Additional Project Guidelines

In addition to key aspects we covered in class:
⇒ Relevance / Interest
⇒ Data Availability
⇒ Domain Knowledge
⇒ Usefulness / Utility
⇒ Feasibility
⇒ Possible Limitations/Biases/Concerns

taking into account the guidelines and questions listed below are supposed to be instrumental for the proposal and working on the project.

The objectives of the proposal are three-fold:

- ***Understanding the data***
- ***Understanding the task***
- ***Developing an initial plan for your project***

For a successful Deep Learning project, it's essential to fulfill these objectives before designing/training the neural network model. These objectives will also serve as a systematic roadmap for the project.

Below is the list of questions you want to address for each objective.

Understanding the data

• Data size and structure:
How big is the data? How is it structured? Are there any obvious patterns? If so, are they expected? Any unused features? etc.

• Data cleanness
Is some of the data corrupted? Is some data mislabeled? If it's simulated, does the simulator have any limitations

• Diversity of features:
How many features (e.g., # of pixels, # of columns) are there per data sample? Does your dataset have approximately equal number of datapoints per label?

Understanding the task

• What problem are you trying to solve with your neural network model? (e.g., classification, regression or generation?)
• What is the significance of solving the problem?
• What will be the evaluation metric for your neural network model?
• What would constitute a good performance?
• Is there a baseline method to compare against after meeting the performance? (e.g., classical machine learning method, other neural network models)

Developing an initial plan for your project

• What will be the inputs and outputs (including their dimensions) of your neural network model?
• What data preparation methods do you plan to use?
• What neural network model do you plan to use? (MLP, CNN, RNN, GAN, Transformer etc)
• What loss function do you plan to use?
• How do you plan to evaluate your model?