Project

Database Systems

Submitted To

Dr. Naveed Anwar Butt

Submitted By

Syeda Qandeel Fakhar

Roll Number

22024119-004

Due Date

June27,2024

Department of Computer Science

Faculty of Computing and Information Technology

University of Gujrat, Hafiz Hayat Campus

School management project

Introduction :

The School Management System is a comprehensive database project designed to efficiently manage and organize school data, encompassing various entities such as classes, subjects, students, teachers, attendance, fees, expenses, and exams.

Objectives:

- **Data Organization**: To systematically store information about students, teachers, classes, subjects, fees, expenses, and exams.
- **Efficient Data Retrieval**: To provide quick and accurate retrieval of information through well-designed queries and stored procedures.
- **Automation**: To automate routine tasks such as counting students, calculating fees, and generating reports on attendance and exam results.
- **User-Friendly Interface**: To offer a clear and user-friendly interface for school administrators to interact with the database.

Database Structure:

The database is structured into multiple tables, each representing a key entity within the school system:

1. **Class**: Stores information about the different classes.
2. **Subject**: Contains details of subjects taught in different classes.
3. **Student**: Records personal and academic information of students.
4. **Teacher**: Maintains data on teachers, including contact details, subjects teach.
5. **TeacherSubject**: Maps teachers to the subjects they teach in different classes.
6. **TeacherAttendance**: Tracks attendance records of teachers.
7. **StudentAtt**: Keeps attendance records of students.
8. **Fees**: Details the fee structure for different classes.
9. **Expense**: Records various expenses incurred by the school.
10. **Principal**: Stores information about the principal and vice-principal.
11. **Exam**: Keeps records of students' exam results.

Key Features and Functionalities:

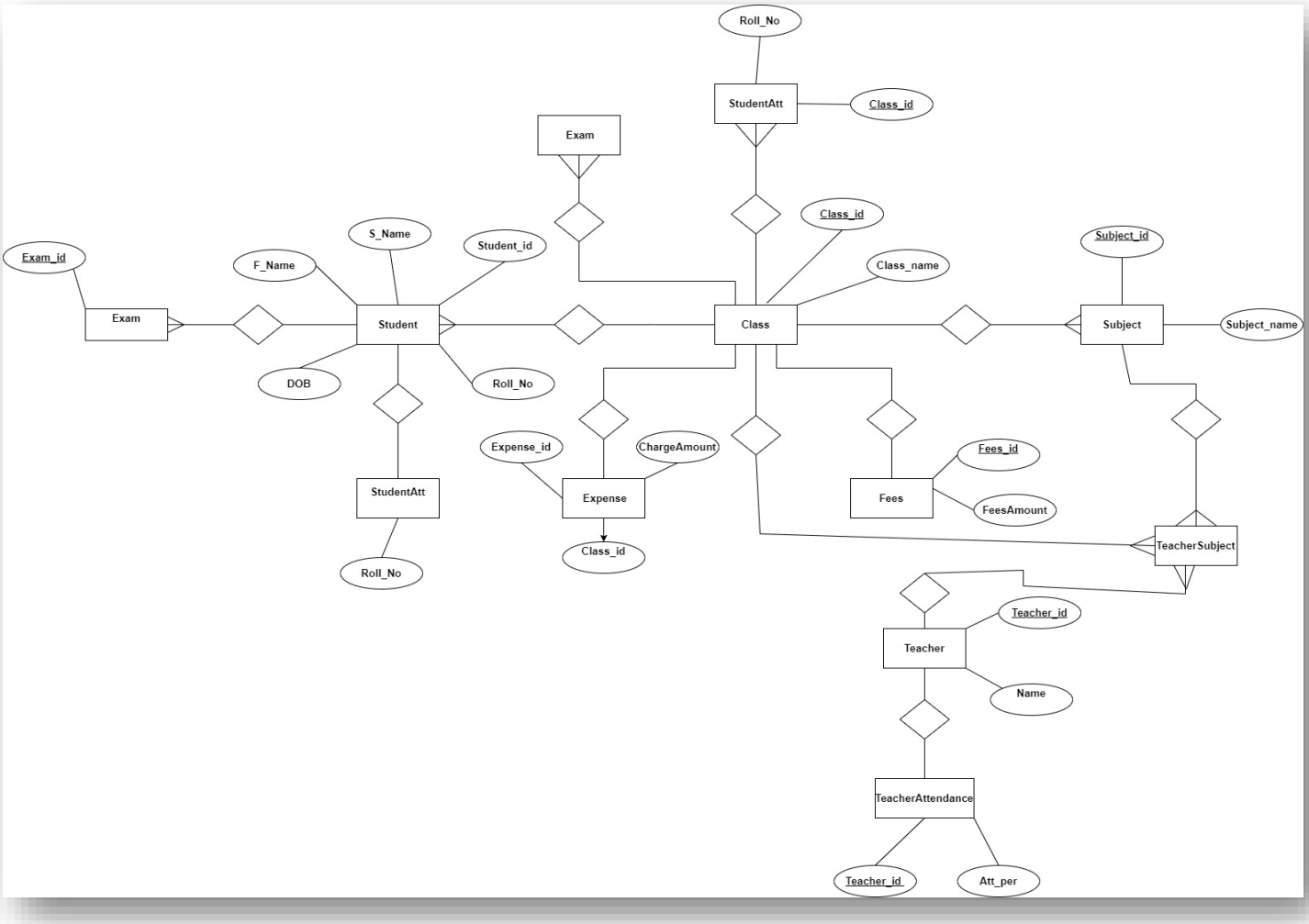
- **Student and Teacher Management**: Efficiently manage the personal and academic details of students and teachers.
- **Attendance Tracking**: Maintain attendance records for both students and teachers.
- **Exam Results Management**: Record and retrieve students' exam results.
- **Financial Management**: Manage fees and expenses to track the financial status of the school.
- **Reporting and Analysis**: Generate reports and perform analysis.

Stored Procedures:

The system incorporates several stored procedures to perform specific tasks, enhancing the efficiency and usability of the database:

1. **proc_1**: Counts the number of students in a specific class.
2. **proc_2**: Counts the total number of students in the school.
3. **proc_3**: Counts the total number of teachers in the school.
4. **proc_6**: Counts the number of students from specific cities.
5. **proc_7**: Retrieves students scored the highest marks within a specified range.
6. **proc_8**: Identifies students who have failed.
7. **proc_9**: Retrieves the total marks of all students.
8. **proc_10**: Lists students with attendance greater than 90%.
9. **proc_11**: Calculates the total expenses of the school.
10. **proc_12**: Retrieves data about the principal.
11. **proc_13**: Shows the fees of a particular class.
12. **proc_14**: Lists subjects taught in a particular class.
13. **proc_15**: Counts the number of subjects in a specific class.
14. **proc_16**: Identifies the number of subjects taught by a particular teacher.

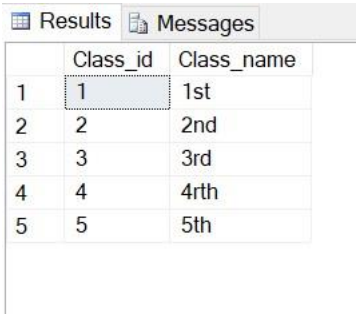
E Diagram :



Tables:

```
-----Table 1-----
Create Table Class(
Class_id int,
Class_name varchar(45) null ,
)
insert into Class (Class_id,
Class_name)values(1,'1st'),(2,'2nd'),(3,'3rd'),(4,'4rth'),(5,'5th');
Select *from Class;
```

Output :



Results | Messages

	Class_id	Class_name
1	1	1st
2	2	2nd
3	3	3rd
4	4	4rth
5	5	5th

```
-----Table 2-----

Create Table Subject (
Subject_id int ,
Class_id int ,
Subject_name varchar (45),
)
Insert into Subject(Subject_id, Class_id, Subject_name)
values(01,1,'English'),(01,2,'English'),(01,3,'English')
,(01,4,'English'),(01,5,'English'),(02,1,'Urdu'),
(02,2,'Urdu'),(02,3,'Urdu'),(02,4,'Urdu'),
(02,5,'Urdu'),(03,1,'Math'),(03,2,'Math'),
(03,3,'Math'),(03,4,'Math'),(03,5,'Math'),
(04,1,'Drwing'),(04,2,'Drawing'),(05,3,'General Knowledge'),
(05,4,'General Knowledge'),(06,3,'Computer'),(06,4,'Computer'),
(07,4,'History'),(07,5,'History'),(08,1,'Envoiremental Solutions'),
(08,2,'Envoiremental Solutions'),(08,3,'Envoiremental Solutions'),
(08,4,'Envoiremental Solutions'),(08,5,'Envoiremental Solutions');

Select * from Subject;
```

Output :

Results | Messages

	Subject_id	Class_id	Subject_name
1	1	1	English
2	1	2	English
3	1	3	English
4	1	4	English
5	1	5	English
6	2	1	Urdu
7	2	2	Urdu
8	2	3	Urdu
9	2	4	Urdu
10	2	5	Urdu
11	3	1	Math
12	3	2	Math
13	3	3	Math
14	3	4	Math
15	3	5	Math
16	4	1	Drwing
17	4	2	Drawing
18	5	3	General Kno...
19	5	4	General Kno...
20	6	3.	Computer
21	6	4	Computer
22	7	4	History
23	7	5	History
24	8	1	Envoirement...
25	8	2	Envoirement...
26	8	3	Envoirement...
27	8	4	Envoirement...
28	8	5	Envoirement...

```
-----Table 3-----

Create Table Student (
Student_id int ,
S_Name varchar (50),
F_Name varchar (25),
DOB date ,
Gender varchar(30),
Mobile varchar (40),
Roll_No varchar (30),
Adrs varchar(80),
Class_id int ,
)
Insert into Student(Student_id, S_Name, F_Name, DOB, Gender, Mobile, Roll_No,
Adrs, Class_id)
values(11,'Eman','Ali','2002/09/03','Female','03001537728','064','Ghakkar',1),
(12,'Zain','Ahmed','2001/08/02','Male','0305-1533428','061','Gujranwala',1),
```

```
(13,'Ali','Haider','2003/04/04','Male','03001531728','031','Gujrat',1),
(14,'Ahmed','Zain','2004/01/01','Male','0344-1531799','099','Faislabad',1),
(15,'Haider','Yasir','2003/03/05','Male','0303-1599728','100','Gujrat',1),
(16,'Babar','Yasir','2003/05/10','Male','0300-3538828','041','Lahore',2),
(17,'Fahad','Zain','2004/09/11','Male','0308-1578996','021','Islamabad',2),
(18,'Zainab','Saif','2005/03/12','Female','0301-1534428','076','Lahore',2),
(19,'Ayra','Fahad','2003/04/13','Female','0341-1531700','033','Gujrat',2),
(20,'Akmal','Babar','2003/08/14','Male','0346-1537622','032','Gill wala',2),
(21,'Amina','Yasir','2001/04/16','Female','03451537728','091','Ghakkar',3),
(22,'Haram','Babar','2002/08/15','Female','03334437799','050','Gujrat',3),
(23,'Fajar','Anwar','2000/09/17','Female','03090237710','051','Lalmusa',3),
(24,'Ali','Ahmed','2003/03/18','Male','03001531711','035','Alighar',3),
(25,'Ali','Zahid','2004/01/19','Male','0301-1531712','039','Sialkoat',3),
(26,'Eman','Zain','2003/09/25','Female','0300-1537728','066','Ghakkar',4),
(27,'Eman','Ali','2002/08/21','Female','0301-1530028','067','Ghakkar',4),
(28,'Awais','Baber','2001/09/22','Male','0340-1538828','070','Gujranwala',4),
(29,'Ahil','Fahad','2004/04/23','Male','0341-1539928','081','Gujrat',4),
(30,'Abeera','Nabeel','2001/04/28','Femle','0300-1531128','092','Gujrat',4),
(31,'Ayzal','Ali','2001/04/20','Female','0331-7537728','100','Hafizabad',5),
(32,'Amal','Ahmed','2002/05/24','Female','0333-8537700','101','Rahwali',5),
(33,'Amal','Muneeb','2004/02/26','Female','0332-9537720','178','Sialkot',5),
(34,'Ayesha','Ali','2003/11/27','Female','0300-1531728','099','Gujrat',5),
(35,'Mubeen','Zain','2004/09/29','Female','0345-1531728','012','Ghakhar',5);

Select * from Student;
```

Output :

Results | Messages

	Student_id	S_Name	F_Name	DOB	Gender	Mobile	Roll_No	Adrs	Class_id
1	11	Eman	Ali	2002-09-03	Female	0300-1537728	064	Ghakkar	1
2	12	Zain	Ahmed	2001-08-02	Male	0305-1533428	061	Gujranwala	1
3	13	Ali	Haider	2003-04-04	Male	0300-1531728	031	Gujrat	1
4	14	Ahmed	Zain	2004-01-01	Male	0344-1531799	099	Faislabad	1
5	15	Haider	Yasir	2003-03-05	Male	0303-1599728	100	Gujrat	1
6	16	Babar	Yasir	2003-05-10	Male	0300-3538828	041	Lahore	2
7	17	Fahad	Zain	2004-09-11	Male	0308-1578996	021	Islamabad	2
8	18	Zainab	Saif	2005-03-12	Female	0301-1534428	076	Lahore	2
9	19	Ayra	Fahad	2003-04-13	Female	0341-1531700	033	Gujrat	2
10	20	Akmal	Babar	2003-08-14	Male	0346-1537622	032	Gill wala	2
11	21	Amina	Yasir	2001-04-16	Female	0345-1537728	091	Ghakkar	3
12	22	Haram	Babar	2002-08-15	Female	0333-4437799	050	Gujrat	3
13	23	Fajar	Anwar	2000-09-17	Female	0309-0237710	051	Lalmusa	3
14	24	Ali	Ahmed	2003-03-18	Male	0300-1531711	035	Alighar	3
15	25	Ali	Zahid	2004-01-19	Male	0301-1531712	039	Sialkoat	3
16	26	Eman	Zain	2003-09-25	Female	0300-1537728	066	Ghakkar	4
17	27	Eman	Ali	2002-08-21	Female	0301-1530028	067	Ghakkar	4

18	28	Awais	Baber	2001-09-22	Male	0340-1538828	070	Gujranwala	4
19	29	Ahil	Fahad	2004-04-23	Male	0341-1539928	081	Gujrat	4
20	30	Abeera	Nabeel	2001-04-28	Femle	0300-1531128	092	Gujrat	4
21	31	Ayzal	Ali	2001-04-20	Female	0331-7537728	100	Hafizabad	5
22	32	Amal	Ahmed	2002-05-24	Female	0333-8537700	101	Rahwali	5
23	33	Amal	Muneeb	2004-02-26	Female	0332-9537720	178	Sialkot	5
24	34	Ayesha	Ali	2003-11-27	Female	0300-1531728	099	Gujrat	5
25	35	Mubeen	Zain	2004-09-29	Female	0345-1531728	012	Ghakhar	5

```
-----Table 4-----

Create Table Teacher (
Teacher_id int ,
Name varchar (50),
Age int,
Gender varchar(30),
Mobile varchar (40),
Adrs varchar(80),
)
Insert into Teacher(Teacher_id, Name, Age, Gender, Mobile, Adrs)
values(41,'Rameeza',35,'Female','0333-1567728','Ghakkar'),
(42,'Ammara',39,'Female','0305-4533428','Gujranwala'),
(43,'Saleha',40,'Female','0332-8539728','Gujrat'),
(44,'Maryam',34,'Female','0344-1531720','Ghakkar'),
(45,'Ayesha',46,'Female','0341-7531799','Faislabad'),
(46,'Amal',39,'Female','0300-7599728','Taxila'),
(47,'Zainab',46,'Female','0300-7599728','Hafizabad'),
(48,'Amina',40,'Female','0331-7599728','Sialkot');

Select * from Teacher;
```

Output:

Results | Messages

	Teacher_id	Name	Age	Gender	Mobile	Adrs
1	41	Rameeza	35	Female	0333-1567728	Ghakkar
2	42	Ammara	39	Female	0305-4533428	Gujranwala
3	43	Saleha	40	Female	0332-8539728	Gujrat
4	44	Maryam	34	Female	0344-1531720	Ghakkar
5	45	Ayesha	46	Female	0341-7531799	Faislabad
6	46	Amal	39	Female	0300-7599728	Taxila
7	47	Zainab	46	Female	0300-7599728	Hafizabad
8	48	Amina	40	Female	0331-7599728	Sialkot

```
-----Table 5-----

Create Table TeacherSubject(
Class_id int ,
Subject_id int ,
Teacher_id int ,
)
```

```
Insert into TeacherSubject(Class_id, Subject_id, Teacher_id)
values(1,01,41),(2,01,41),(3,01,41),(4,01,41),
(5,01,41),(1,02,42),(2,02,42),(3,02,42),
(4,02,42),(5,02,42),(1,03,43),(2,03,43),
(3,03,43),(4,03,43),(5,03,43),(1,04,44),
(2,04,44),(3,05,45),(4,05,45),(3,06,46),
(4,06,46),(4,07,47),(5,07,47),(1,08,48),
(2,08,48),(3,08,48),(4,08,48),(5,08,48);

Select * from TeacherSubject;
```

Output :

Results | Messages

	Class_id	Subject_id	Teacher_id
1	1	1	41
2	2	1	41
3	3	1	41
4	4	1	41
5	5	1	41
6	1	2	42
7	2	2	42
8	3	2	42
9	4	2	42
10	5	2	42
11	1	3	43
12	2	3	43
13	3	3	43
14	4	3	43
15	5	3	43
16	1	4	44
17	2	4	44
18	3	5	45
19	4	5	45
20	3	6	46
21	4	6	46
22	4	7	47
23	5	7	47
24	1	8	48
25	2	8	48
26	3	8	48
27	4	8	48
28	5	8	48

```
-----Table 6-----

Create Table TeacherAttendance(
Teacher_id int,
Att_per varchar(30),
)
Insert into TeacherAttendance(Teacher_id, Att_per)
values(41,'80%'),(42,'85%'),(43,'71%'),(44,'60%'),
(45,'70%'),(46,'89%'),(47,'90%'),(48,'100%');
```

```
Select * from TeacherAttendance;
```

Output :

Results | Messages

	Teacher_id	Att_per
1	41	80%
2	42	85%
3	43	71%
4	44	60%
5	45	70%
6	46	89%
7	47	90%
8	48	100%

```
-----Table 7-----

Create Table StudentAtt(
Roll_No varchar(20),
Class_id int,
Att_per INT,
);
Insert into StudentAtt(Roll_No, Class_id, Att_per)
values('064',1,80),('061',1,81),('031',1,85),('099',1,50),
('100',1,60),('041',2,61),('021',2,65),('076',2,45),
('033',2,78),('032',2,90),('091',3,92),('050',3,85),
('051',3,75),('035',3,65),('039',3,80),('066',4,82),
('067',4,72),('070',4,60),('081',4,65),('092',4,90),
('100',5,92),('101',5,80),('178',5,82),('099',5,92),
('012',5,62);

Select *  from StudentAtt;
```

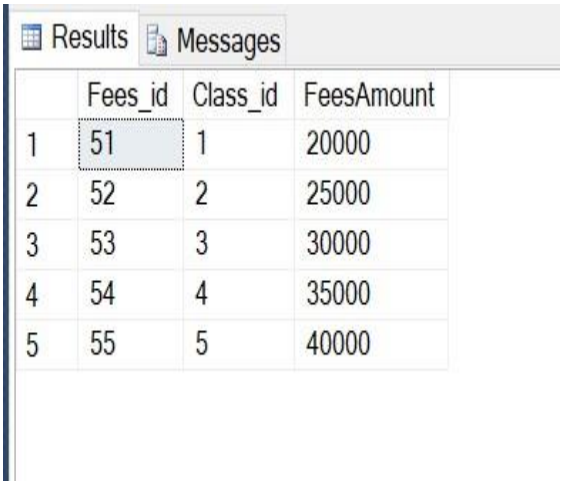
Output :

Results | Messages

	Roll_No	Class_id	Att_per
1	064	1	80
2	061	1	81
3	031	1	85
4	099	1	50
5	100	1	60
6	041	2	61
7	021	2	65
8	076	2	45
9	033	2	78
10	032	2	90
11	091	3	92
12	050	3	85
13	051	3	75
14	035	3	65
15	039	3	80
16	066	4	82
17	067	4	72
18	070	4	60
19	081	4	65
20	092	4	90
21	100	5	92
22	101	5	80
23	178	5	82
24	099	5	92
25	012	5	62

```
-----Table 8-----

Create Table Fees(
Fees_id int ,
Class_id int ,
FeesAmount int ,
)
Insert into Fees(Fees_id, Class_id, FeesAmount)
values(51,1,20000),(52,2,25000),(53,3,30000),(54,4,35000),(55,5,40000);

Select * from Fees;
```

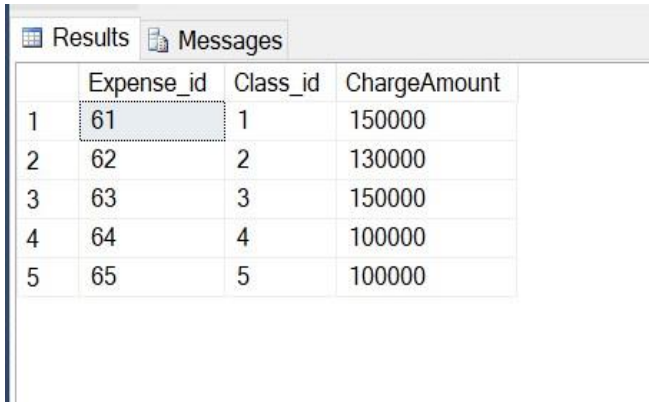
Output :



	Fees_id	Class_id	FeesAmount
1	51	1	20000
2	52	2	25000
3	53	3	30000
4	54	4	35000
5	55	5	40000

```
-----Table 9-----

Create Table Expense (
Expense_id int ,
Class_id int ,
ChargeAmount int ,
)
Insert into Expense(Expense_id,Class_id, ChargeAmount)
values(61,1,150000),(62,2,130000),(63,3,150000),(64,4,100000),(65,5,100000);
Select * from Expense;
```

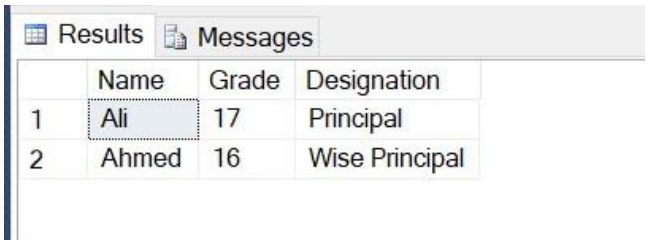
Output :



	Expense_id	Class_id	ChargeAmount
1	61	1	150000
2	62	2	130000
3	63	3	150000
4	64	4	100000
5	65	5	100000

```
-----Table 10-----

Create Table Principal(
Name varchar(30),
Grade int,
Designation varchar(30),
)
Insert into Principal(Name, Grade, Designation)
values('Ali',17,'Principal'),('Ahmed',16,'Wise Principal');

Select * from Principal;
```

Output :



Results | Messages

	Name	Grade	Designation
1	Ali	17	Principal
2	Ahmed	16	Wise Principal

```
-----Table 11-----

Create Table Exam (
Exam_id int   , Class_id int ,
Roll_No varchar(20), TotalMarks int ,
OutOfMarks int ,
)
Insert into Exam(Exam_id, Class_id, Roll_No, TotalMarks, OutOfMarks)
values(61,1,'064',800,750),(62,1,'061',800,780),(63,1,'031',800,650),
(64,1,'099',800,701),(65,1,'100',800,756),(66,1,'041',800,91),
(67,1,'021',800,761),(68,1,'076',800,345),(69,1,'033',800,764),
(70,1,'032',800,745),(71,1,'091',800,234),(72,1,'050',800,545),
(73,1,'051',800,764),(74,1,'035',800,356),(75,1,'039',800,654),
(76,1,'066',800,745),(77,1,'067',800,567),(78,1,'070',800,790),
(79,1,'081',800,795),(80,1,'092',800,542),(81,1,'100',800,501),
(82,1,'101',800,583),(83,1,'178',800,537),(84,1,'099',800,536),(85,1,'012',800,436
);

  Select * from Exam;
```

Output :

Results | Messages

	Exam_id	Class_id	Roll_No	TotalMarks	OutOfMarks
1	61	1	064	800	750
2	62	1	061	800	780
3	63	1	031	800	650
4	64	1	099	800	701
5	65	1	100	800	756
6	66	1	041	800	91
7	67	1	021	800	761
8	68	1	076	800	345
9	69	1	033	800	764
10	70	1	032	800	745
11	71	1	091	800	234
12	72	1	050	800	545
13	73	1	051	800	764
14	74	1	035	800	356
15	75	1	039	800	654
16	76	1	066	800	745
17	77	1	067	800	567
18	78	1	070	800	790
19	79	1	081	800	795
20	80	1	092	800	542
21	81	1	100	800	501
22	82	1	101	800	583
23	83	1	178	800	537
24	84	1	099	800	536
25	85	1	012	800	436

```
-----Count number of students in class------

  CREATE PROCEDURE proc_1
  AS
  select count(Student_id) from Student where Class_id=2;
  EXEC proc_1
```

Results | Messages

	(No column name)
1	5

```
-----count how many students in school-----

   CREATE PROCEDURE proc_2
  AS
  select count(Student_id) from Student;
  EXEC proc_2
```

Results | Messages

	(No column name)
1	25

```
-----count how many teachers in school-----

   CREATE PROCEDURE proc_3
   AS
   select count(Teacher_id) from Teacher;
   EXEC proc_3
```

Results | Messages

	(No column name)
1	8

```
-----Particular student's data and number of students according to City-----

CREATE PROCEDURE proc_6
   AS
  Select count(Student_id) as 'Number of Students' From Student
  Where Adrs IN('Gujranwala','Lahore');
     EXEC proc_6
```

Results | Messages

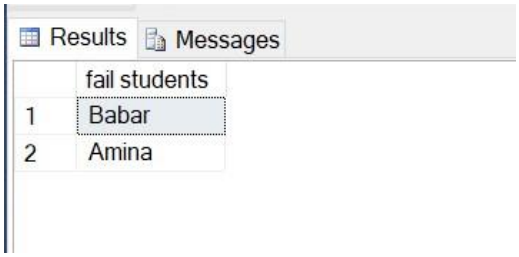
	Number of Students
1	4

```
-----Hightest Marks Calculate in order-----

     CREATE PROCEDURE proc_7
        AS
     select *from Exam where OutOfMarks Between 780 AND 800 order by OutOfMarks
desc;
     EXEC proc_7
```

Results | Messages

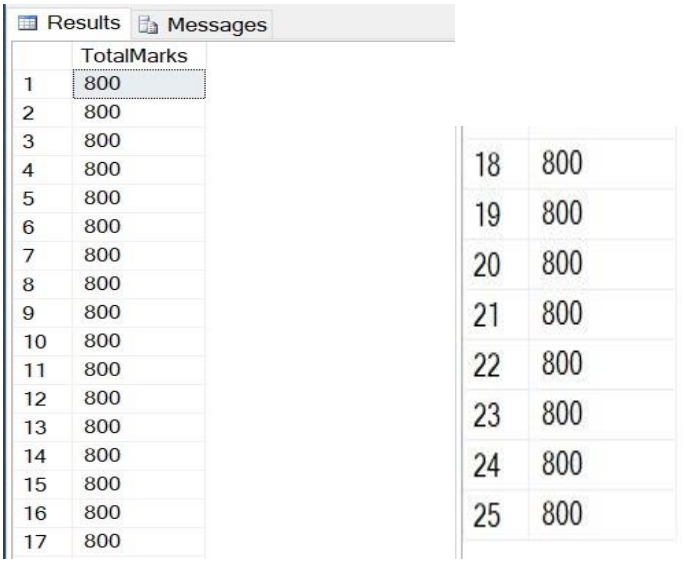
	Exam_id	Class_id	Roll_No	TotalMarks	OutOfMarks
1	79	1	081	800	795
2	78	1	070	800	790
3	62	1	061	800	780

```
-----Find Fail students----

     CREATE PROCEDURE proc_8
AS
  select S_Name as 'fail students' from Student inner join Exam
on Student.Roll_No=Exam.Roll_No    where Exam.OutOfMarks < 300;
     EXEC proc_8
```



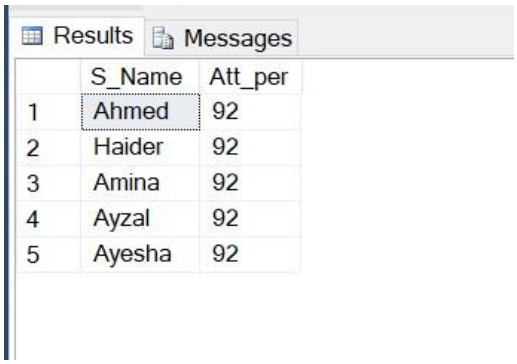
	fail students
1	Babar
2	Amina

```
----show total marks---

   CREATE PROCEDURE proc_9
AS
  select TotalMarks from Exam ;
     EXEC proc_9
```



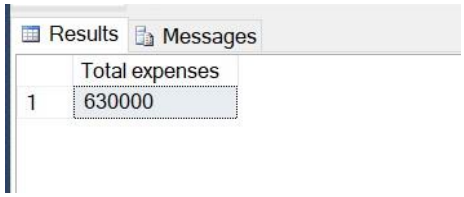
	TotalMarks
1	800
2	800
3	800
4	800
5	800
6	800
7	800
8	800
9	800
10	800
11	800
12	800
13	800
14	800
15	800
16	800
17	800
18	800
19	800
20	800
21	800
22	800
23	800
24	800
25	800

```
-----Attendance greater than 90---

     CREATE PROCEDURE proc_10
AS
  select Student.S_Name,StudentAtt.Att_per from Student inner join StudentAtt
on Student.Roll_No=StudentAtt.Roll_No    where StudentAtt.Att_per > 90;
     EXEC proc_10
```



	S_Name	Att_per
1	Ahmed	92
2	Haider	92
3	Amina	92
4	Ayzal	92
5	Ayesha	92

```
-------Total Expenses of school----

          CREATE PROCEDURE proc_11
   AS
  Select sum(Expense.ChargeAmount) as 'Total expenses' from Expense;
     EXEC proc_11
```

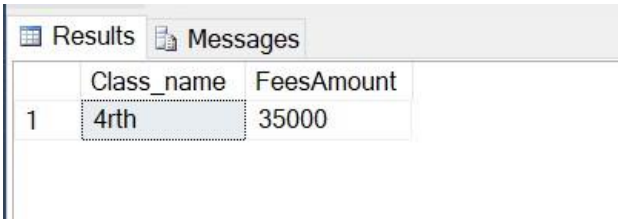


	Total expenses
1	630000

```
-----show principal data---

     CREATE PROCEDURE proc_12
AS
  select *from Principal where Principal.Designation='Principal';
     EXEC proc_12
```

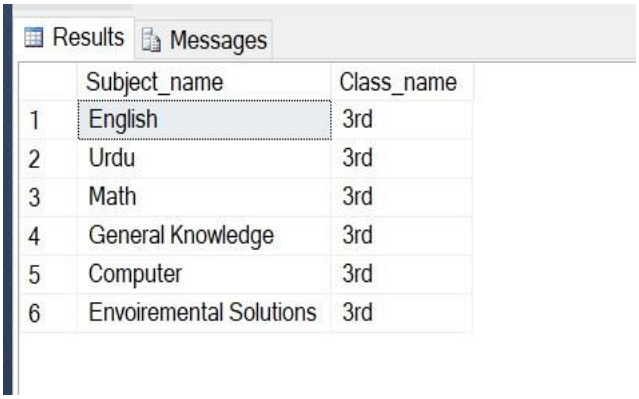
	Name	Grade	Designation
1	Ali	17	Principal

```
----show fees of a particular class---

     CREATE PROCEDURE proc_13
AS
  select Class.Class_name,Fees.FeesAmount from Fees inner join Class
on Class.Class_id=Fees.Class_id   where Class.Class_id=4;
     EXEC proc_13
```



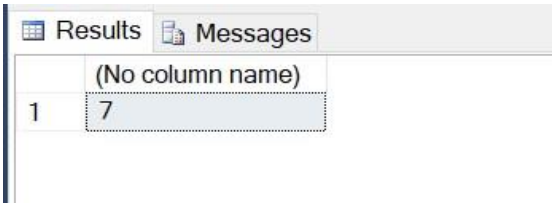
	Class_name	FeesAmount
1	4rth	35000

```
----Particular class's subject name and class name-----

    CREATE PROCEDURE proc_14
AS
  select Subject.Subject_name,Class.Class_name from Class inner join Subject
on Subject.Class_id=Class.Class_id   where Class.Class_id=3;
     EXEC proc_14
```



	Subject_name	Class_name
1	English	3rd
2	Urdu	3rd
3	Math	3rd
4	General Knowledge	3rd
5	Computer	3rd
6	Envoiremental Solutions	3rd

```
----number of subjects of a particular class----

     CREATE PROCEDURE proc_15
AS
  select COUNT(subject.Subject_id) from Subject where Class_id=4;
     EXEC proc_15
```



	(No column name)
1	7

```
-----A particular teacher teaches how many subjects

     Create Procedure proc_16
        AS
        select Teacher.Name, count(TeacherSubject.Subject_id) from Teacher
        inner join TeacherSubject
        on Teacher.Teacher_id=TeacherSubject.Teacher_id
```

```
        where
Teacher.Teacher_id=42        group
by Teacher.Name;      EXEC proc_16
```