University management system

SCOPE, ER DIAGRAM, TABLE DETAILS, DEPLOYMENT FILE, SAMPLE QUERIES

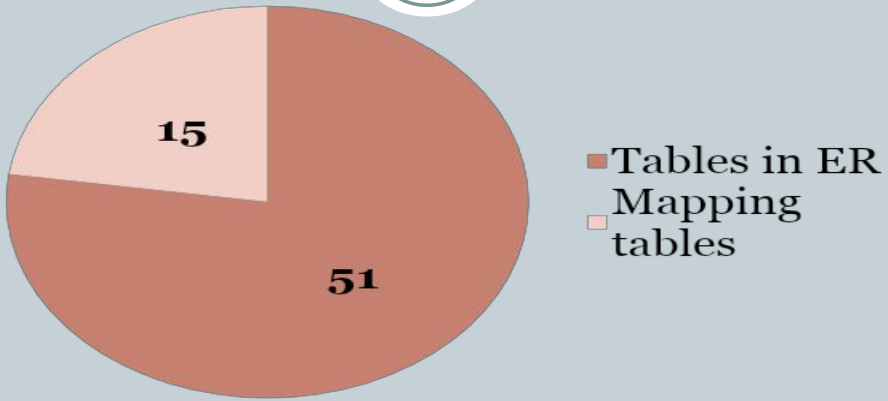
BUSINESS OBJECTIVE

To design a university database management system that maintains details of university, programs offered, courses , instructors , students etc.

BUSINESS SCOPE & ASSUMPTIONS

- The university consists of multiple colleges, under which college specific details are stored.
- The university has only bachelor level programs for the duration of 4 years, and multiple courses, lectures, tutorials and labs under each program.
- There are persons who have been segregated into student, instructors, staff, board members, Teaching and lab assistants.
- Each course is assigned a head instructor and classroom per college, with the lectures being taught by multiple instructors.
- The roles of Teaching and lab assistants could also be taken by students along with full-time assistants.
- Various tutorials and labs are taken by TA's and LA's and not shared amongst other courses and other assistants within a college.
- There are pre-requisites and anti-requisites for some courses.
- Examinations are conducted across all colleges along with the details of invigilators, classroom, grades etc.
- We also have other miscellaneous details like scholarships, student activities, placement offers, departments etc.

DETAILS



- The subsequent slides covers all the kinds of relationships along with optional mapping.
- Then the individual tables are covered as database diagram units to understand the relationships.

Click for rough ER

Click for Deployment file

Click for sample queries

PERSON TABLE MAPPING

Table	Relationship
Person – Qualifications	1 – 1
Person – Address	1 – M
Person – Login	1 – 1
Person – Student	0/1 – 1
Person – Instructor	0/1 – 1
Person – Staff	0/1 – 1
Person – TA	0/1 – 1
Person – Board member	0/1 – 1
Person – LA	0/1 – 1
Person – Contact	1 – M
Person – College	M – 1
Person – Exam	0/1 – M
Person – Status	M – 1
Person – Role	M – 1

COLLEGE TABLE MAPPING

Table	Relationship
College – Person	1 – M
College – Address	1 – 1
College – Audit info	0 – 1
College – Fees	1 – 1
College – Tuition Fees	1 – M
College – Hostel	1 – 1
College – Program	M – M
College – Classroom	1 – M
College – Department	M – M

- The tuition fees table is separated from the main Fees table as it does not hold a 1-1 relationship with college.
- The relationship between college and address is 1-1 when compared to the 1-M relationship of person and address

COURSE TABLE MAPPING

Table	Relationship
Course – Details	1 – 1
Course – Lecture	M – M
Course – Tutorial	1 – M
Course – Lab	0/1 – M
Course – Prereq	0/1 – M
Course – Antireq	0/1 – M
Course – Reference materials	M – M
Course – Program	M – M
Course – Classroom	M – 0/M
Course – Semester	M – M
Course – isElective	M – M
Course – Exam	0/1 - M

All the mapping tables with M-M relationships will be shown at the end separately.

STUDENT TABLE MAPPING

Table	Relationship
Student – Program	M – 1
Student – Semester	M – 1
Student – Activities	0/M – M
Student – Award	0/M – M
Student – placement offers	0/1 – M
Student – Exam status	0/1 – M
Student – Admission details	1 – 1
Exam – Exam_status	0/1 – M
Exam_reevaluation_status– Exam_status	1 - 0/1

Same awards may be distributed to different students in the cases of a tie.

INSTRUCTOR TABLE MAPPING

Table	Relationship
Instructor – Salary	1 – 0/1
Instructor– Department	M – 0/1
Instructor – Lecture	M – M
Instructor– Course	0/M – M
Instructor – Student Exam status	0/1 – M
Instructor– Reevaluation status	0/1 – M
Instructor– designation	M – 1

OTHER TABLES MAPPING

Table	Relationship
Staff /BM/TA/LA– Salary	1 – 0/1
Staff /TA/LA – Department	M – 0/1
Staff – Designation	M – 1
TA– Tutorial	M – M
LA – Lab	M – M
BM– Mngmt role	M– 1
Job_salary – Job_Role	M – 0/1
Job_salary – Company	M – 0/1
Job_salary – Industry_type	M – 0/1
Job_salary – placement_offers	0/1 – M

Click for other DB diagrams 1 and 2.
Click for all many-many mapping tables