EXAM RESULT MANAGEMENT SYSTEM

Database Project

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SUBMITTED TO: Ms. Zubaira Naz

SUBMITTED BY: ABDUL BASIT
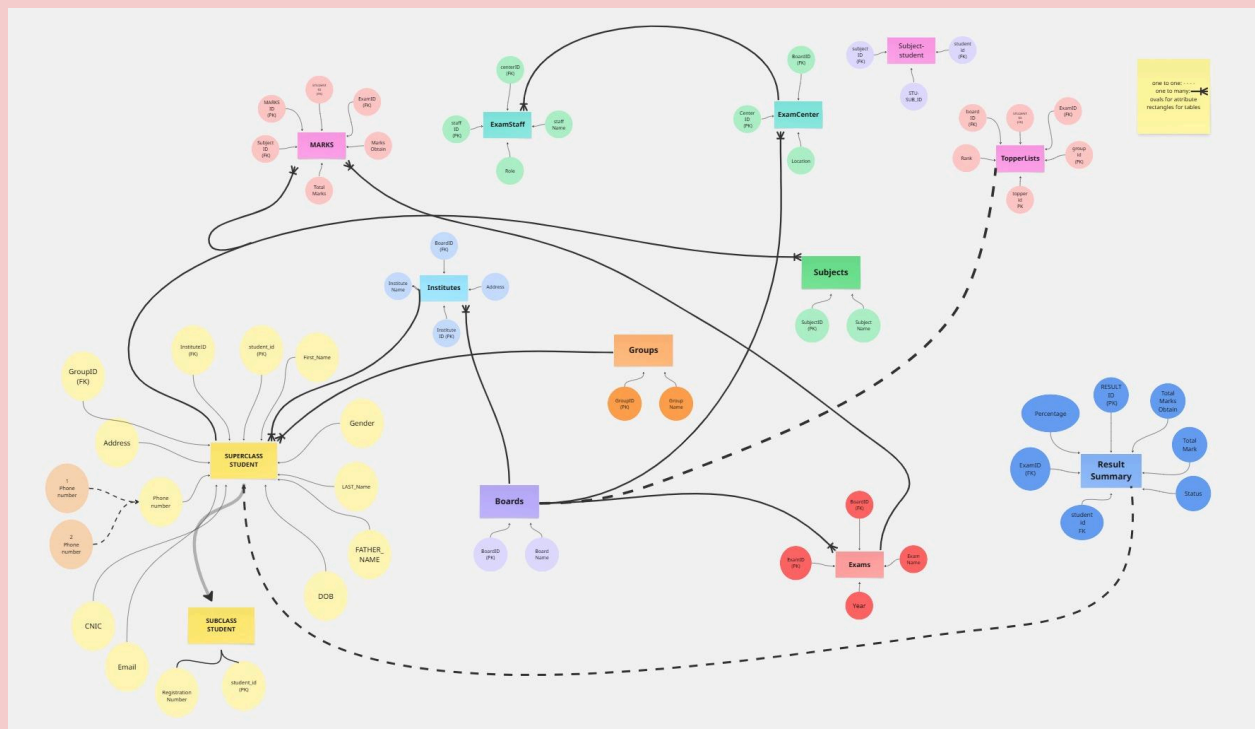
ROLL # BSAI 24075

PROJECT DESCRIPTION:

The Examination Result Management System is a structured database project designed to manage the student examination data across all Punjab Intermediate Boards.

This Database maintain the record of students marks of each exam ,its group of study ,its institute and in which board he/she give their exam ,and at the end with the help of this data we will generate final result sheet of student

It maintains detailed records of students, institutes, subjects, exams, exam centers, marks, results, and topper lists of each board.

The system is normalized up to 3NF form to ensure data consistency and avoid redundancy

ERD DIAGRAM

BSAI_24075_DATABASE_PROJECT - Miro

Database Schema:

Students Table:

{ StudentID (PK) , FirstName, LastName , FatherName, DateOfBirth , Gender, CNIC, Address, Email, PhoneNumbers (Multivalued), GroupID (FK), InstituteID (FK)   }

Groups Table:

{Group_id (PK), Group_Name}

Institutes Table:

{InstituteID (PK),InstituteName,Address ,board_id(FK)}

Exam Table:

{ ExamID (PK))   ExamName , Year,   BoardID (FK) }

BOARD Table:

{board_id(PK),Board name}

ExamCenter Table:

{ ExamCenterID (PK),   CenterLocation,BoardID (FK)}

ExamStaff Table:

 { StaffID (PK)) ,StaffName, Designation,

   ExamCenterID (FK) }

Subject Table:

{   SubjectID (PK),

   SubjectName}

Student_Subjects Table:

 { StudentSubjectID (PK),

   StudentID (FK), SubjectID (FK)}

Marks   Table:

{ MarkID (PK),

   StudentID (FK),

   ExamID (FK),

   SubjectID (FK),

   ObtainedMarks

total marks

}

ResultSummary Table:

{ResultID (PK))   StudentID (FK),ExamID (FK)), TotalMarks,ObtainedMarks,

   Percentage,Status}

TopperList Table:

{TopperListID (PK),

   StudentID (FK),

   ExamID (FK), GroupID (FK),BoardID (FK)), Rank}

RELATIONS:

One Board has many Institutes

One Board conducts many Exams

One Institute has many Students

One Group has many Students

One Student selects many Subjects

One Exam has many Marks

One Student has one Result Summary

SELECT QUERIES:

GETTING RESULT OF EACH BOARD

Getting student with respect to group:

Counting student in each group


```sql
272    order by g.Group_Name;
273 •  select g.Group_Name ,count(s.student_id)  from student s join gro_up g on s.groupid = g.Group_id
274    GROUP BY g.Group_Name;
```

Group_Name	count(s.student_id)
Science	21
Arts	4

Result 8 ✕   ❶ Read Only   Context Help Snipp

Output

Action Output ▾

#	Time	Action	Message	
✅	12	12:48:42	select g.Group_Name , s.first_name,s.father_name,s.DOB,s.cnic from student s join…	25 row(s) returned	0
❌	13	12:54:06	select g.Group_Name ,count(s.student_id), s.first_name,s.father_name,s.DOB,s.cni…	Error Code: 1140. In aggregated query without GROUP BY, expression #1 of SELE…	0
❌	14	12:55:27	select g.Group_Name ,count(s.student_id), s.first_name,s.father_name,s.DOB,s.cni…	Error Code: 1055. Expression #3 of SELECT list is not in GROUP BY clause and co…	0

Maximum marks of each student


```sql
274    GROUP BY g.Group_Name;
275 •  SELECT s.first_name, s.last_name, MAX(m.ObtainedMarks) AS TopScore
276    FROM Marks m
277    JOIN student s ON m.StudentID = s.student_id group by s.student_id;
```

first_name	last_name	TopScore
Ali	Raza	78
Sara	Khan	90
Usman	Tariq	78
Ayesha	Ali	99
Hamza	Sheikh	89

Result 12 ✕   ❶ Read Only   Context Help Snipp

Output

Action Output ▾

#	Time	Action	Message	
❌	20	13:01:31	SELECT s.first_name, s.last_name, MAX(m.ObtainedMarks) AS TopScore FROM M…	Error Code: 1055. Expression #1 of SELECT list is not in GROUP BY clause and co…	
❌	21	13:02:19	SELECT s.first_name, s.last_name, MAX(m.ObtainedMarks) AS TopScore FROM M…	Error Code: 1055. Expression #1 of SELECT list is not in GROUP BY clause and co…	

Top score of each subject

Average of each subject

Boards with institutes:

```
283      group by m.SubjectID;
284 ●    SELECT
285          sub.SubjectName,
286          AVG(m.ObtainedMarks) AS TopScore FROM Marks m JOIN Subject sub ON m.SubjectID = sub.SubjectID
287      group by m.SubjectID;
288 ●  select b.boardname ,i.InstituteName, i.Address from board b join institutes i on b.boardID=i.BoardID order by
289      b.boardname;
```

boardname	InstituteName	Address
lahore board	GCU	789 Industrial Area
lahore board	UNIQUE	456 Market Road
lahore board	PGC	123 Main St
multan board	SUPERIOUR	22 Park Lane
multan board	Pak Grammar college	11 Civic Center

#	Time	Action	Message	Duration / Fetch
26	13:11:28	SELECT sub.SubjectName, AVG(m.ObtainedMarks) AS Top...	6 row(s) returned	0.000 sec / 0.00
27	13:17:12	select s.first_name, s.last_name, MAX(m.ObtainedMarks) as TopSc...	25 row(s) returned	0.015 sec / 0.00
28	13:28:45	select b.boardname ,i.InstituteName, i.InstituteName from board b joi...	10 row(s) returned	0.032 sec / 0.00
29	13:29:08	select b.boardname ,i.InstituteName, i.InstituteAddress from board b ...	Error Code: 1054. Unknown column 'i.InstituteAddress' in 'field list'	0.000 sec

each board enroll how many institutes


```
90 ●    select b.boardname ,count(i.InstituteID) from board b join institutes i on b.boardID=i.BoardID group by
91      b.boardname ;
```

boardname	count(i.InstituteID)
lahore board	3
multan board	2
faislabad board	3
gujrawala board	2

top institute performer


```
93 ●    select distinct t.TopperListID,s.first_name ,t.Position,i.InstituteName from institutes i  join student s
94      on s.institudeid=i.InstituteID join topperlist t on s.student_id=t.StudentID order by t.TopperListID;
```

TopperListID	first_name	Position	InstituteName
1	Saad	1	GCU
2	Zain	2	CRESENT
3	Nimra	2	UNIQUE
4	Farhan	3	PGC

student with above 80

```
297 •    SELECT s.first_name, s.last_name, m.ObtainedMarks FROM Marks m
298      JOIN student s ON m.StudentID = s.student_id
299      JOIN Subject sub ON m.SubjectID = sub.SubjectID
300      WHERE  m.ObtainedMarks > 80;
```

first_name	last_name	ObtainedMarks
Bilal	Hassan	88
Zain	Mirza	97
Farhan	Malik	94
Saad	Javed	100
Iqra	Butt	81

Result 34 ×

Output

institute students count who got 80 above marks

total	institudeid	InstituteName
5	344	UNIQUE
4	423	SUPERIOUR
3	100	GCU
2	730	READERS
2	530	CRESENT

Result 39 ×

Output

Action Output

#	Time	Action	Message
71	14:11:06	SELECT count(s.student_id) as total,s.institudeid FROM Marks m J...	9 row(s) returned
72	14:13:44	SELECT count(s.student_id) as total,s.institudeid ,i.institutes FROM...	Error Code: 1146. Table 'bsai24075exam_
73	14:13:53	SELECT count(s.student_id) as total,s.institudeid FROM Marks m ...	Error Code: 1146. Table 'bsai24075exam_
74	14:13:58	SELECT count(s.student_id) as total,s.institudeid FROM Marks m ...	9 row(s) returned
75	14:15:08	SELECT count(s.student_id) as total,s.institudeid ,i.InstituteName ...	Error Code: 1241. Operand should contain

board students count who get 80 +

totalstudent	BoardID
26	101
10	102
8	103
6	104

Result 40 ×

Output

Action Output

	#	Time	Action	Message	Duration / Fetch
❌	72	14:13:44	SELECT count(s.student_id) as total,s.institudeid j.institutes FROM...	Error Code: 1146. Table 'bsai24075exam_result_system.institude' do...	0.000 sec
❌	73	14:13:53	SELECT count(s.student_id) as total,s.institudeid FROM Marks m ...	Error Code: 1146. Table 'bsai24075exam_result_system.institude' do...	0.000 sec
✅	74	14:13:58	SELECT count(s.student_id) as total,s.institudeid FROM Marks m ...	9 row(s) returned	0.000 sec / 0.000
❌	75	14:15:08	SELECT count(s.student_id) as total,s.institudeid j.InstituteName ...	Error Code: 1241. Operand should contain 1 column(s)	0.000 sec
✅	76	14:16:41	SELECT COUNT(s.student_id) AS total, s.institudeid, i.Inst...	9 row(s) returned	0.000 sec / 0.000
✅	77	14:24:33	select count(s.student_id) AS totalstudent,e.BoardID from Mark...	4 row(s) returned	0.000 sec / 0.000

students from GCU,lahore

```
314
315 •    select s.first_name, s.last_name
316      from student s
317      join Institutes i ON s.institudeid = i.InstituteID
318      WHERE i.InstituteName = 'GCU';
```

first_name	last_name
Usman	Tariq
Hamza	Sheikh
Mariam	Iqbal
Saad	Javed
Waleed	Munir

Result 42 ×

Output

showing topper from boards

```
319
320 •    select * from topperlist t join board b on t.BoardID=b.boardID order by b.boardID ;
321
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: $\overline{A}$

TopperListID	StudentID	ExamID	GroupID	BoardID	Position	boardID	boardname
1	13	1	1	101	1	101	lahore board
3	12	1	2	101	2	101	lahore board
4	11	1	1	101	3	101	lahore board
2	9	4	1	104	2	104	gujrawala board

Result 43 ✕

Output

Action Output ▾

	#	Time	Action	Message	Duratic
✓	77	14:24:33	select count(s.student_id) AS totalstudent,e.BoardID from Mark...	4 row(s) returned	0.000 s
✓	78	14:26:28	select s.first_name, s.last_name from student s join Institutes i ON s.i...	5 row(s) returned	0.016 s
✓	79	14:27:27	select s.first_name, s.last_name from student s join Institutes i ON s.i...	5 row(s) returned	0.000 s
✗	80	14:30:49	select * from tpperlist t join board b on t.BoardID=b.boardID order by...	Error Code: 1146. Table 'bsai24075exam_result_system.tpperlist' do...	0.015 s
✗	81	14:31:11	select * from tpperlist LIMIT 0, 5000	Error Code: 1146. Table 'bsai24075exam_result_system.tpperlist' do...	0.000 s
✓	82	14:31:26	select * from topperlist t join board b on t.BoardID=b.boardID order b...	4 row(s) returned	0.000 s

Students from lahore:

```
322 •    select * from student where address ='lahore';
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: $\overline{A}$

	student_id	first_name	last_name	father_name	DOB	gender	address	cnic	email	groupid	institudeid
▶	1	Ali	Raza	Ahmed Raza	2005-01-15	M	Lahore	3520112345671	ali.raza@email.com	1	768
	2	Sara	Khan	Sajid Khan	2004-12-10	F	Lahore	3520123456782	sara.khan@email.com	1	344
	3	Usman	Tariq	Tariq Jameel	2006-03-22	M	Lahore	3520234567893	usman.tariq@email.com	1	100
	5	Hamza	Sheikh	Rashid Sheikh	2004-09-25	M	Lahore	3520456789015	hamza.sheikh@email.com	1	100

student 44 ✕

Output

Action Output ▾