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**Assignment 03**

**Project Proposal**

**CS250: Data Structures and Algorithm (3+1)**

**BS (Mathematics) : Fall 2023**

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| **Course Learning Outcomes (CLOs)**  **CLO-1:** Understand the fundamentals of data structures and algorithms  **CLO-2: Apply Data Structures and Algorithms to solve complex engineering problems.**  **CLO-3: Use appropriate Data Structures and Algorithms to design solutions**  **CLO-4:** Investigate and evaluate various algorithms based on accuracy, time complexity, and memory requirements. |

**In this assignment, you need to provide your project proposal along with group member details with task distribution. Use the template given to provide all information.**

Output:

Task – 1

Provide a 1 - page proposal of your selected project, explaining the overall aims and achievable targets. You should concisely explain the complex engineering problem you are trying to solve.

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Task – 2

Provide group member details along with task distribution, i.e. consider your group as a team undertaking this project for timely delivery to a client. You should clearly allocate primary roles to each group member.

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| Group Member Name | Role / Tasks Allocated |
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Task – 3

In this section, you need to elaborate your project idea by mapping the below mentioned concepts to your project. Please mention briefly how a particular concept will be applied in your project. This mapping may change in next few weeks as you build and expand your project, but at this stage it should be elaborate enough to quantitatively monitor your project progress on weekly basis.

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| Topic | Application in your project |
| Data structures and algorithms |  |
| Array / linked lists |  |
| Singly / Doubly / Circular linked list |  |
| Running time complexity, function growth |  |
| Stacks and queues |  |
| Algorithm Analysis |  |
| Sorting algorithms & Recursion |  |
| Trees & Binary search tree operations |  |
| AVL trees, priority queues |  |
| Binary heaps, hash tables |  |
| Graphs and search operations |  |
| Topological sort, spanning trees |  |
| Shortest paths, Greedy algorithms |  |