

Date :

Assignment No-2

Q1 Think of different users for the database of Fig. 1.2. What type of applications would each user need? To which user category would each belong and what type of interface would they need?

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St.No	Users for database	Applications	interface
1	International Advising	<ul style="list-style-type: none"> - list of international student - Minimum credits eligibility - list of student under probation - opt application would depend on section 	parametric interface.
2	Admission office	<ul style="list-style-type: none"> - New admissions each semester. - list of student who got accepted. - application for branch change. - visa enquiry 	Form-based parametric interface.
3.	Students center	<ul style="list-style-type: none"> - To provide transcript of the current & alumni student 	parametric interface.

Sr. No.	Users for database	Applications	Interface
4	Faculty members	<ul style="list-style-type: none"> - Manage record of all staff - Advise students on course - Add/Modify grades - Track performance - conduct exam based on their course - conduct meeting 	Form based parameter interface.
5	Students	<ul style="list-style-type: none"> - While enrolling class in a new sem - Track their performance - decide on course - drop/add course - request transcript 	

Q 2. If you were designing a web-based system to make airline reservations & to sell airline tickets, which DBMS architecture would you choose from section 2.5? Why? Why would the other architectures not be a good choice.

→ The best architecture

- The best architecture will be a three-tier client/server architecture because

- The web use interface is placed in the client system

- The database server contains DBMS

- Web server will handle the application logic of system.

- Webserver can handle those transaction validate the data & manipulate database accordingly.

→ Architecture that is not suitable

- In a centralized DBMS architecture, DBMS functionality & user interface are both performed on same system. Hence, not appropriate

- In a Two-Tier client/server archi. can be a burden if business logic is placed in database server

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Q3. Consider Fig. 2.1. In addition to constraints relating the value of columns in one table to column in another table, there are also constraints that impose restrictions on value in a column. One such constraint dictates that a column must be unique across all rows in table.

For eg - in the STUDENT table, the student-number column must be unique.

Identify the column or group of column in the other tables that must be unique across all rows in the table.

Sr.No	Table	column	constraints
1.	STUDENT	student number	It should be unique across all rows in table to avoid overlapping of tables if any two students have same name in section

Sr. No	Table	Column	Constraint
2	COURSE	course-number	<ul style="list-style-type: none"> - No two course number can be same, course number determining the dept & course name itself. - If any new course added in the catalogue then it must be assigned a unique no.
3	PREREQUISITE	prerequisite number	<ul style="list-style-type: none"> - These are unique because they depend on course section in table
4	SECTION	section identifier	<ul style="list-style-type: none"> - Sections offered in a particular sem must be different - It also depends on year if the course is newly added.
5	GRADE-REPORT	student no Section identifier	<ul style="list-style-type: none"> - student number should be unique - section identifier is unique number

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Q4. What is the difference between database schema & database state

Database Schema

- It represents overall design of database
- It changed occasionally
- Initially when defining a database, only schema is specified

Database State

- It represents current state of data in database
- It is changed frequently
- Initially database state is empty.