CAPSTONE PROJECT

- **Create monthly report of the students of management**

```
SELECT * FROM attendance WHERE student_id IN
(SELECT id FROM section WHERE section.course_id IN
(SELECT id FROM course WHERE name = 'management'))
ORDER BY attendance.id;
```

ID	Student_ID	Section_ID	Date_Attendend	Hours
201	1	1	2019-01-01	00:00:03
202	2	2	2019-01-08	00:00:02
203	3	3	2019-01-03	00:00:03
205	5	5	2019-02-01	00:00:04
206	6	6	2019-01-08	00:00:05
207	7	7	2019-02-09	00:00:01
210	10	10	2019-03-03	00:00:05
211	11	1	2019-01-05	00:00:02
212	12	2	2019-03-07	00:00:05
215	15	5	2019-01-05	00:00:03

Here, I have first selected the ID of ‘management’ course, then the ID of section where the ‘course ID’ matches the selected ‘management ID’. Then, selecting the record from attendance table where ‘student id’ matches the selected ‘course ID’ i.e. ‘management.

- Determine the list of students who have enrolled for multiple courses thus finding out most popular one

```
SELECT s.first_name, sec.course_id
FROM student s INNER JOIN enrollment e
ON s.id = e.student_id
INNER JOIN section sec
ON sec.id = e.section_id;
```

first_name	course_id
Raj	121
Areeb	131
Nitesh	121
Rishabh	151
Akarsh	131
Rohan	131
Balpreet	131
Manan	151
Abhishek	151
Hitesh	161
Munket	121
Sooraj	131
Dhrrumil	121
Abdul	151
Pranav	131

Joining the student and enrolment table on ‘student id’, later joining the resulting table with section table on ‘section id’ gives the list of students who have enrolled for the course with course name.

- prepare a schedule for every instructor to determine the courses they are supposed to conduct

```
SELECT i.id, concat(i.first_name,' ',i.last_name)
as Professor, sch.name, sch.day, sch.start_time, sch.end_time
FROM instructor i INNER JOIN section s
ON i.id = s.inst_id
INNER JOIN schedule sch
ON s.schedule_id = sch.id;
```

id	Professor	name	day	start_time	end_time
95	Rajas Patil	Python	Monday	10:00:00	12:00:00
94	Himanshu Wadekar	Finance	Tuesday	11:00:00	13:00:00
91	Abhishek Rawat	Ananlysis	Wednesday	12:30:00	14:00:00
96	Neha Dere	Networks	Thursday	10:00:00	12:00:00
911	Yash Meghani	Data	Friday	15:00:00	16:30:00
90	Pankaj Gidwani	Analysis	Tuesday	09:00:00	11:00:00
913	Mayitri Phadke	java	Wednesday	13:00:00	15:00:00
93	Hari Chahuha	Mechanics	Monday	10:00:00	12:00:00
914	Pratish Bandawar	Accounts	Thursday	13:00:00	15:00:00
97	Tanvi Bhosle	File Handling	Wednesday	11:00:00	13:00:00
93	Hari Chahuha	Mechanics	Monday	10:00:00	12:00:00
97	Tanvi Bhosle	File Handling	Wednesday	11:00:00	13:00:00

Joining the instructor table with section table on ‘instructor id’ and joining the resulting table with schedule table on ‘schedule id’ gives the schedule for every instructor.

- Make a marksheet of every student for every course

```
SELECT s.id, CONCAT(s.first_name,' ',s.last_name)
as Name, e.final_grade, c.name
FROM student s INNER JOIN enrollment e
ON s.id = e.student_id
LEFT JOIN section sec
ON e.section_id = sec.id
INNER JOIN course c
ON sec.course_id = c.id
ORDER BY final_grade DESC, s.id ASC;
```

id	Name	final_grade	name
1	Raj Patel	10	Management
6	Rohan Malhotra	10	Management
8	Manan Manocha	10	Automation
9	Abhishek Singh	10	Automation
10	Hitesh Chaudhary	10	Management
14	Abdul Azmi	10	Automation
15	Pranav Bhosle	10	Management
2	Areeb Akhtar	9	Management
5	Akarsh Shukla	9	Management
7	Balpreet Goraya	9	Management
12	Sooraj Pillai	9	Management
13	Dhrrumil Panchal	9	Management
3	Nitesh Mane	8	Management
11	Munket Soni	8	Management
4	Rishabh Pandey	7	Automation

Joining the student table with enrolment table on ‘student id’ , left joining the resulting table with section table on ‘section id’ and finally inner joining the resulting table with course table on ‘course id’.

- Determine how many instructors are present for every department

```
SELECT department.name, COUNT(instructor.dept_id)
AS 'No of Instructors'
FROM department RIGHT JOIN instructor
ON department.id = instructor.dept_id
GROUP BY department.name;
```

Department Name	No of Instructors
Mechanical	3
Engineering	3
Sports	3
Automation	4
Management	2

Right Joining the department table with instructor table on ‘department id’ and selecting department name and count of instructors with corresponding department id. Finally grouping it bt department name gives us the resulting table.

-Find courses that are offered based on its types

```
SELECT name, type FROM course;
```

Course Name	Type
Management	online
Management	hybrid
Technical	hubrid
Automation	online
Management	online

Selecting name and type of course from the course table.

-classrooms occupied during particular time interval in the schedule

```
SELECT sch.day, sch.start_time, sch.end_time, sec.room
FROM schedule sch RIGHT JOIN section sec
ON sch.id = sec.schedule_id;
```

day	start_time	end_time	room
Monday	10:00:00	12:00:00	101
Tuesday	11:00:00	13:00:00	102
Wednesday	12:30:00	14:00:00	103
Thursday	10:00:00	12:00:00	104
Friday	15:00:00	16:30:00	105
Tuesday	09:00:00	11:00:00	103
Wednesday	13:00:00	15:00:00	102
Monday	10:00:00	12:00:00	105
Thursday	13:00:00	15:00:00	101
Wednesday	11:00:00	13:00:00	102
Tuesday	09:00:00	11:00:00	103
Wednesday	13:00:00	15:00:00	102
Monday	10:00:00	12:00:00	105
Thursday	13:00:00	15:00:00	101
Wednesday	11:00:00	13:00:00	102

Right joining schedule with section on ‘schedule id’ gives the resulting table.

-find students with absences (3 hrs)

```
SELECT s.id, CONCAT(s.first_name,' ',s.last_name) as Name, a.hours
FROM student s JOIN attendance a
ON s.id=a.student_id AND a.hours<=3;
```

id	Name	hours
1	Raj Patel	00:00:03
2	Areeb Akhtar	00:00:02
3	Nitesh Mane	00:00:03
4	Rishabh Pandey	00:00:01
7	Balpreet Goraya	00:00:01
9	Abhishek Singh	00:00:02
11	Munket Soni	00:00:02
14	Abdul Azmi	00:00:02
15	Pranav Bhosle	00:00:03

Joining student table with attendance table on ‘student id’ with condition (hours less than or equal to 3) gives the resulting table,

-Print course names for sections with unassigned instructors

```
SELECT c.name
FROM course c JOIN section s
ON c.ID = s.course_ID AND s.inst_ID IS NULL;
```

Name
Management
Management
Automation

Joining course with section on ‘course id’ and selecting the data where ‘instructor id’ is NULL gives the resulting table.

-Find courses with no more than 1 section

```
SELECT s.Section_ID, s.Section_Name, s.Course_ID,c.name, c.description
FROM (SELECT name as Section_Name, ID as Section_ID, course_ID,
COUNT(course_id) as CNT FROM section GROUP BY course_id) s
JOIN course c
WHERE s.CNT=1;
```

Section_ID	Section_Name	Course_ID	name	description
13	section_m	141	Management	Business
10	section_j	161	Management	Business
13	section_m	141	Management	Finance
10	section_j	161	Management	Finance
13	section_m	141	Technical	Engineer
10	section_j	161	Technical	Engineer
13	section_m	141	Automation	Automobile
10	section_j	161	Automation	Automobile
13	section_m	141	Management	Sports
10	section_j	161	Management	Sports

Firstly, selecting data from section table and grouping by ‘course id’ and giving it an alias. Secondly, joining the resulting table with course table and selecting data from that with condition (count of course id =1)

TABLES

-Student Table

ID	Last_Name	First_Name	College_ID	Email
1	Patel	Raj	10	patel.raj@email.com
2	Akhtar	Areeb	20	a.a@email.com
3	Mane	Nitesh	30	m.n@email.com
4	Pandey	Rishabh	40	p.r@email.com
5	Shukla	Akarsh	50	s.a@email.com
6	Malhotra	Rohan	60	m.r@email.com
7	Goraya	Balpreet	70	g.b@email.com
8	Manocha	Manan	80	m.m@email.com
9	Singh	Abhishek	90	s.a@email.com
10	Chaudhary	Hitesh	100	c.h@email.com
11	Soni	Munket	110	s.m@email.com
12	Pillai	Sooraj	120	p.s@email.com
13	Panchal	Dhrrumil	130	p.d@email.com
14	Azmi	Abdul	140	a.a@email.com
15	Bhosle	Pranav	150	b.p@email.com
16	Singh	Dhruvraaj	160	d.s@email.com
17	Tony	Chris	170	c.t@email.com
18	Togarwar	Anchal	180	a.t@email.com
19	pawar	Prachi	190	p.p@email.com
20	Mallik	Rushil	200	r.m@email.com

-Course Table

ID	Name	Description	Type	Term
121	Management	Business	online	Second
131	Management	Finance	hybrid	Third
141	Technical	Engineer	hubrid	Fourth
151	Automation	Automobile	online	Sixth
161	Management	Sports	online	First

-Instructor Table

ID	College_ID	Last_name	First_Name	Inst_Rank	Type	Dept_ID
90	1	Gidwani	Pankaj	8	Assistant Professor	211
91	2	Rawat	Abhishek	9	Head Professor	211
92	3	Koul	Mayur	10	Lab Professor	213
93	4	Chahuha	Hari	7	Research Professor	214
94	5	Wadekar	Himanshu	8	Assistant Professor	215
95	6	Patil	Rajas	7	Assistant Professor	214
96	7	Dere	Neha	9	Head of Department	212
97	8	Bhosle	Tanvi	10	Assistant Professor	211
98	9	Ajgaonkar	Saihita	9	Assistant Professor	212
99	10	Bhilare	Nishant	7	Assistant Professor	215
911	11	Meghani	Yash	9	Head of Department	213
912	12	Ayub	Remia	10	Research Professor	213
913	13	Phadke	Mayitri	8	Head Professor	214
914	14	Bandawar	Pratish	9	Head of Department	215
9015	15	Devikar	Vinay	10	Assistant Professor	215

-Attendance Table

ID	Student_ID	Section_ID	Date_Attendend	Hours
201	1	1	2019-01-01	00:00:03
202	2	2	2019-01-08	00:00:02
203	3	3	2019-01-03	00:00:03
204	4	4	2019-01-06	00:00:01
205	5	5	2019-02-01	00:00:04
206	6	6	2019-01-08	00:00:05
207	7	7	2019-02-09	00:00:01
208	8	8	2019-03-11	00:00:04
209	9	9	2019-04-01	00:00:02
210	10	10	2019-03-03	00:00:05
211	11	1	2019-01-05	00:00:02
212	12	2	2019-03-07	00:00:05
213	13	3	2019-02-09	00:00:04
214	14	4	2019-04-02	00:00:02
215	15	5	2019-01-05	00:00:03

-Enrolment Table

ID	Academic_Year	Term	Date_Enrolled	Student_ID	Section_ID	Midterm_Grade	Final_Grade
811	2018	Second	2018-12-12	1	1	8	10
812	2019	Third	2018-12-12	2	2	7	9
813	2019	Fourth	2018-12-12	3	3	6	8
814	2019	Fourth	2018-12-12	4	4	5	7
815	2019	Second	2018-12-12	5	5	7	9
816	2019	Third	2018-12-12	6	6	8	10
817	2019	first	2018-12-12	7	7	7	9
818	2019	fourth	2018-12-12	8	8	8	10
819	2019	Second	2018-12-12	9	9	8	10
820	2019	Second	2018-12-12	10	10	8	10
821	2019	Third	2018-12-12	11	1	6	8
822	2019	Fourth	2018-12-12	12	2	7	9
823	2019	Second	2018-12-12	13	3	8	9
824	2019	First	2018-12-12	14	4	9	10
825	2019	Second	2018-12-12	15	5	10	10

-Section Table

ID	Name	Course_ID	Schedule_ID	Inst_ID	Room
1	section_a	121	1	95	101
2	section_b	131	2	94	102
3	section_c	121	3	91	103
4	section_d	151	4	96	104
5	section_e	131	5	911	105
6	section_f	131	6	90	103
7	section_g	131	7	913	102
8	section_h	151	8	93	105
9	section_i	151	9	914	101
10	section_j	161	10	97	102
11	section_k	121	6	NULL	103
12	section_l	131	7	NULL	102
13	section_m	141	8	93	105
14	section_n	151	9	NULL	101
15	section_o	121	10	97	102

-Schedule Table

ID	Name	Day	Start_Time	End_Time
1	Python	Monday	10:00:00	12:00:00
2	Finance	Tuesday	11:00:00	13:00:00
3	Ananlysis	Wednesday	12:30:00	14:00:00
4	Networks	Thursday	10:00:00	12:00:00
5	Data	Friday	15:00:00	16:30:00
6	Analysis	Tuesday	09:00:00	11:00:00
7	java	Wednesday	13:00:00	15:00:00
8	Mechanics	Monday	10:00:00	12:00:00
9	Accounts	Thursday	13:00:00	15:00:00
10	File Handling	Wednesday	11:00:00	13:00:00
11	Java	Monday	09:00:00	11:30:00
12	Data Mining	Tuesday	13:00:00	15:00:00
13	Risk Managen	Friday	11:00:00	13:00:00
14	Economics	Wednesday	09:00:00	11:00:00
15	Statistics	Thursday	12:00:00	14:30:00

-Department Table

ID	Name	Inst_ID	Phone	Email
211	Mechanical	91	43355	a.a@email.com
212	Management	96	87755	b.b@email.com
213	Engineering	911	76655	c.c@email.com
214	Sports	913	22355	d.d@email.com
215	Automation	914	24567	e.e@email.com