University of Central Punjab

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FACULTY OF INFORMATION TECHNOLOGY

Introduction to Database System

Lab 12
ER-Modeling

Spring 2020

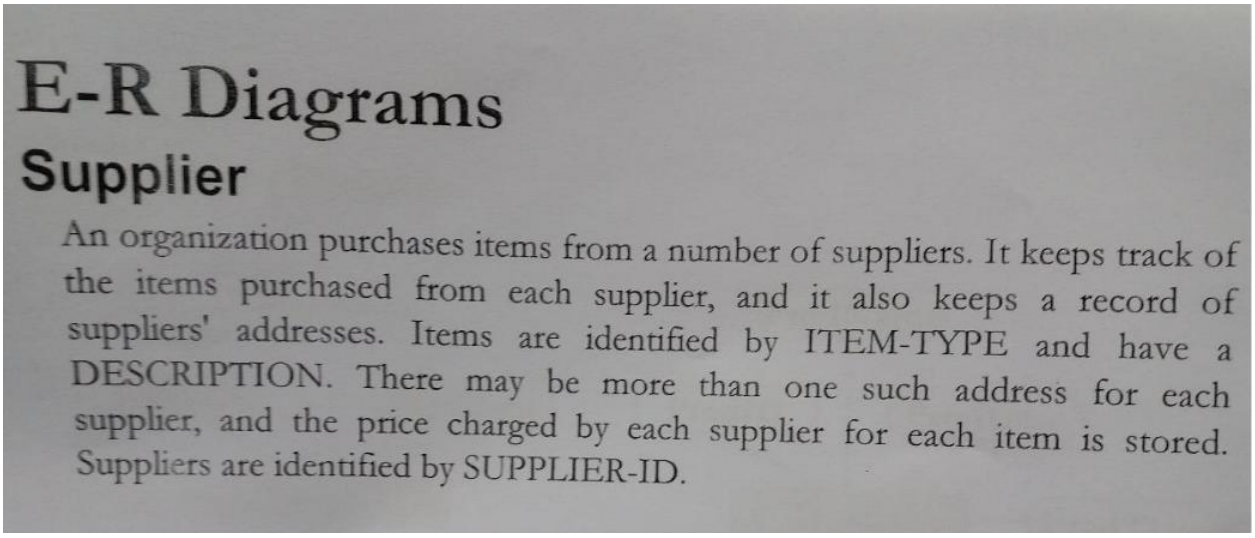
Faculty of Information Technology

Task 1

Draw an Entity relationship diagram for the given scenario. Mention keys, cardinality ratios and participation with proper notations. State assumptions (if any). A store wants to keep track of all its musical albums.

1. Musical albums have a title, price, a unique identifier as albumid.
2. There are artists who create albums. We save artist's name and cnic for our records.
3. One artist can create multiple albums. But one album can only belong to a single artist.
4. One album can be of a specific genre.
5. Genre has genre_id, name and description.
6. A single Genre can be of multiple albums.

Task 2



Task 3

Suppose you are given the following requirements for a simple database for the National Hockey League (NHL):

- the NHL has many teams,
- each team has a name, a city, a coach, a captain, and a set of players,
- each player belongs to only one team,
- each player has a name, a position (such as left wing or goalie), a skill level, and a set of injury records,
- a team captain is also a player,
- a game is played between two teams (referred to as host_team and guest_team) and has a date (such as May 11th, 1999) and a score (such as 4 to 2).

Construct a clean and concise ER diagram for the NHL database.

Task 4

A university registrar's office maintains data about the following entities:

1. courses, including number, title, credits, syllabus, and prerequisites;
2. course offerings, including course number, year, semester, section number, instructor(s), timings, and classroom;
3. students, including student-id, name, and program;
4. Instructors, including identification number, name, department, and title.

Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled. Construct an E-R diagram for the registrar's office. Document all assumptions that you make about the mapping constraints.