

Ideation Phase


Brainstorm & Idea Prioritization Template

Date	11 November 2023
Team ID	PNT2023TMID592150
Project Name	Online Payments Fraud Detection Using ML
Maximum Marks	4 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. 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



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.

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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 STATEMENT

"Developing an ML model for online fraud payments detection"

Key rules of brainstorming

To run a smooth and productive session

Stay in topic.

Defer judgment.

Go for volume.

Encourage wild ideas.

Listen to others.

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 (edit) to sketch (or to start drawing)

Person 1

Machine learning algorithms can be trained to recognize normal patterns of user behavior and transaction history-Anomaly Detection

Logistic Regression, Decision Trees, Random Forests, Gradient Boosting.

Utilize machine learning to analyze behavioral biometrics, such as typing patterns, mouse movements, or touchscreen interaction

Implement dynamic Card Verification Value (CVV) codes that change regularly, making it more challenging for fraudsters to use stolen card information for online transactions.

Implement AI-powered biometric authentication methods, such as facial recognition or fingerprint scanning,

Person 2

NLP can be applied to analyze text-based data, such as transaction descriptions or customer support interactions, to identify suspicious language or requests.

Convolutional Neural Networks (CNNs) for image recognition.

Reinforcement learning can be used to improve fraud detection by allowing the system to learn from the consequences of its actions.

Develop and refine features that provide meaningful information to machine learning models.

Employ artificial intelligence algorithms to continuously analyze transaction data and detect anomalies in real-time, automatically flagging or blocking suspicious transactions.

Person 3

Ensemble methods can be effective in mitigating the weaknesses of individual models.

Apply collaborative filtering techniques to detect patterns and associations among users or transactions-Online Learning, Streaming Random Forest

Unusual clusters or transactions outside normal groupings can be flagged for further investigation.

In cases where images or documents are part of the authentication process, deep learning models can analyze and verify the authenticity of these images to prevent identity fraud.

Word Embeddings, Recurrent Neural Networks (RNNs), Transformers

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 can break it up into smaller sub-groups.

20 minutes

TIP
Add customisable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

Base Level recognition

Implement rule-based systems to automatically flag transactions that violate predefined rules indicative of potential fraud.

Maintain a blacklist of known fraudulent entities, such as compromised credit card numbers or email addresses.

Implement basic user authentication measures, such as password requirements and account lockouts after multiple failed login attempts.

Maintain comprehensive audit trails of transactions for post-event analysis and investigation in case of suspected fraud.

AI and ML involved methods

Machine learning algorithms can be trained to recognize normal patterns of user behavior and transaction history-Anomaly Detection

Logistic Regression, Decision Trees, Random Forests, Gradient Boosting.

Implement AI-powered biometric authentication methods, such as facial recognition or fingerprint scanning.

Apply collaborative filtering techniques to detect patterns and associations among users or transactions-Online Learning, Streaming Random Forest

Data collection and classification methods

Apply anomaly detection methods, such as Isolation Forests or One-Class SVM, to identify transactions that deviate from normal patterns.

Utilize random forests, which are ensembles of decision trees, for improved accuracy and resilience to overfitting.

Use decision trees to create rules for classifying transactions based on features such as transaction amount, location, and user behavior.

Employ deep learning techniques, such as neural networks, to automatically learn and adapt to complex patterns in large datasets.



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.

