

IGCSE CS Database

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Aim Of Database

The database design will be used to help an IGCSE teacher to maintain the data of his students and their attendance throughout the year.

Some Business Rules

01

Employees

An employee can be an assistant or a grader but can't be both and is assigned to many students.

02

Salary

For employees, Salary history has to be maintained.

03

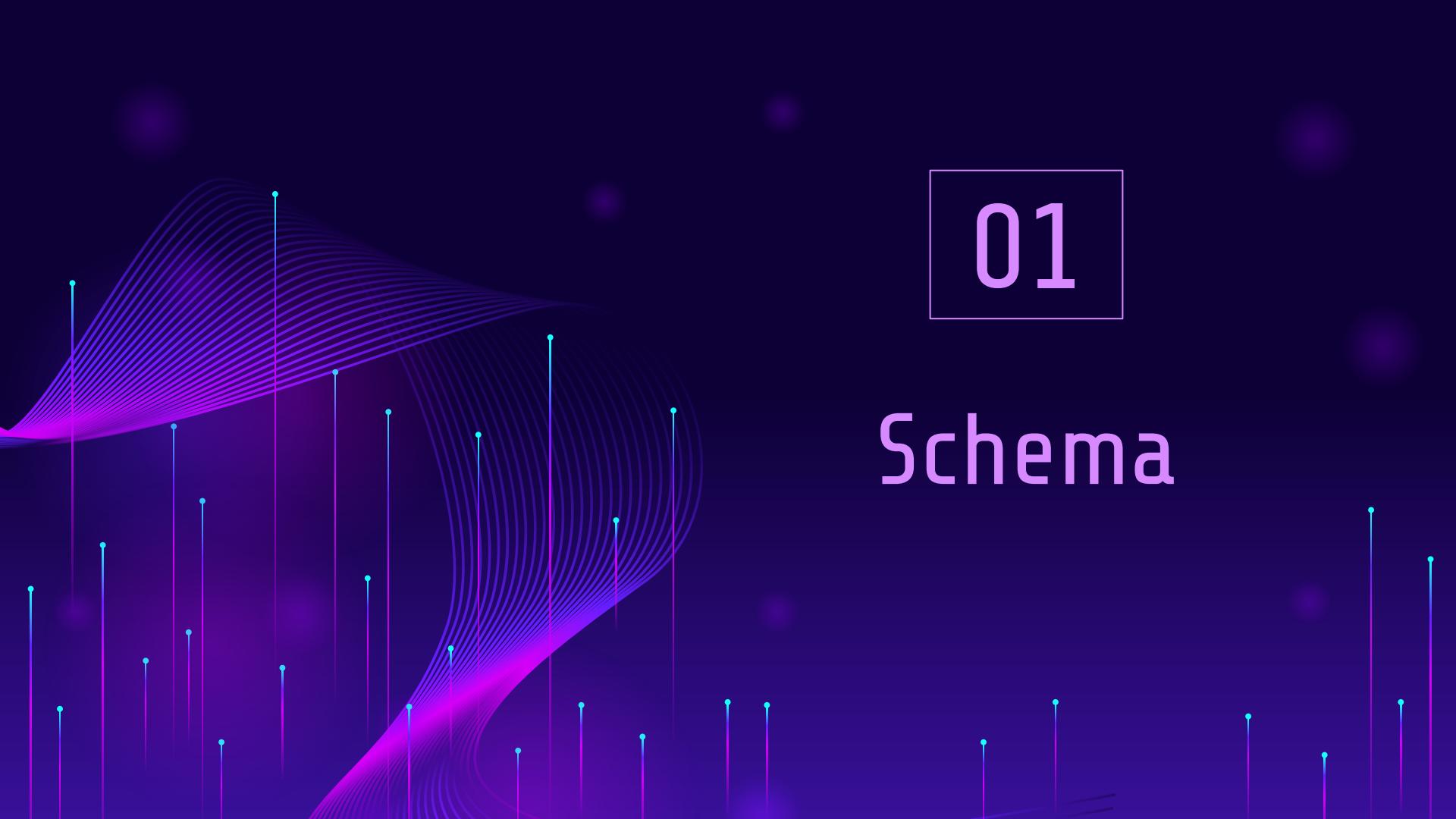
Students

Attendance must be tracked.

04

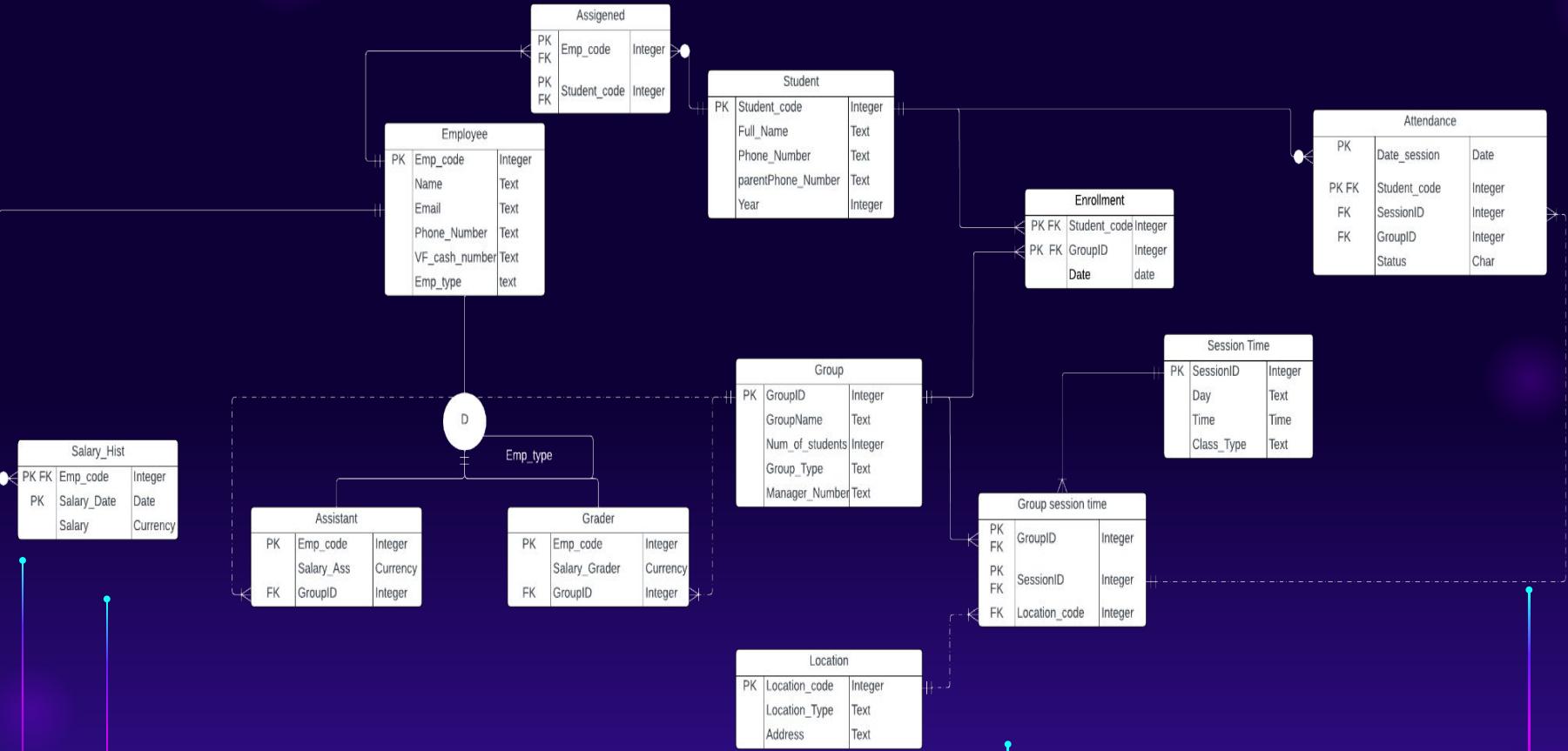
Groups

There are 3 sessions every week for each group (Class1, Class2, Quiz)

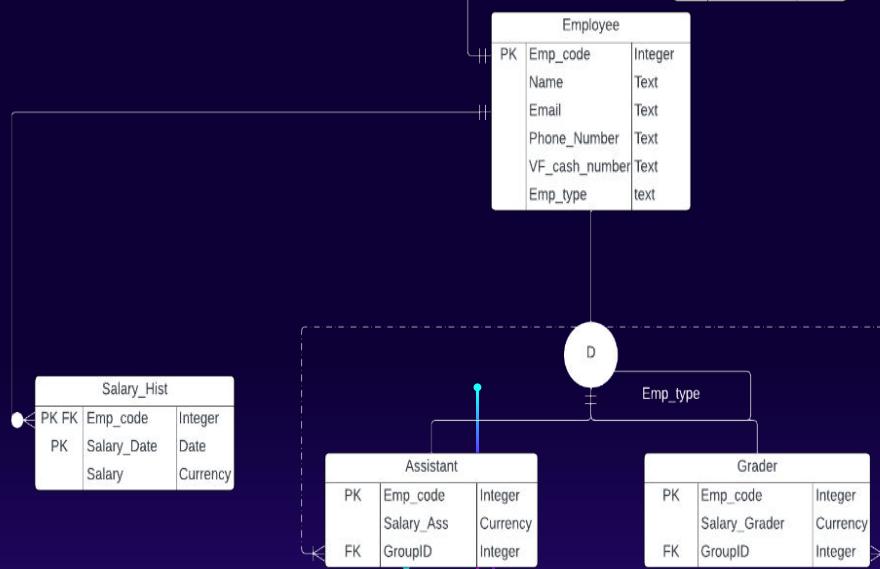
The background features a dark blue gradient with a subtle radial blur effect. Overlaid on this are several thin, light blue wavy lines that curve across the frame. Interspersed among these wavy lines are numerous small, bright cyan dots, some connected by thin vertical lines, creating a sense of data points or a network.

01

Schema

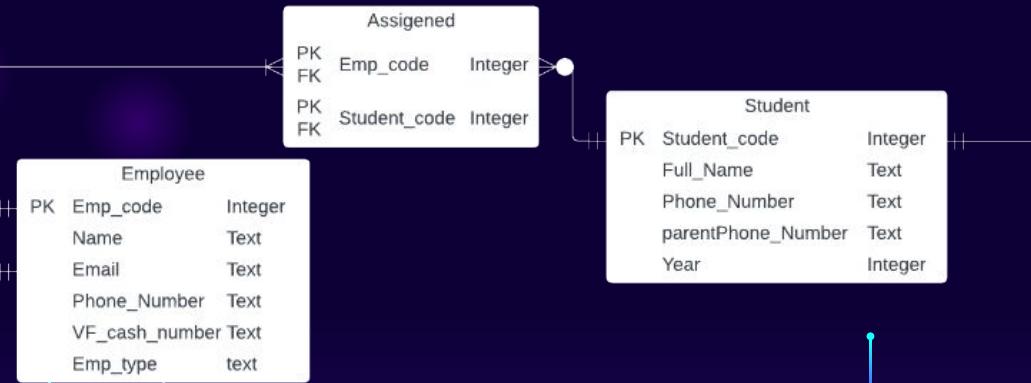


Part 1



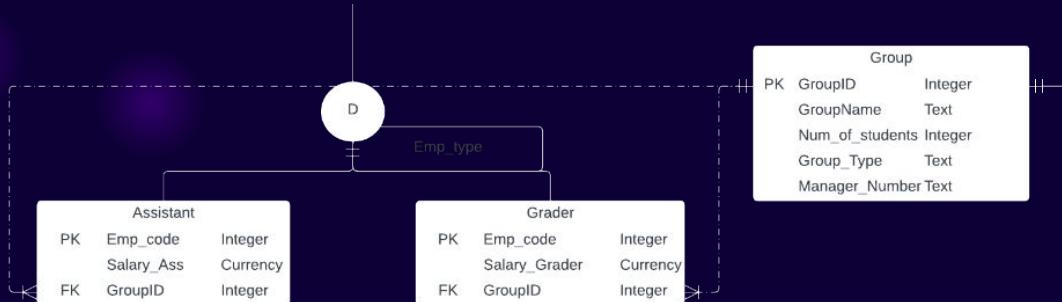
Part 2

Explanation



Part 3

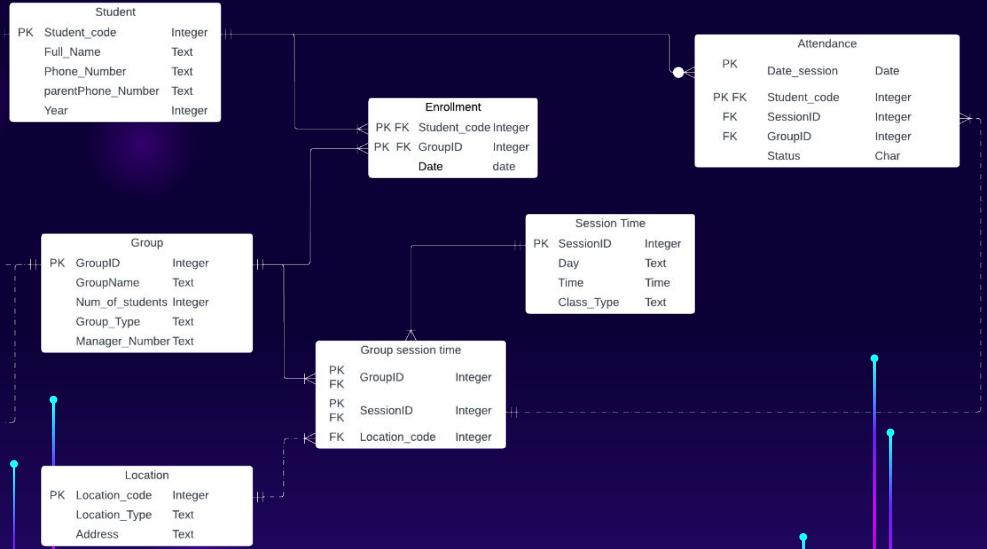
Explanation



Each Group have one or many grader but each grader is only in one group

Each Group have one or many assistant but each assistant is only in one group

Part 4



Explanation

Student - Group (Many to Many)
Enrollment Is a joint Table

Group-Session time (Many to Many)
Group Session Time Is Joint Table

Justification for the zero in the relationship between students-Attendance (He may not be added to attendance table yet , he must at least attend 1 session to be added)

Create Table Example

Code

```
CREATE TABLE `Employee` (
    `Emp_code` Integer,
    `Name` Text NOT NULL,
    `Email` Text NOT NULL,
    `Phone_Number` Text(12) NOT NULL,
    `VF_cash_number` Text(12) NOT NULL,
    `Emp_type` text NOT NULL,
    PRIMARY KEY (`Emp_code`)
);
```

Insert

```
INSERT INTO Employee
VALUES(1, 'Manar Amr',
manaramr089@gmail.com,
1115066615, 1115066615,
Assistant);
```

Emp_code	Name	Email	Phone_Number	VF_cash_number	Emp_type
1	Manar Amr	manaramr089@gmail.com	1115066615	1115066615	Assistant
2	Sara Swelam	Sara.swelam@gmail.com	1211669691	1211669691	Assistant
3	Sohaila khaled	Sohailakhaled17	1022529726	1022529726	Assistant
4	Islam hatem	Islamhatem16@gmail.com	1001209763	1001209763	Assistant
5	Noor Hatem Ali	noorhatemdewi	1013406466	1013406466	Assistant
6	Haidy Abdelnaseem	Haidyabdelnaseem	+20 101 105	+20 101 105	Assistant
7	Malak serag ibrahim	Malakkserag2@gmail.com	1200255462	1200255462	Assistant
8	Mostafa Mohar	fathyata56@gmail.com	1003581404	1003581404	Assistant
9	Salma Wissam	Salmaiawissam1@gmail.com	1033844549	1033844549	Assistant
10	Malak emad hashem	malakemadm12	1090771203	1090771203	Assistant
11	Mariam gharieb	Mariammoham	1022753995	1022753995	Assistant
12	Emtenan	emtenanramad	1000664081	1000664081	Assistant
13	Mohamed Aymen	mohikel6@gmail.com	1000177578	1000177578	Assistant
14	Hamza Ahmed	hamzaahmed20	1020066842	1020066842	Assistant
15	Mariam Sherif	mariamsherif65	1276511721	1276511721	Assistant
16	Menna Tarek M	mennatarek153	+20 115 592	+20 115 592	Assistant
17	Hana reda	Hanasherra76@gmail.com	1146982281	1146982281	Assistant
18	Yasmin amr kan	Yasminamro123	1010470044	1010470044	Assistant
19	Renad Sameh al	renosaas912@gmail.com	1096557570	1096557570	Assistant
20	Nourhan Hesham	Nouuurhanhesh	1147509503	1147509503	Assistant
21	John George	Johngeorge901	1201451561	1201451561	Assistant
22	Youssef Abdelfatah	Youssefyojo55	1024637911	1024637911	Grader
23	Mena khaled moustafa	menakhalid2021	1148841234	1148841234	Grader
24	Malak hossam	malakhossam32	1098048452	1098048452	Grader

Output

The background features a dark blue gradient with a subtle wavy pattern. Overlaid on this are numerous thin, light blue vertical lines of varying heights, some ending in small circular markers.

02

Queries

Count attendance 4/7

Code

```
SELECT [Attendance ].Date_session,  
Count([Attendance ].Student_code) AS  
NumOfStudents, [Attendance ].GroupID,  
Group.GroupName, [Attendance ].Status  
FROM [Attendance ] INNER JOIN [Group] ON  
[Attendance ].GroupID = Group.GroupID  
GROUP BY [Attendance ].Date_session,  
[Attendance ].GroupID, Group.GroupName,  
[Attendance ].Status  
HAVING ((([Attendance  
].Date_session)=#4/7/2022#) AND  
(([Attendance ].GroupID)=1));
```

Date_session	NumOfStudents	GroupID	GroupName	Status
4/7/2022	6	1	Summits	No
4/7/2022	14	1	Summits	Yes

Output

Details attendance 4/7

Code

```
SELECT [Attendance ].Date_session,
[Attendance ].GroupID, Group.GroupName,
[Attendance ].Student_code,
Student.Full_Name,
Student.ParentPhone_Number, [Attendance ]
].Status
FROM Student INNER JOIN ([Attendance ]
INNER JOIN [Group] ON [Attendance ].GroupID
= Group.GroupID) ON Student.Student_code =
[Attendance ].Student_code
GROUP BY [Attendance ].Date_session,
[Attendance ].GroupID, Group.GroupName,
[Attendance ].Student_code,
Student.Full_Name,
Student.ParentPhone_Number, [Attendance
].Status
HAVING ((([Attendance
].Date_session)=#4/7/2022#) AND
(([Attendance ].GroupID)=1));
```

Date_session	GroupID	GroupName	Student_code	Full_Name	ParentPhone_Number	Status
4/7/2022	1	Summits	1	Abdelrahman Aj	1006510892	Yes
4/7/2022	1	Summits	2	Abdelrahman m	1099395763	Yes
4/7/2022	1	Summits	3	Abdelrahman m	1006660685	Yes
4/7/2022	1	Summits	4	Abdulla Allam N	1022144937	Yes
4/7/2022	1	Summits	5	Ahmad Belal Ab	1007588875	Yes
4/7/2022	1	Summits	6	Ahmed khaled il	1097728924	Yes
4/7/2022	1	Summits	7	Ahmed Khaled N	1021416552	Yes
4/7/2022	1	Summits	8	Ahmed mazen A	1006023070	Yes
4/7/2022	1	Summits	9	Ahmed Moham	1119534401	Yes
4/7/2022	1	Summits	10	Ahmed Salah el	1006851213	Yes
4/7/2022	1	Summits	11	Ahmed wael mc	1223941895	No
4/7/2022	1	Summits	12	Ahmed Waleed	1020002137	No
4/7/2022	1	Summits	13	Ali Essam Moha	1060606645	No
4/7/2022	1	Summits	14	Ali Mohamed Al	1100407267	Yes
4/7/2022	1	Summits	15	Aliaa Nabil Moh	1026205151	Yes
4/7/2022	1	Summits	16	Amr mohamed i	1120470846	Yes
4/7/2022	1	Summits	17	ayman ahmed e	1116922057	No
4/7/2022	1	Summits	18	Basam Ashraf lt	1062488700	No
4/7/2022	1	Summits	19	belalelsahy@gn	1101101485	No
4/7/2022	1	Summits	20	Caren wael wah	1281101073	Yes

Output

Schools In maadi

Code

```
SELECT Location_type  
      FROM Location  
     WHERE Address='Maadi';
```

Location_type
Summits
Manhattan

Output

Year 11 Students Maadi

Code

```
SELECT Student.Full_Name, Student.Year,  
Location.Address, Location.Location_Type  
FROM Student INNER JOIN ((Location INNER  
JOIN ([Group] INNER JOIN [Group session  
time] ON Group.GroupID = [Group session  
time].GroupID) ON Location.Location_code  
= [Group session time].Location_code)  
INNER JOIN Enrollment ON Group.GroupID =  
Enrollment.GroupID) ON  
Student.Student_code =  
Enrollment.Student_code  
GROUP BY Student.Full_Name,  
Student.Year, Location.Address,  
Location.Location_Type  
HAVING (((Student.Year)=11) AND  
((Location.Address)="Maadi"));
```

Full_Name	Year	Address	Location_Type
Abdelrahman Ayman Fathy	11	Maadi	Summits
Abdelrahman maged abdelhamed	11	Maadi	Summits
Abdelrahman mohamed ismail abdou	11	Maadi	Summits
Abdulla Allam Nagib El Sharkasy	11	Maadi	Summits
Ahmad Belal Abdou Muhammad	11	Maadi	Summits
Ahmed khaled ibrahim	11	Maadi	Summits
Ahmed Khaled Makkbuly	11	Maadi	Summits
Ahmed mazen Ahmed Attia	11	Maadi	Summits
Ahmed Mohamed Abdelrahman Ibrahim Marie	11	Maadi	Summits
Ahmed Salah el Din Ibraheem Ahmed Awad	11	Maadi	Summits
Ahmed wael mohamed kassem	11	Maadi	Summits
Ahmed Waleed Mohamed	11	Maadi	Summits
Ali Essam Mohamed	11	Maadi	Summits
Ali Mohamed Abdelbaset Awad Faramawy	11	Maadi	Summits
Aliaa Nabil Mohamed Abdullatif	11	Maadi	Summits
Amr mohamed mostafa	11	Maadi	Summits
ayman ahmed el sayed hegazy	11	Maadi	Summits
Basam Ashraf Ibrahim Ahmed	11	Maadi	Summits
belalelsahy@gmail.com	11	Maadi	Summits
Caren wael wahib	11	Maadi	Summits
Mariam Mohamed Ali	11	Maadi	Manhattan
Marwan ahmed	11	Maadi	Manhattan
Marwan gamal	11	Maadi	Manhattan
merna ahmed el sayed hegazy	11	Maadi	Manhattan
Mohamed Ahmed Atef	11	Maadi	Manhattan
Mohamed Ashraf Mohamed Abobakr	11	Maadi	Manhattan
Mohamed khaled mohamed ali hussan helal	11	Maadi	Manhattan
Mohamed Tamer	11	Maadi	Manhattan
Mostafa Ayman ElSayed Ibrahim	11	Maadi	Manhattan
Mostafa reda hassan	11	Maadi	Manhattan

Output

Name and Codes Of Online students

Code

```
SELECT Student.Student_code,  
Student.Full_Name, Enrollment.GroupID  
FROM [Group] INNER JOIN (Student INNER  
JOIN Enrollment ON Student.Student_code =  
Enrollment.Student_code) ON Group.GroupID  
= Enrollment.GroupID  
WHERE ((Enrollment.GroupID)=5));
```

Student_code	Full_Name	GroupID
56	Nadia Mohamed	5
57	Noor Mohamed	5
58	Noor tamer ahn	5
59	Nour Eldin Amr	5
60	Nour Sayed Ran	5
61	Omar ahmed ab	5
62	Omar Mohamed	5
63	Omar Tawfik Ali	5
64	Omar Waleed ElSa	5
65	Omar walid sala	5
66	Rawan Alaa El D	5
68	Rettage Nabil	5
69	Saif el dein ahm	5
70	Salma Sherif Ha	5

Output

Ahella Salary

Code

```
SELECT Salary_Hist.Emp_code,  
Employee.Name, Salary_Hist.Salary_Date,  
Salary_Hist.Salary  
FROM Employee INNER JOIN Salary_Hist ON  
Employee.Emp_code = Salary_Hist.Emp_code  
GROUP BY Salary_Hist.Emp_code,  
Employee.Name, Salary_Hist.Salary_Date,  
Salary_Hist.Salary  
HAVING ((Employee.Name) Like "*Ahella  
Mehraz*");
```

Ahella Mehraz Salary			
Emp_code	Name	Salary_Date	Salary
54	Ahella Mehraz	5/29/2022	\$410.00
54	Ahella Mehraz	6/29/2022	\$850.00

Output

Descending Salary May

Code

```
SELECT Salary_Hist.Emp_code,
Employee.Name, Salary_Hist.Salary_Date,
Salary_Hist.Salary, Count([Assigned]
].Student_code) AS CountOfStudent_code
FROM (Employee INNER JOIN [Assigned] ON
Employee.Emp_code = [Assigned].Emp_code)
INNER JOIN Salary_Hist ON
Employee.Emp_code = Salary_Hist.Emp_code
GROUP BY Salary_Hist.Emp_code,
Employee.Name, Salary_Hist.Salary_Date,
Salary_Hist.Salary
HAVING
((Salary_Hist.Salary_Date)=#5/29/2022#))
ORDER BY Salary_Hist.Salary DESC;
```

Emp_code	Name	Salary_Date	Salary	CountOfStud
50	Amr Abdelhameed Mohammed	5/29/2022	\$6,360.00	1
58	Hussein Mohamed	5/29/2022	\$3,640.00	1
76	Ali Mohamed	5/29/2022	\$3,000.00	1
66	zeina Mohamed Mahmoud	5/29/2022	\$2,830.00	1
56	malak Ali	5/29/2022	\$2,545.00	1
43	Mohab	5/29/2022	\$2,225.00	1
48	Ibrahim abdelmaksoud mohamed	5/29/2022	\$2,200.00	1
34	Mohamed Amr Sabry	5/29/2022	\$1,930.00	2
25	jana waleed	5/29/2022	\$1,882.00	2
45	Islam mohamed attia	5/29/2022	\$1,845.00	1
51	Ali Amr Abdelrazik Mohammed Eltaher	5/29/2022	\$1,825.00	2
26	Jasmine ahmed hussein	5/29/2022	\$1,650.00	2
44	Marina Sabry Adly	5/29/2022	\$1,625.00	1
39	Sama ahmed	5/29/2022	\$1,595.00	1
38	Besson Hassan Harak	5/29/2022	\$1,405.00	2
59	Yassin ehab	5/29/2022	\$1,360.00	1
41	Salma walid	5/29/2022	\$1,280.00	1
70	Ahmed Mohamed Sayed	5/29/2022	\$1,225.00	2
33	Ganna Mohammed Safar	5/29/2022	\$1,210.00	2
52	Rawan Mohamed Ahmed	5/29/2022	\$1,205.00	1
31	rinad ramy	5/29/2022	\$1,162.00	1
27	Taher	5/29/2022	\$1,130.00	2
65	Omar Hazem	5/29/2022	\$1,130.00	2
55	Mohannad Ahmed	5/29/2022	\$1,095.00	1
37	Muhanad Fawaz	5/29/2022	\$1,090.00	2
49	Reem Muhamed	5/29/2022	\$1,055.00	1

Output

Class 1 w1 Attendance Report

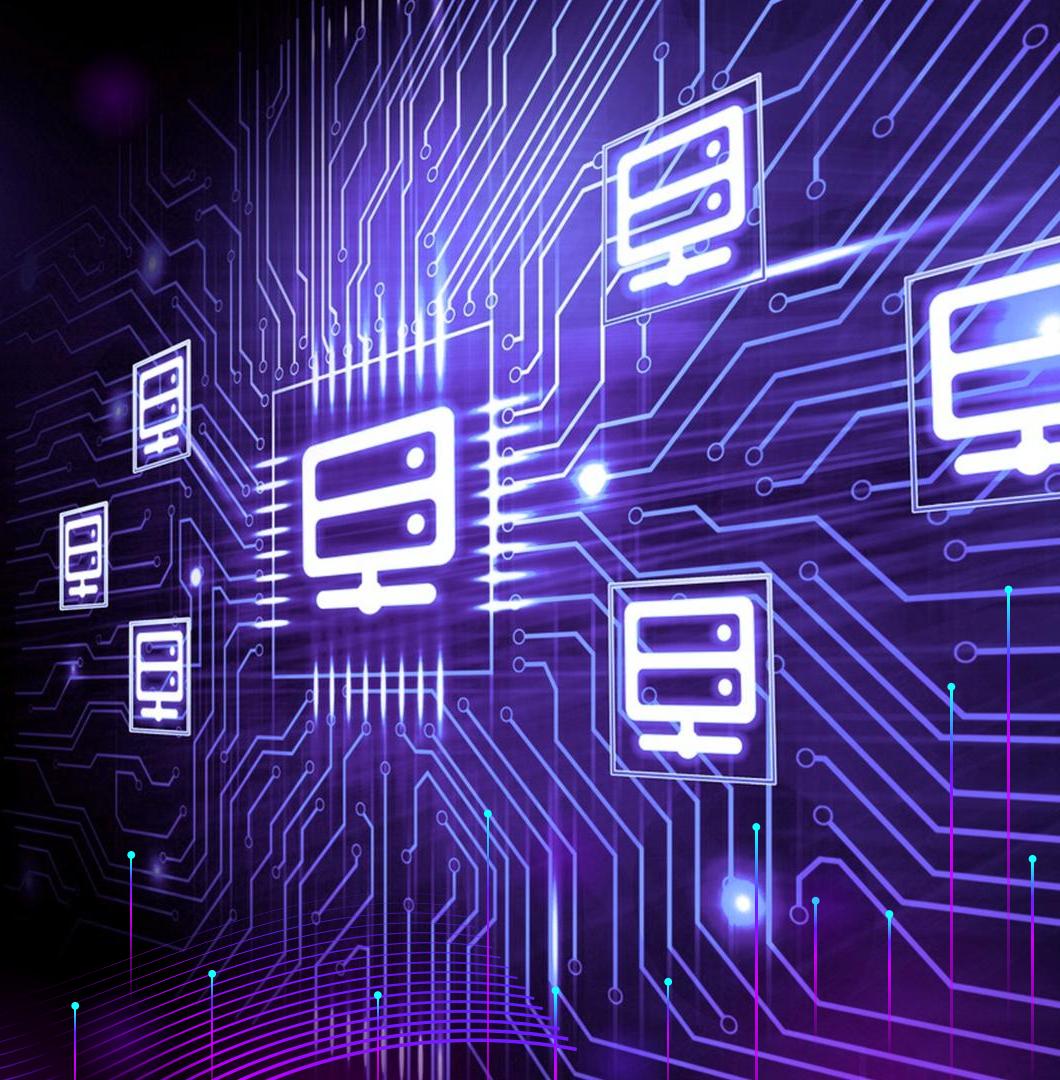
Code

```
TRANSFORM Count([Attendance ].Status)
          AS CountOfStatus
SELECT [Session Time ].Class_Type,
       [Attendance ].Date_session,
       Location.Location_Type
  FROM (Location INNER JOIN ([Session
    Time ] INNER JOIN [Group session time]
      ON [Session Time ].[SessionID ] =
     [Group session time].SessionID) ON
    Location.Location_code = [Group session
      time].Location_code) INNER JOIN
     [Attendance ] ON ([Group session
       time].SessionID = [Attendance
         ].SessionID) AND ([Group session
           time].GroupID = [Attendance ].GroupID)
        WHERE ((([Session Time
          ].Class_Type)="Class 1") AND
        (([Attendance ].Date_session) Between
          #3/7/2022# And #9/7/2022#))
      GROUP BY [Session Time ].Class_Type,
               [Attendance ].Date_session,
               Location.Location_Type
      PIVOT [Attendance ].Status;
```

Class_Type	Date_session	Location_Type	No	Yes
Class 1	3/7/2022	Centre	2	12
Class 1	3/7/2022	Manhattan	4	6
Class 1	3/7/2022	Rowad	4	11
Class 1	4/7/2022	Imperial	3	6
Class 1	4/7/2022	Online	5	9
Class 1	4/7/2022	Summits	6	14

Output

THANK YOU



The background features a dark blue gradient with a subtle wavy pattern. Overlaid on this are numerous thin, light blue vertical lines of varying heights, some ending in small cyan dots. These lines create a sense of depth and motion.

03

Rest Of Tables

Create Attendance Table

Code

```
CREATE TABLE `Attendance` (
    `Date_session` Date,
    `Student_code` Integer,
    `GroupID` Integer,
    `SessionID` Integer,
    `Status` Char,
    PRIMARY KEY
    (`Date_session`, `Student_code`),
    FOREIGN KEY (`Student_code`) REFERENCES
        `Student`(`Student_code`),
    FOREIGN KEY (`GroupID`, `SessionID`)
    REFERENCES `Group session time`
);
```

Date_session	Student_code	GroupID	SessionID	Status
3/7/2022	21	2	1	Yes
3/7/2022	22	2	1	Yes
3/7/2022	23	2	1	Yes
3/7/2022	24	2	1	Yes
3/7/2022	25	2	1	Yes
3/7/2022	26	2	1	Yes
3/7/2022	27	2	1	Yes
3/7/2022	28	2	1	No
3/7/2022	29	2	1	Yes
3/7/2022	30	2	1	No
3/7/2022	31	2	1	Yes
3/7/2022	32	2	1	Yes
3/7/2022	33	2	1	No
3/7/2022	34	2	1	No
3/7/2022	35	2	1	Yes
3/7/2022	46	4	16	Yes
3/7/2022	47	4	16	Yes
3/7/2022	48	4	16	Yes
3/7/2022	49	4	16	No
3/7/2022	50	4	16	No
3/7/2022	51	4	16	Yes
3/7/2022	52	4	16	No

Output

Create Group Session Time Table

Code

```
CREATE TABLE `Group session time` (
    `GroupID` Integer,
    `SessionID` Integer,
    `Location_code` Integer,
    PRIMARY KEY (`GroupID`, `SessionID`),
    FOREIGN KEY (`SessionID`) REFERENCES
        `Session Time`(`SessionID`),
    FOREIGN KEY (`GroupID`) REFERENCES
        `Group`(`GroupID`),
    FOREIGN KEY (`Location_code`)
    REFERENCES `Location`(`Location_code`)
);
```

	GroupID	SessionID	Location_code
1	1	6	1
1	1	7	1
1	1	10	1
2	2	1	2
2	2	2	2
2	2	11	2
3	3	13	3
3	3	14	3
3	3	15	3
4	4	16	4
4	4	17	4
4	4	18	4
5	5	8	5
5	5	9	5
5	5	12	5
6	6	3	6
6	6	4	6
6	6	5	6

Output

Create Student Table

Code

```
CREATE TABLE `Student` (
    `Student_code` Integer,
    `Full_Name` Text NOT NULL,
    `Phone_Number` Text(12) NOT NULL,
    `ParentPhone_Number` Text(12) NOT NULL,
    `Year` Integer NOT NULL,
    PRIMARY KEY (`Student_code`)
);
```

Student_code	Full_Name	Phone_Number	ParentPhone_Number	Year
10	Ahmed Salah el	1004358739	1006851213	11
11	Ahmed wael mc	1203300849	1223941895	11
12	Ahmed Waleed	1000776127	1020002137	11
13	Ali Essam Moha	1007542720	1060606645	11
14	Ali Mohamed Al	1153137290	1100407267	11
15	Aliaa Nabil Moh	1028877761	1026205151	11
16	Amr mohamed i	1120485064	1120470846	11
17	ayman ahmed e	1155174110	1116922057	11
18	Basam Ashraf lt	1091197966	1062488700	11
19	belalelsahy@gr	1121388989	1101101485	11
20	Caren wael wah	1282285588	1281101073	11
21	Fayrouz Mahmc	1093000913	1152006878	11
22	Habiba Ehab Ibr	1285583396	1223589130	11
23	Hamza Ahmed l	1148083990	1061464648	11
24	Hamza sherif m	1091862882	1061101612	11
25	Hana Ahmed Ele	1016455266	1005740920	11
26	Hanna Hossam	1127174772	1118669299	11
27	Hla Ahmed Abd	1117688899	1006040676	11
28	Ismail Mohame	1142691343	1092718364	11
29	Jana Ahmed Far	1555952202	1551444204	11
30	Jana ashraf	1019337382	201065623316	11
31	Jana Mohamed	1026635755	1018444594	11
32	Jana Wael Moh	1097715171	1224174857	11
33	jana yasser abd	1061163651	1067550051	11
34	Jomana Adel Ah	1118187637	1152265923	11

Output

THANK YOU

