methodologies, and user interface usage.	Perform a final round of testing to ensure the system's stability and accuracy.	

### Step-3: Idea Prioritization

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#### 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.

