

Texas College of Management and IT

Siphal, Kathmandu

Assignment 01

Unit:1,2,3,7

Prepared by: Saroj Ghimire

Assignment launched Date:

Due Date:

a. Unit 1

1. Define data and their importance? Give real life example.
2. Differentiate between Database and Database Management System.
3. List out the major advantages and disadvantages of DBMS. How data are stored in database?
4. Describe and define the key properties of a database system. Give an organizational example of the benefits of each property.
5. Explain Distributed and relational database system with example.
6. List and explain different database models.
7. What is database architecture? Explain different database architecture.

b. Unit 2

8. What is E-R diagram? Describe different symbols use in the E-R diagram.
9. List the advantages and shortcoming of E-R diagram.
10. Construct an E-R diagram for a car-insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents.
11. Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted.
12. A university registrar's office maintains data about the following entities: (a)

courses, including number, title, credits, syllabus, and prerequisites; (b) course offerings, including course number, year, semester, section number, instructor(s), timings, and classroom; (c) students, including student-id, name, and program; and (d) 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.

c. Unit 3

13. What is Relational Algebra? Explain its usages.
14. Explain different types of operation in relational algebra with example (at least 6)
15. What is Relational Calculus? Explain different approach used here.
16. What is Natural, Theta and Equi join? Explain its types.
17. Explain union with example.

d. Unit 4

18. What is Normalization?
19. Explain different form of normalization with example.
20. Consider the following data, related to the students and library that is stored in a table

(Student Details)					(Book Details)					(Borrow Details)		(Library Fee Details)		Remarks
Student	DOB	Gender	Class	Score	Book	Pages	Score	Author	Type	Taken Date	Brought Date	Amount	Date	
Ram Kumar	1/1/1990	Male	12A	0	Hard Times	293	25	Charles Dickens	Science fiction					
Hari Das	6/1/1991	Male	12B	0	Editha	155	80	William Dean Howells	Art					
Gita Nepal	12/20/1990	Female	11A	0	Show Boat, Database		25, 40	Edna Ferber, Connolly	Art, Technology					

Design appropriate tables to store the above data.

21. What is key? List different types of key you know with example.