Database :Lecture – 15

1. Designing (Entity Relationship)ER Diagram

Steps of Drawing ERD

1. Identify the Entities Required
2. Identify the Attributes and Primary key for each Entity
3. Identify the Relationship needed
4. Identify the Cardinality Ratio and Participation
5. Draw the Diagram

EDGE training application platform

Design a database for edge online application platform for university of barishal. Consider the following requirements:

Edge will offer various training programs through circular. There may be different training centres and any student can apply in any training module in any centre. Instructors will be assigned for any training module. This platform will provide a class routine for all batches. Students can find their result after finishing the training. Any notice regarding this program will be shared on this platform.

Step-1: Identify the Entities Required

Edge will offer various training **programs** through **circular**. There may be different training **centers** and any **student** can apply in any training module in any center if they are eligible for a course based on the **eligibility**. **Instructors** will be assigned for any training module. This platform will provide a class **routine** for all **batches**. Students can find their **result** after finishing the training. Any **notice** regarding this program will be shared on this platform.

Step-2: Identify the Attributes and Primary key for each Entity

1. program(**program_id**, name, credit, level, duration, eligibility, syllabus)
2. centre(**centre_eid**, name, contact, address)
3. circular(**circular_id**, title, description, publish_date, deadline)
4. eligibility(**eligible_id**, level, age, eduction_background, laptop, prerequisites)
5. student(**student_id**, name, gender, phone, email, dob, registration_no, roll, batch,session, Year)
6. instructor(**instructor_id**, name, phone, experties_on, address, designation)
7. batch(**batch_id**, name, capacity)
8. routine(**routine_id**, time, day)

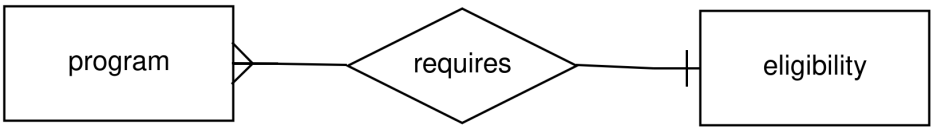
9. room(**room_id**, name,floor, room_number)
10. exam(**exam_id**, exam_name, total_marks, obtained_marks, exam_date)
11. notice(**notice_id**, title, description, publishing_date, attachments)

Step-3: Identify the Relationship needed

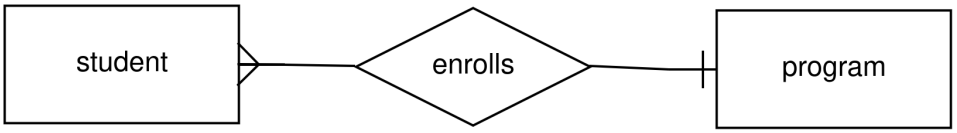
1. Program-require-Eligibility.
2. Student-enrols-Programs.
3. Instructor-conducts-Program.
4. Student-select-Center.
5. Student-choice-Batch
6. Student-Appears-Exam.
7. Instructor-Assigns-Batches.
8. Batch-Has-Routine.
9. Rooms-Allocates for-Batch

Step-4: Identify the Cardinality Ratio and Participation

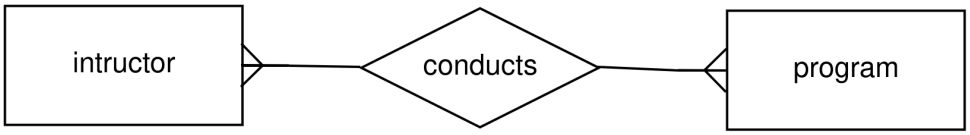
1. Program-require-Eligibility.



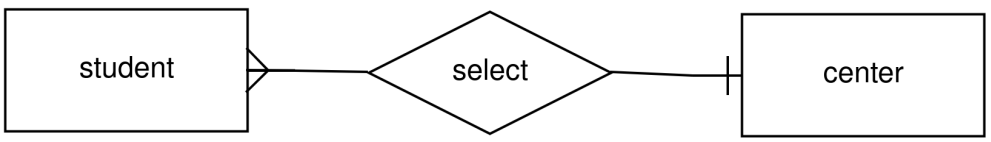
2. Student-enrols-Programs



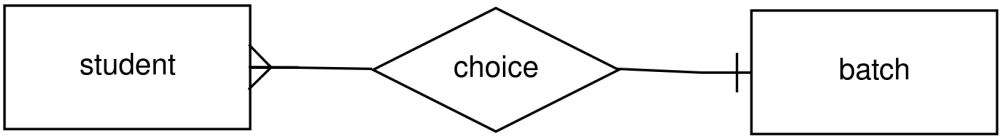
3. Instructor-conducts-Program



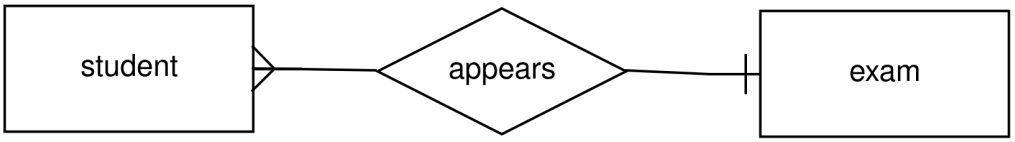
4. Student-select-Center.



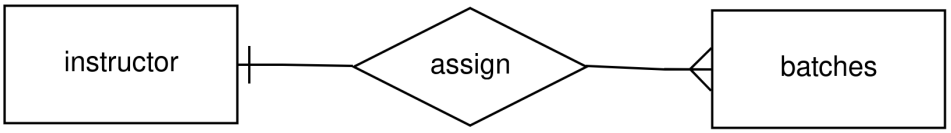
5. Student-choice-Batch



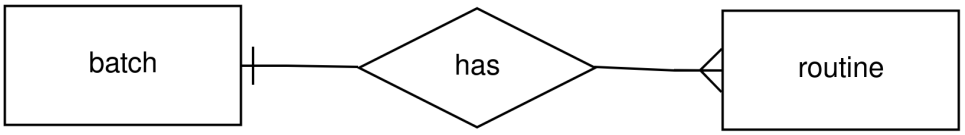
6. Student-appears-Exam.



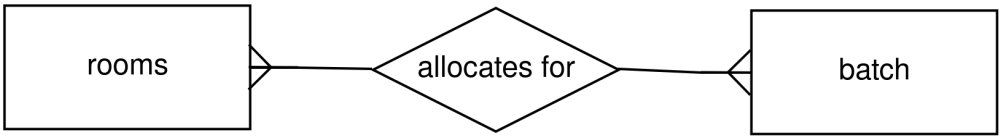
7. Instructor-assigns-Batches.



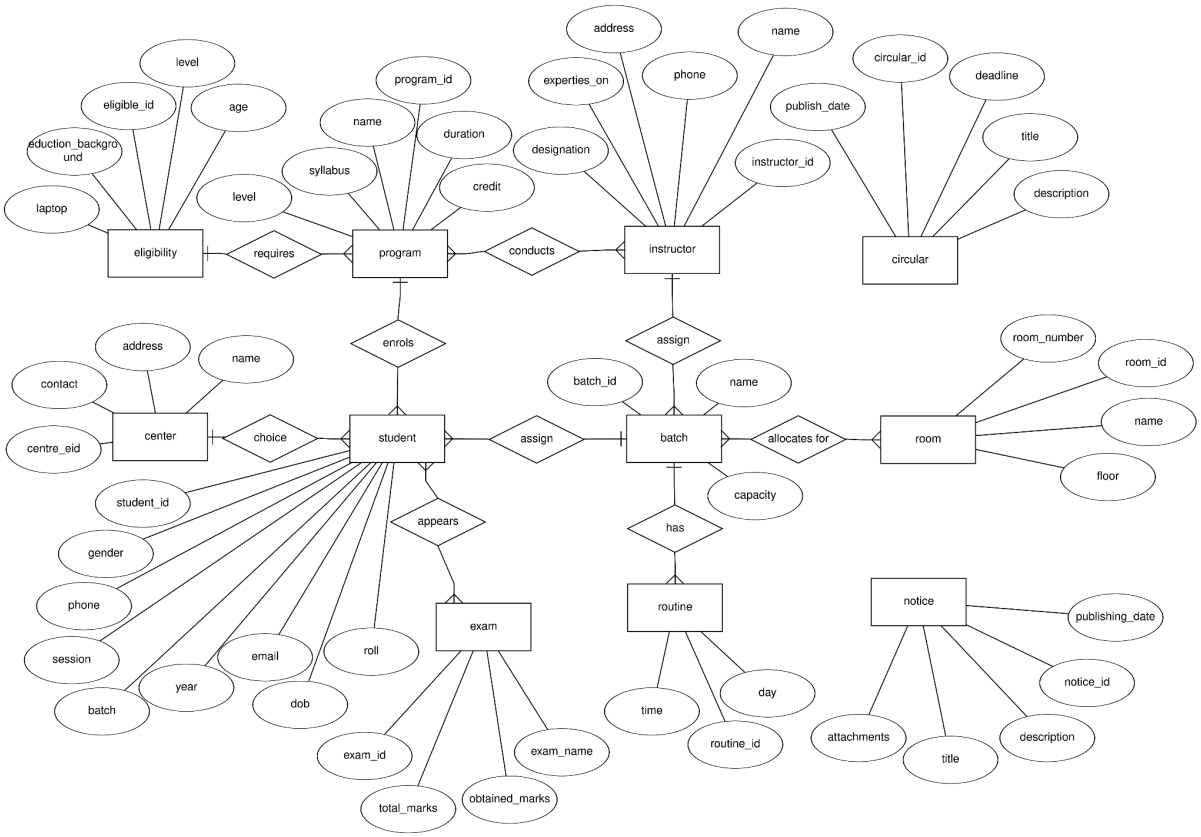
8. Batch-has-Routine.



9. Rooms-allocates for-Batch



Step-5: Draw the Diagram



2. Reduction to database schema:

1. eligibility(**eligible_id**, level, age, eduction_background, laptop, prerequisites)
2. program(**program_id**, eligible_id, name, credit, level, duration, syllabus)
3. centre(**centre_eid**, name, contact, address)
4. student(**student_id**, center_id, program_id , name, gender, phone, email, dob, registration_no, roll, batch,session, year)
5. exam(**exam_id**, exam_name, total_marks, obtained_marks, exam_date, student_id)
6. instructor(**instructor_id**, name, phone, experties_on, address, designation)
7. program_instructor(**pi_id**, instructor_id, program_id)
8. batch(**batch_id**, instructor_id, name, capacity)
9. routine(**routine_id**, batch_id, time, day)
10. room(**room_id**, name,floor, room_number)
11. allocate_room(**ar_id**, batch_id, room_id)
12. circular(**circular_id**, title, description, publish_date, deadline)
13. notice(**notice_id**, title, description, publishing_date, attachments)

3. Implementing the database in MySQL:

All tables with sample data:

Eligibility (eligible_id, level, age, eduction_background, laptop, prerequisites)

eligible_id	level	age	eduction_background	laptop	prerequisites
1	basic	30	SSC	Yes	Must know english language
2	intermediate	35	HSC	Yes	Must know english language
3	advance	40	Honors	Yes	Must know english language

Program(program_id, eligible_id, name, credit, level, duration, syllabus)

program_id	name	credit	syllabus	level	duration	eligible_id
1	Basic Web Development	3	HTML,CSS,PHP,JS	Basic	60 Hours	1
2	Database management system	4	SQL,MYSQL,Oracle	intermediate	80 Hours	2
3	App Development	6	Flutter,React Native	Advance	90 Hours	3

centre(centre_id, name, contact, address)

centre_id	name	contact	address
1	University of Barishal	+88014347348	Kornokathi,Barishal
2	BM college	+88018483474	Sador, Barishal
3	PSTU	+880483484	Dumki- Patuakhali Highway

student(student_id, center_id, program_id , name, gender, phone, email, dob, registration_no, roll, batch,session, Year)

student_id,	name	gender	phone	email	dob	registration_no	roll	batch	session	Year	program_id	center_id
1	sacin	male	0348349	s@gmail.com	02/02/2000	11910	19CSE035	8	2018-19	4	2	1
2	Rajib	male	0934934	r@gmail.com	02/02/2001	11918	19CSE037	8	2018-19	4	1	1
3	bidhan	male	093493 34	b@gmail.com	02/02/2002	11930	19CSE060	8	2018-19	4	3	2

exam(exam_id, exam_name, total_marks, obtained_marks, exam_date, student_id)

exam_id	exam_name	total_marks	obtained_marks	exam_date	Student_id
1	mid	20	15	5/10/2024	1
2	quiz	20	10	5/15/2024	1
3	final	60	45	5/18/2024	2

exam_appearence(ea_id, student_id, exam_id, batch_id)

ea_id	student_id	exam_id	batch_id
1	3	2	1
2	1	1	2
3	2	3	3

instructor(instructor_id, name, phone, experties_on, address, designation)

instructor_id	name	phone	experties_on	address	designation
1	Md. Rahim	349834	DBMS	Dhaka	Professor
2	Md. Karim	34094	WEB	Barishal	Professor
3	Md. Salam	34889	APP	Barishal	Lecturer

program_instructor(pi_id, instructor_id, program_id)

pi_id	instructor_id	program_id
1	2	1
2	1	2
3	3	3

batch(batch_id, instructor_id, name, capacity)

batch_id	name	capacity	instructor_id
1	App Development	25	3
2	Basic Web	25	1
3	DBMS	30	2

routine(routine_id, batch_id, time, day)

routine_id	time	day	batch_id
1	9-12	Friday	1
2	12-3	Sunday	1
3	3-6	Monday	2

room(room_id, name,floor, room_number)

room_id	name	floor	room_number
1	Class room-1	5th	6001
2	Programming Lab	4th	5002
3	IOT Lab	4th	5003

allocate_room(ar_id, batch_id, room_id)

ar_id	batch_id	room_id
1	1	2
2	3	1
3	2	3

circular(circular_id, title, description, publish_date, deadline)

circular_id	title	description	publish_date	deadline
1	Application-1	Term-1	20 January 2023	27 January 2023
2	Application-2	Term-2	20 March 2023	27 March 2023
3	Application-3	Term-3	20 July 2023	28 July 2023

notice(notice_id, title, description, publishing_date, attachments)

notice_id	title	description	publishing_date	attachments
1	Application	Apply on online for all courses	20 January 2024	27 January 2024
2	Prize	Who are 1st will be honoured by gov	20 March 2024	27 March 2024
3	Certificate	Everybody must get certificate	20 July 2024	28 July 2024