**Course Name: Coding and Computational Thinking-II**

**Course Credit: 0-0-4**

**Course Objectives:**

* Discuss the applicability of mathematical concepts of sets, relations to database management systems.
* Use SQL commands to query databases for relevant results
* Apply normalization techniques to create standardized relations
* Demonstrate SQL and relational databases skills to develop database management systems.

**Course Content**:

Students understanding of the subject Database management systems can be supported by practicing and taking challenges for both on the Hackerrank platform. Following is a list of suggestive exercises that can be completed on the platform.

| **Sl. No.** | **Concept** | **Challenge** | **Difficulty levels** |
| --- | --- | --- | --- |
| 1 | Basics of Sets and relations | Challenges 1,2,3 and 4 | Easy |
| 2 | Relational Algebra | Challenges 3 and 4 | Medium |
| 3 | Database Query Languages and procedural Languages | MCQ’s | Easy |
| 4 | Normalization | Challenges for 1/2/3NF | Hard |
| 5 | Databases | Keys | Medium |
| 6 | SQL | Select All | Easy |
| 7 | SQL – DDL, DML | Weather observation station 5 | Easy |
| 8 | SQL | New Companies | Medium |
| 9 | SQL | Top Competitors | Medium |
| 10 | SQL | Contest Leader Board | Medium |

**Course Outcomes:**

After completing the course, the students will be able to

**CO1:** Understand the applicability of mathematical concepts of sets, relations to database management systems.

**CO2:** Write SQL commands to query databases for relevant results

**CO3:** Analyze normalization techniques to create standardized relations

**CO4:** Compare SQL and relational databases skills to develop database management systems.