Clarification -1: Assessment Brief

This clarification pertains to the **Submission Structure section** outlined in the **Assessment Brief**, specifically referring to **bullet point 5** mentioned below.

> **Students Query:**
>
> **What does it mean and what is expected for this?**

5. Systematic Experimentation for Model Improvement:

o This is the core of the assignment. You must document **at least 10 distinct**, well-justified experiments aimed at improving upon the baseline model's performance.

o Each experiment must be presented as a sub-section with a clear hypothesis, implementation details, results (tables/graphs), and a concise analysis of the outcome

Clarification:

In this context, **"10 distinct, well-justified experiments"** means that you are expected to design, conduct, and document **ten separate experimental attempts** to **improve the baseline model's performance** — each representing a unique modification, method, or idea that you test and evaluate.

Meaning of "10 distinct experiments"

Each experiment should:

- Test **one clear and separate idea** (not minor parameter tweaks of the same test).
- Be **independently justifiable**, meaning you can explain *why* you tried it.
- Include **results, analysis, and comparison** with the baseline model.

Examples (for a deep learning model)

A few examples are highlighted below for better understanding

➢ **Change optimizer from SGD to Adam**
  ➢ **Purpose:** Test effect of adaptive optimization

- ➢ **Add Batch Normalization layers**
  - **Purpose:** Improve convergence and stability
- ➢ **Increase network depth (add 1–2 layers)**
  - **Purpose:** Enhance model capacity
- ➢ **Apply data augmentation (flips, rotations)**
  - **Purpose:** Improve generalization
- ➢ **Adjust learning rate**
  - **Purpose:** Optimize training dynamics
- ➢ **Change activation function**
  - **Purpose:** Address dead neurons
- ➢ **Pretrained model**
  - **Purpose:** Improve performance with limited data
- ➢ **Fine-tune batch size and epochs**
  - **Purpose:** Explore impact of training configuration

Present justification for the changes made for performing experimentations:

Each experiment should include:

1. **Rationale** – Why you chose this change.
2. **Implementation details** – What exactly was changed.
3. **Results** – Evaluate performance metrics (accuracy, loss, F1-score, etc.).
4. **Analysis** – Interpretation of whether it improved or not, and why.