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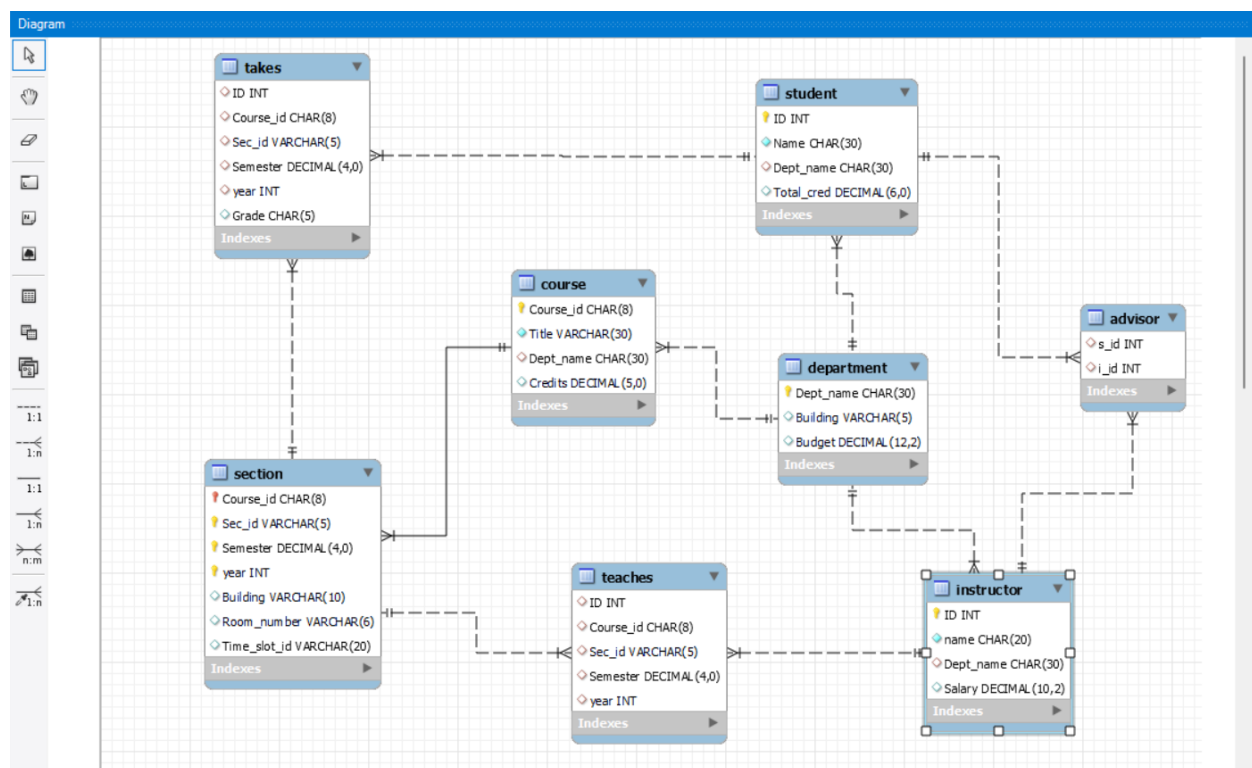
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University Database Analysis

OVERVIEW

Created a University database with multiple relations like Department, Course, Student, Takes, Instructor, Teaches, Section and Advisor. Then I used functions available in MySQL like triggers and joins, did some visualization and answered some questions.

SCHEMA

Questions -

Q1

Display the names of students and their corresponding advisor's name, department, and salary.

	A	B	C	D
1	Name	advisor_name	Dept_name	salary
2	Aditya	Vikas	Computer Science	100000
3	Akanksha	Mukesh	Mathematics	100000
4	Akshita	Bharti	Computer Science	100000
5	Anjali	Akhilesh	Statistics	80000
6	Devanshu	Naveen	Mathematics	200000
7	Divyanshu	Jitendra	Literature	100000
8	Harshit	Madhoolika	Botany	200000
9	Jagriti	Bharti	Computer Science	100000
10	Tanuja	Mukesh	Mathematics	100000
11	Stuti	Akhilesh	Statistics	80000
12	Ashish	Jitendra	Literature	100000
13	Akash	Vasudha	Computer Science	200000
14	Abhinav	Vasudha	Computer Science	200000
15	Sudeepto	Bharti	Computer Science	100000
16	Kinshuk	Vikas	Computer Science	100000
17	Aviral	Manisha	Literature	100000
18	Apurva	Kuldeep	Botany	100000
19	Sunil	Poonam	Statistics	80000
20	Shubham	Kuldeep	Botany	100000
21	Vallabh	Naveen	Mathematics	200000
22	Gagan	Vikas	Computer Science	100000
23	Adarsh	Akhilesh	Statistics	80000
24	Neha	Akhilesh	Statistics	80000
25	Stuti	Bharti	Computer Science	100000
26	Adamya	Bharti	Computer Science	100000
27	Abhishek	Geeta	Literature	200000
28	Divya	Manisha	Literature	100000
29	Rohan	Kuldeep	Botany	100000
30	Rahul	Madhoolika	Botany	200000
31	Rishabh	Awadhesh	Mathematics	200000

Q2

List the course titles along with the names of instructors who teach them and the total number of students who took each course.

	A	B	C
1	course_title	instructor_name	total_students
2	BS Statistics	Akhilesh	3
3	BS Statistics	Poonam	3
4	BS Botany	Madhoolika	4
5	BS Botany	Kuldeep	4
6	BSc Mathematics	Mukesh	3
7	BSc Mathematics	Naveen	4
8	BSc Mathematics	Awadhesh	3
9	MA English	Manisha	3
10	MA English	Geeta	1
11	MA English	Jitendra	1
12	MSc Computer Science	Vikas	1
13	MSc Computer Science	Bharti	3
14	MSc Computer Science	Vasudha	2
15	MTech CS	Vasudha	2
16	MTech CS	Vikas	2

Q3

Retrieve the department names along with the total budget allocated to each department and the average salary of instructors in each department.

	A	B	C
1	dept_name	budget	avg_salary
2	Botany	20000000	150000
3	Computer Science	10000000	133333.3
4	Literature	50000000	133333.3
5	Mathematics	40000000	166666.7
6	Statistics	9000000	80000
7			

Q4

Show the names of students and the course titles they took along with the section details (building, room_number, and time_slot).

	A	B	C	D	E
1	name	course_title	building	room_number	time_slot_id
2	Aditya	MSc Computer Scienc	LT-1	LT-1C	09 AM-01 PM
3	Aditya	MSc Computer Scienc	LT-1	LT-1C	01 PM-05 PM
4	Akanksha	BSc Mathematics	LT-2	LT-2A	09 AM-11 AM
5	Akanksha	BSc Mathematics	LT-2	LT-2A	11 AM-01 PM
6	Akshita	MSc Computer Scienc	LT-1	LT-1D	09 AM-01 PM
7	Akshita	MSc Computer Scienc	LT-1	LT-1D	01 PM-05 PM
8	Anjali	BS Statistics	LT-1	LT-1A	09 AM-11 AM
9	Anjali	BS Statistics	LT-1	LT-1A	11 AM-01 PM
10	Devanshu	BSc Mathematics	LT-2	LT-2A	01 PM-03 PM
11	Devanshu	BSc Mathematics	LT-2	LT-2A	03 PM-05 PM
12	Divyanshu	MA English	LT-3	LT-3A	09 AM-01 PM
13	Divyanshu	MA English	LT-3	LT-3A	01 PM-05 PM
14	Harshit	BS Botany	LT-4	LT-4A	09 AM-11 AM
15	Harshit	BS Botany	LT-4	LT-4A	11 AM-01 PM
16	Jagriti	MTech CS	LT-1	LT-1E	09 AM-01 PM
17	Jagriti	MTech CS	LT-1	LT-1E	01 PM-05 PM
18	Tanuja	BSc Mathematics	LT-2	LT-2A	09 AM-11 AM
19	Tanuja	BSc Mathematics	LT-2	LT-2A	11 AM-01 PM
20	Stuti	BS Statistics	LT-1	LT-1A	01 PM-03 PM
21	Stuti	BS Statistics	LT-1	LT-1A	03 PM-05 PM
22	Ashish	MA English	LT-3	LT-3A	09 AM-01 PM
23	Ashish	MA English	LT-3	LT-3A	01 PM-05 PM
24	Akash	MSc Computer Scienc	LT-1	LT-1D	09 AM-01 PM
25	Akash	MSc Computer Scienc	LT-1	LT-1D	01 PM-05 PM
26	Abhinav	MSc Computer Scienc	LT-1	LT-1C	09 AM-01 PM
27	Abhinav	MSc Computer Scienc	LT-1	LT-1C	01 PM-05 PM
28	Sudeepto	MTech CS	LT-1	LT-1F	09 AM-01 PM
29	Sudeepto	MTech CS	LT-1	LT-1F	01 PM-05 PM
30	Kinshuk	MTech CS	LT-1	LT-1F	09 AM-01 PM
31	Kinshuk	MTech CS	LT-1	LT-1F	01 PM-05 PM
32	Aviral	MA English	LT-3	LT-3A	09 AM-01 PM
33	Aviral	MA English	LT-3	LT-3A	01 PM-05 PM
34	Apurva	BS Botany	LT-4	LT-4A	09 AM-11 AM
35	Apurva	BS Botany	LT-4	LT-4A	11 AM-01 PM
36	Sunil	BS Statistics	LT-1	LT-1B	09 AM-01 PM
37	Sunil	BS Statistics	LT-1	LT-1B	01 PM-05 PM
38	Shubham	BS Botany	LT-4	LT-4A	01 PM-03 PM
39	Shubham	BS Botany	LT-4	LT-4A	03 PM-05 PM
40	Vallabh	BSc Mathematics	LT-2	LT-2B	09 AM-01 PM
41	Vallabh	BSc Mathematics	LT-2	LT-2B	01 PM-05 PM
42	Gagan	MSc Computer Scienc	LT-1	LT-1D	09 AM-01 PM
43	Gagan	MSc Computer Scienc	LT-1	LT-1D	01 PM-05 PM
44	Adarsh	BS Statistics	LT-1	LT-1B	09 AM-01 PM
45	Adarsh	BS Statistics	LT-1	LT-1B	01 PM-05 PM
46	Neha	BS Statistics	LT-1	LT-1B	09 AM-01 PM
47	Neha	BS Statistics	LT-1	LT-1B	01 PM-05 PM
48	Stuti	MSc Computer Scienc	LT-1	LT-1D	09 AM-01 PM
49	Stuti	MSc Computer Scienc	LT-1	LT-1D	01 PM-05 PM
50	Adamya	MTech CS	LT-1	LT-1E	09 AM-01 PM
51	Adamya	MTech CS	LT-1	LT-1E	01 PM-05 PM
52	Abhishek	MA English	LT-3	LT-3B	09 AM-01 PM
53	Abhishek	MA English	LT-3	LT-3B	01 PM-05 PM
54	Divya	MA English	LT-3	LT-3A	09 AM-01 PM
55	Divya	MA English	LT-3	LT-3A	01 PM-05 PM
56	Rohan	BS Botany	LT-4	LT-4B	09 AM-01 PM
57	Rohan	BS Botany	LT-4	LT-4B	01 PM-05 PM
58	Rahul	BS Botany	LT-4	LT-4A	01 PM-03 PM
59	Rahul	BS Botany	LT-4	LT-4A	03 PM-05 PM
60	Rishabh	BSc Mathematics	LT-2	LT-2B	09 AM-01 PM
61	Rishabh	BSc Mathematics	LT-2	LT-2B	01 PM-05 PM

Q5

List all instructors and the total number of courses they teach in each semester and year combination.

	A	B	C	D
1	instructor_name	semester	year	total_courses_taught
2	Vikas	1	1	1
3	Vikas	3	2	1
4	Vikas	4	2	1
5	Bharti	3	2	1
6	Bharti	2	1	1
7	Bharti	4	2	1
8	Vasudha	2	1	2
9	Vasudha	3	2	1
10	Vasudha	1	1	1
11	Mukesh	1	1	1
12	Mukesh	3	2	1
13	Mukesh	5	3	1
14	Awadhesh	2	1	1
15	Awadhesh	3	2	1
16	Awadhesh	5	3	1
17	Naveen	1	1	1
18	Naveen	4	2	1
19	Naveen	6	3	1
20	Naveen	5	3	1
21	Akhilesh	1	1	1
22	Akhilesh	3	2	1
23	Akhilesh	5	3	1
24	Poonam	2	1	1
25	Poonam	4	2	1
26	Poonam	6	3	1
27	Manisha	1	1	1
28	Manisha	3	2	1
29	Manisha	2	1	1
30	Geeta	3	2	1
31	Jitendra	4	2	1
32	Madhoolika	1	1	1
33	Madhoolika	5	3	1
34	Madhoolika	3	2	1
35	Madhoolika	2	1	1
36	Kuldeep	4	2	1
37	Kuldeep	2	1	1
38	Kuldeep	5	3	1
39	Kuldeep	6	3	1
40				

Q6

List all courses along with the names of instructors who are the advisors of students taking those courses.

	A	B
1	course_title	instructor_name
2	BS Statistics	Akhilesh
3	BS Statistics	Poonam
4	BS Botany	Madhoolika
5	BS Botany	Kuldeep
6	BSc Mathematics	Mukesh
7	BSc Mathematics	Naveen
8	BSc Mathematics	Awadhesh
9	MA English	Jitendra
10	MA English	Manisha
11	MA English	Geeta
12	MSc Computer Science	Vikas
13	MSc Computer Science	Vasudha
14	MSc Computer Science	Bharti
15	MTech CS	Bharti
16	MTech CS	Vikas

Q7

Show the course titles and the total number of students who took each course in the 'Computer Science' department.

	A	B
1	course_title	total_students
2	MSc Computer Science	6
3	MTech CS	4

Q8

List the names of students who are advised by instructors with a salary greater than the department's average salary.

	A
1	name
2	Akash
3	Abhinav
4	Rishabh
5	Devanshu
6	Vallabh
7	Abhishek
8	Harshit
9	Rahul

Q9

List all instructors and the total number of students advised by each instructor.

	A	B
1	instructor_name	total_students_advised
2	Vikas	3
3	Bharti	5
4	Vasudha	2
5	Mukesh	2
6	Awadhesh	1
7	Naveen	2
8	Akhilesh	4
9	Poonam	1
10	Manisha	2
11	Geeta	1
12	Jitendra	2
13	Madhoolika	2
14	Kuldeep	3
15		

Q10

Retrieve the department names and the number of students in each department who have more than 90 total credits.

	A	B
1	dept_name	num_students_above_90_credits
2	Botany	5
3	Computer Science	7
4	Literature	2
5	Mathematics	4
6	Statistics	5

Q11

Show the names of students along with the course title and grade they received in each course, even if they have not taken any courses yet.

	A	B	C
1	name	course_title	grade
2	Aditya	MSc Computer Science	F
3	Akanksha	BSc Mathematics	C
4	Akshita	MSc Computer Science	A
5	Anjali	BS Statistics	C
6	Devanshu	BSc Mathematics	B
7	Divyanshu	MA English	B
8	Harshit	BS Botany	C
9	Jagriti	MTech CS	B
10	Tanuja	BSc Mathematics	B
11	Stuti	BS Statistics	A
12	Ashish	MA English	B
13	Akash	MSc Computer Science	B
14	Abhinav	MSc Computer Science	A
15	Sudeepto	MTech CS	C
16	Kinshuk	MTech CS	F
17	Aviral	MA English	F
18	Apurva	BS Botany	C
19	Sunil	BS Statistics	A
20	Shubham	BS Botany	A
21	Vallabh	BSc Mathematics	F
22	Gagan	MSc Computer Science	B
23	Adarsh	BS Statistics	D
24	Neha	BS Statistics	B
25	Stuti	MSc Computer Science	D
26	Adamya	MTech CS	D
27	Abhishek	MA English	D
28	Divya	MA English	F
29	Rohan	BS Botany	A
30	Rahul	BS Botany	B
31	Rishabh	BSc Mathematics	D