PROJECT BASED LEARNING RECORD

On
UCS4001
DATABASE MANAGEMENT SYSTEM

SCHOOL OF COMPUTER SCIENCE AND ENGINERING
IILM UNIVERSITY

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 Section – 2CSE11

ONLINE LEARNING MANAGEMENT SYSTEM (LMS)

1. **Entity: INSTRUCTOR**

Primary Key: INSTRUCTOR_ID

Attributes: FULL_NAME, EMAIL, SPECIALIZATION, JOINING_DATE

Description: Stores instructor information. One instructor can teach multiple courses.

2. **Entity: STUDENT**

Primary Key: STUDENT_ID

Attributes: FULL_NAME, EMAIL, PHONE, ENROLLMENT_DATE

Description: Stores student details. A student can enroll in multiple courses.

3. **Entity: COURSE**

Primary Key: COURSE_ID

Attributes: COURSE_TITLE, DESCRIPTION, DURATION, INSTRUCTOR_ID (FK)

Description: Stores course details. Each course is taught by one instructor.

4. **Entity: ENROLLMENT**

Primary Key: ENROLLMENT_ID

Attributes: STUDENT_ID (FK), COURSE_ID (FK), ENROLLMENT_DATE, PROGRESS_PERCENTAGE

Description: Resolves many-to-many relationship between Student and Course.

5. **Entity: ASSESSMENT**

Primary Key: ASSESSMENT_ID

Attributes: COURSE_ID (FK), STUDENT_ID (FK),

MARKS_OBTAINED, ASSESSMENT_DATE Description: Stores

student marks and supports analytics generation.

RELATIONSHIPS AND CARDINALITIES

1. **Instructor – Course: One-to-Many (1:M)**

2. **Student – Enrollment: One-to-Many (1:M)**

3. **Course – Enrollment: One-to-Many (1:M)**

4. **Student – Assessment: One-to-Many (1:M)**

5. **Course – Assessment: One-to-Many (1:M)**

IMPORTANT NOTES

- **All entities have primary keys.**

- **Foreign keys maintain referential integrity.**

- **Enrollment resolves many-to-many relationship.**

- **Supports analytics such as total students, average marks, and progress tracking.**

- **Database design follows relational modeling principles and 3NF.**