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**Homework 1**

1. Student: Name, Student ID, Class, Major

Course: CourseName, CourseID, Credits, Dept

Grade:StudentID, CourseID, Grade

1. Tuples of Student Relation:
   1. Brown, 8, 2, CS
   2. Smith, 17, 1, Math

Tuples of Course Relation:

i) Intro CS, 46, 3, CS

ii) Discrete Math, 42, 3, Math

Tuples of relation Grade:

i) 8, 46, A,

ii) 8, 42, A-

* 1. 17, 42, C

1. Student Relation has four components in one tuple
   1. Brown- Name

8 – Student Id

2 – Class

CS – Major

Course Relation has four components in one tuple:

Intro CS - CourseName

46 – CourseId

3 - Credits

Cd – Dept

Grade Relation has 3 components in one tuple:

8 – StudentId

46- CourseId

A – Grade

d) Relation schema for student: Student (Name, Student ID, Class, Major)

Relation schema for course: Course (CourseName, Course ID, Credits, Dept)

Relation schema for Grade: Grade( StudentID, CourseID, Grade)

1. Database Schema-

Student(

name: String,

studentId : Int,

class: Int,

major: String

);

Course(

courseName: String,

courseId : Int,

credits: Int

dept: String

);

Grade(

studentId: Int,

courseId: Int,

grade: String

);

Domain for student relation : Student (Name : String, Student ID: Int, Class: Int, Major: String)

Domain for course relation : Course (CourseName: String , Course ID: Int, Credits: Int, Dept: String)

Domain for Grade relation: Grade(StudentID: Int , CourseID: Int, Grade: String)

1. student relation : Student (Student ID: Int, Class: Int, Major: String , Name : String)

course relation : Course ( Course ID: Int, Dept: String, Credits: Int, CourseName: String)

Grade relation: Grade(StudentID: Int , Grade: String, CourseID: Int)

Here the columns are changed making an equivalent representation for each relations

Q.2)

Ans

Prerequisite(

prerequisiteId: Int,

CourseId: Int,

prerequisuiteCourse: Int

);

Each course can have multiple pre-requisites and are unique by prerequisuiteId.

Q.3)

Ans. Student Relation Table Key – StudentId;

Course Relation Table Key – CourseId

Grade Relation table Key – courseId, studentId

Prerequisite Table Key – prerequisiteId.na

Q.4)

Create TABLE students(

Name VARCHAR(100),

studentId INT,

class INT,

major VARCHAR(100)

);

Create TABLE course(

courseName VARCHAR(100),

courseId INT,

credits INT,

dept VARCHAR(100)

);

Create TABLE grade(

studentId INT,

courseId INT,

GRADE VARCHAR(4)

);

Insert into students values(‘Harshit’, 1 , 4, ‘CS’);

Insert into students values('Aaron', 2 , 4, 'SE');

Insert into course values('DBMS', 58 , 3, 'CS');

Insert into course values('Data Structures', 46 , 3, 'CS');

Insert into grade values(1 , 58,'A');

Insert into grade values(1 , 46, 'A');

Insert into grade values(2 , 58,'A');

