HACKATHON SCOPE

1. OVERALL IDEA

We are planning to implement the following modules for this hackathon

i. Authentication (Security)
ii. Deployment Manager
iii. Monitoring System
iv. Scheduler

Implementing the four modules mentioned above, would be a realization of our idea about this project, and help us understand its feasibility moving forward.

- The authentication module would extract the username and password from the request header and refer to a database where the user information is stored to verify if the request is valid and if the given user is authorized to access the particular service.

- Deployment manager module would take a packaged model submitted by a data scientist and upload it onto the platform. The platform would allow configuring the deployment using a config file.

- Monitoring system is responsible for continuously monitoring status of all other modules like the Scheduler, Deployment Manager etc. and their corresponding nodes on which they are running and detects any abnormal behavior.

- Scheduler would take a config file about a service and schedule it on a particular time.

2. RELEVANCE TO OUR PROJECT

The purpose of this Hackathon is to test our design idea by implementing a proof of concept for each of the components. The design that we have thought of will be built from scratch with the above-mentioned modules created simultaneously, and then will be connected finally to deliver a working demo to look at.

3. LIST OF FEATURES

1) *Deployment of the model* : User will be able to upload a packaged model which he has created using a tool like Jupyter Notebook onto the platform using the API provided by the deployment manager. He will also be able to upload a contract along with his model that has information about how to preprocess and use the model.

2) *Deployment of the application* : Users should be able to deploy a built application on the platform and also configure its deployment (control the base environment of the server machine which will have the deployed application, control the number of instances of the deployed application)

3) *Security (Authentication and Authorization)* : A new user can be registered, and the details would be stored in the database. Later, the request coming from the user will be checked using the user registry for authentication and authorization.

4) *Monitoring system*: Monitors the modules and the services running by them. If in case , some unusual behavior is tracked, it pushes the relevant alerts and necessary actions would be taken.

4. DEMO AND USECASE

We will use a model that has been trained using an IDE like Jupyter Notebook and use our platform to deploy it along with a contract and deployment configuration in a secured way. The start and stopping of the model will be handled by the scheduler. The monitoring system will be generating the monitoring artifacts of the deployed instances.

5. TEAM WISE BREAKUP

- Authentication (Security) - Team 1
- Deployment Manager - Team 2
- Monitoring System - Team 3
- Scheduler – Team 4

6. TEAMS:

1. Team 1:
    a. Gargi Dwivedi (2021201076)
    b. Sunayana Jindal (2021201067)
    c. Ashish Gupta (2019101061)
    d. Tanishq Goel (2019114015)

2. Team 2:
    a. Shaon Dasgupta (2021201068)
    b. Ayush Mittal (2021201030)
    c. Swarnali Dey (2021201088)

3. Team 3:
    a. Ashish Chauhan (2021201044)
    b. Aditya Vishnu Tiwari (2021202029)
    c. Utkarsh Tripathi (2021202007)

4. Team 4:
    a. Aman Izardar (2021201028)
    b. Diksha Daryani (2021201045)
    c. Ashutosh Gupta (2021201085)