

## Decode 10.1 < Mega\_Hack >

### Category 1 - Machine Learning & NLP Problem Statement

NLP with plots. Natural Language Processing (NLP) is a branch of Artificial Intelligence (AI) that studies how machines understand human language. Its goal is to build systems that can make sense of text and perform tasks like translation, grammar checking, or topic classification. We expect you to utilize the current large volume of research and development in this area to analyze a certain use case and present your analysis with the help of plots from seaborn, matplotlib or plotly. Using Deep learning models for more analysis is recommended but optional.

#### Following work must be present:

- Usage of NLP metrics such as readability.
- Analytical EDA of the chosen dataset and metrics.
- A good overall dashboard/output that encompasses the complete work.
- Interactivity in the final solution is recommended but optional.

We recommend utilization or development that has an aspect of processing “Customer Reviews” since that theme is common across the categories and will even help with understanding and encouraging development towards an end-to-end solution with deep learning  
**You can use any dataset/model/library.**

#### Tech Stack Recommendations:

- Seaborn/Matplotlib
- Plotly/Dash
- wordcloud
- Any pretrained model/Library/Repository with an open source license.
- Keras (Easiest)
- Tensorflow
- PyTorch
- Hugging Face Transformers

#### Resources:

- [Hugging Face](#)
- [Paperswithcode](#)
- [Kaggle](#)

## **Category 2 - Full Stack Web Dev Problem Statement**

Customer survey solution. Most companies utilize customer survey data to analyze and decide on their progression. It's the invaluable resource that gives the company a collective representation of their consumers as well as their sentiments.

We expect you to develop a web solution for companies to use to create surveys and analyze them.

### **Your web app must have the following features:**

- Survey creation, custom fields.
- Support text, number and more specialized fields.
- Survey links can be shared and filled by consumers.
- Admins can see all the inputs in a dashboard.
- Any extra analysis/dashboard charts are also recommended.

### **Tech Stack Recommendations:**

#### **API & Frontend:**

- React
- Angular
- Flutter
- PHP & bootstrap Database
- MongoDB (Easier with Node)
- MySQL

## **Category 3 - Data Science & ML**

### **Problem Statement NLP analysis and metrics for customer reviews.**

Natural Language Processing (NLP) is a branch of Artificial Intelligence (AI) that studies how machines understand human language. Its goal is to build systems that can make sense of text and perform tasks like translation, grammar checking, or topic classification.

We expect you to build an analytical dashboard or prepare a case study with insights based on customer reviews for a company. Companies rely a lot on the insights their data scientists gather from consumer surveys and reviews for deciding their future moves and for that a data scientist needs to represent the vast volume of data in a condensed and easy to comprehend format to be understood by the general higher-ups.

### **Your work must include the following:**

- Dashboards for presenting your analyses/case study

- Use of not just raw but also NLP metrics in your analyses
- Conclusions and recommendations (if any)

We recommend development along the lines of the other categories and trying to incorporate as much of a fully end-to-end principle for your solution. There are no restrictions except for the fact that the analysis/case study should be on customer reviews/surveys.

**You can use any dataset/model/library**

**Tech Stack Recommendations:**

Analysis & Dashboards:

- Excel
- Tableau/Power BI

**Development & Processing:**

- Sklearn
- Pandas
- Numpy
- Nltk
- spaCy

**Resources:**

- [Hugging Face](#)
- [Paperswithcode](#)
- [Kaggle](#)

**Note:**

- You aren't restricted to any tech-stack, all the above info is just to help you get started. You are encouraged to go creative with your implementation and use whatever technologies you find interesting or want to try out.
- Don't forget to spare some time for preparing your presentations before the end of the hackathon.
- All hackathons target only a prototype proof-of-concept level development.

**Perks:**

- Top- Performers will get Amazon voucher upto worth Rs 1500\*
- Certificate of Appreciation to the Top- Performers.
- Participation Certificate to all the Participants

**Keeping that in mind we wish you best of luck and expect great outputs from each and every team.**