## Project Design Phase-II
## Solution Requirements (Functional & Non-functional)

| Date | 03 October 2022 |
|------|-----------------|
| Team ID | PNT2022TMID48602 |
| Project Name | Project - Hand written digit recognition |
| Maximum Marks | 4 Marks |

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

| FR No. | Functional Requirement (Epic) | Sub Requirement (Story / Sub-Task) |
|--------|-------------------------------|-------------------------------------|
| FR-1 | User Registration | Registration through Gmail |
| FR-2 | User Confirmation | Confirmation via Email |
| FR-3 | preprocessing step | i).User should remove the hooks of the strokes by changed angle threshold.<br>ii).Filter the noise by using a smoothing technique which is the combination of cubic spline and equal interpolation methods. |
| FR-4 | Feature extraction | i).The data should be gathered as a different samples.<br>ii).here,the every character is represented as a feature vector,which becomes its identity. |
| FR-5 | Selection step | It is associated with single feature classifier and a genetic algorithm |
| FR-6 | Classification step and verification | i).The data is classified using MNIST digits classification dataset,which contains 60,000 training images and 10,000 testing images.<br>ii).Verification is performed by segmenting two connected digits using the oriented sliding window.<br>iii).It employees verification using SVM classifiers. |

**Non-functional Requirements:**

Following are the non-functional requirements of the proposed solution.

| FR No. | Non-Functional Requirement | Description |
|--------|----------------------------|-------------|
| NFR-1 | **Usability** | |
| NFR-2 | **Security** | |
| NFR-3 | **Reliability** | |

| NFR-4 | **Performance** | |
|-------|-----------------|---|
| NFR-5 | **Availability** | |
| NFR-6 | **Scalability** | |