Task-1

Date:-20/1/2025

Title:- Conceptual Design using ER model - school management system.

Aim:- To design the ER Diagram for the school magement database using draw.io

Step1:- Problem understanding & requirement analysis
Analyze the real-world application school management system understand the domain:- students, teachers, classes, subjects, examinations, Results.

Step2:- Identify major entities are core components representing objects or concepts in the system.

- Student
- Teacher
- class
- subject
- exam
- Result

Step3:- Identify attributes for each entity

entity attributes

student student ID(PK), Name, Age, Gender, phone, Address, class ID(FK).

Teacher Teacher ID(PK), Name, Qualification, contact no.

class class ID(PK), class Name, Section,

subject subject ID, Exam ID, Date, time

Result Result ID, student ID, Grade.

Task-1	Title:- conceptual Design using ER model - school management system.
Date:- 28/7/2025	

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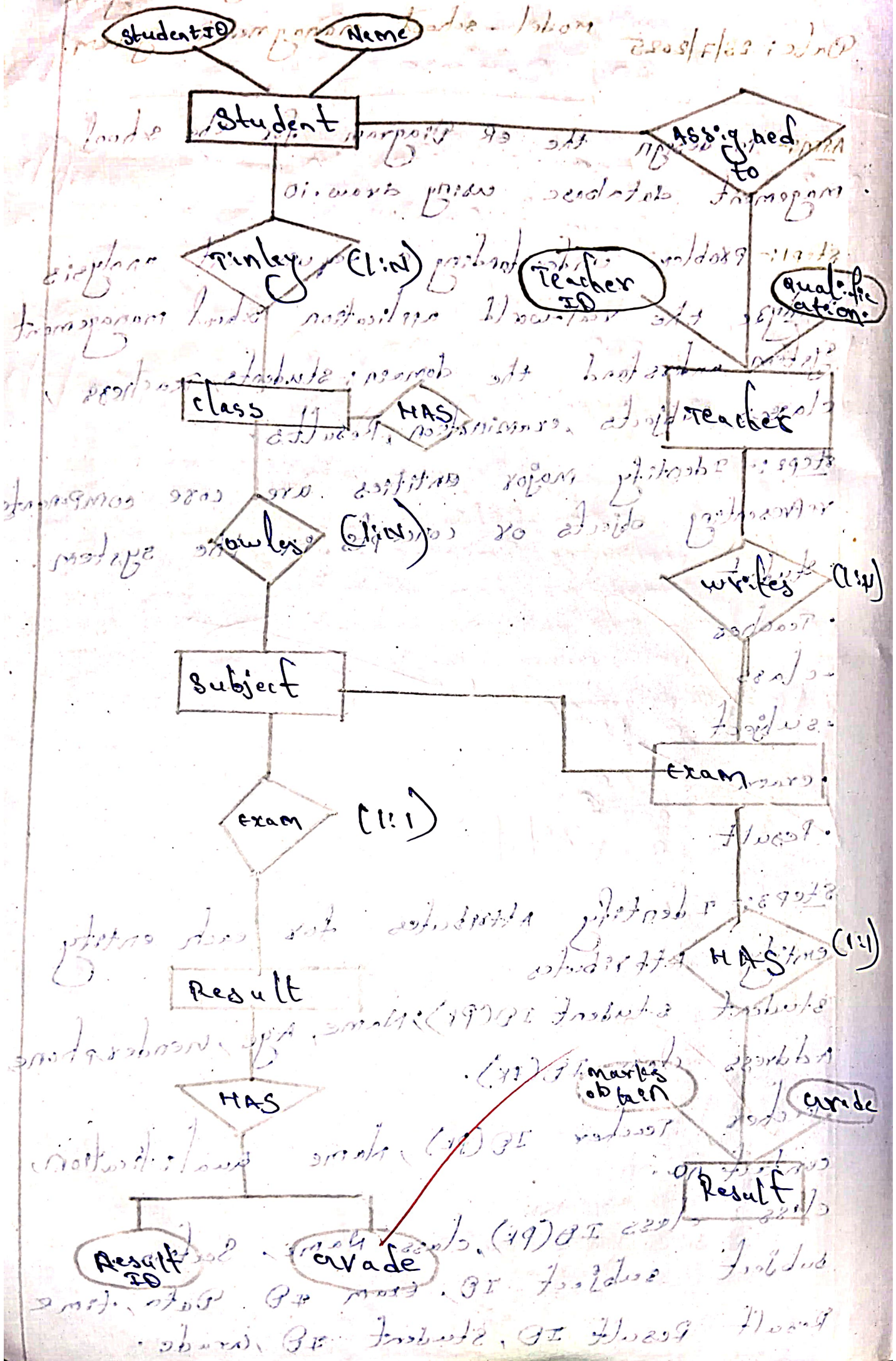
Step1:- Problem understanding (Requirement analysis
Analyze the real-world application school management system understand the domain:- students, Teachers, classes, subjects, examination, Results.

Step2:- Identify major entities are core components representing objects or concepts in the system.

- Student
- Teacher
- class
- subject
- exam
- Result.

Step3:- Identify Attributes for each entity
entity :- Attributes.
student student ID(PK); Name, Age, Gender, phone Address class ID(FK).
Teacher Teacher ID(PK), Name Qualification, contact no.
class class ID(PK), class Name, Section
subject subject ID, Exam ID Data, time
Result Result ID, Student ID, Grade.


StudentID
Name
Student
Assigned to
Pinley
(1:N)
Teacher ID
Qualification
class
HAS
Teacher
Knowledge
(1:N)
writes
(1:N)
Subject
Exam
exam
(1:1)
Result
HAS
(1:1)
HAS
marks obtain
grade
Result
Result ID
grade

Step4:- Define Relationships blw entities.

- A student is assigned to one class.
- A teacher teaches many subjects.
- A class includes many students.
- A subject is assigned to one teacher
- Each exam is for one subject.
- A Result records performance of a student in an exam.

Step5:- Draw ER Diagram using draw.io instructions.

- from the left panel.
- using rectangles for entities (eg:- student, teacher)
- use ellipses for Attributes.
- use diamonds for relationships.
- connect using solid lines

Example Relationships:-

- class (1) - includes -> (m) student
- Teacher (1) - teaches -> (M) subject.
- Subject (1) - has - [M] Exam
- Student (1) - writes -> (M) Exam.
- Result includes link blw student and exam.

Input for the ER Design

- Real time school system scenario.
- User Requirement. Student Records, Teacher Assignment class management, Exam, Tracking Result management.

Database Design Rules:- identify entities, attributes, Relationships, cardinality keys.

output:-

Entity Relationship Diagram (ERD) that clearly shows.

All Identified entities with attributes.

All Relationships with appropriate cardinalities.

foreign keys and keys marked appropriately.

VELTECH	
EX No.	11
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	
TOTAL (20)	15
SIGN WITH DATE	28/11/25

Result:- The school management system was successfully drawn by using ER Model.

Task:1.2	convert ER Diagram into Relational model.
Date:-28/07/25	

Aim :- To convert ER Diagram into Relational model

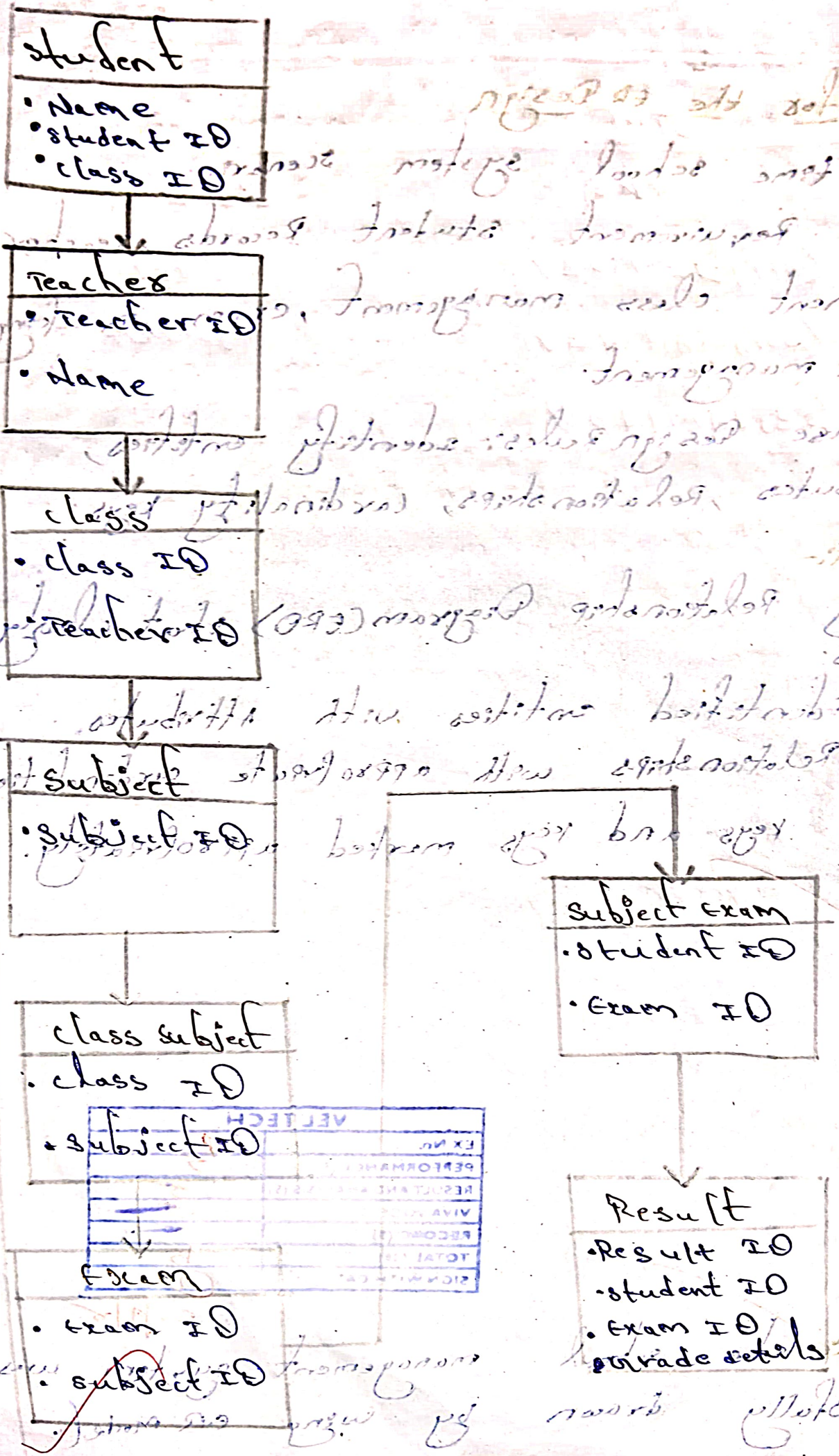
steps for converting the ER Diagram to the table.

- Entity type becomes a table.
- All single-valued attribute becomes a column for the table.
- A key attribute of the entity type represented by the primary key.
- The multivalued attribute is represented by separate table.
- composite attributes are not considered.
- Derived attributes are not considered in the table.

using these rules, you can convert the ER diagram to tables and blw the tables table structure for the given ER digram is as below.

VE. TECH	
X No.	1.1.
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	4
RECORD (5)	—
TOTAL (20)	15
SIGN WITH DATE	18/8/25

Result:- the relational diagram was successfully verified.


Student
• Name
• Student ID
• class ID
Teacher
• Teacher ID
• Name
class
• class ID
• TeacherID
Subject
• SubjectID
Subject exam
• student ID
• Exam ID
class subject
• class ID
• subjectID
Exam
• exam ID
• subject ID
Result
• Result ID
• student ID
• Exam ID
• grade details