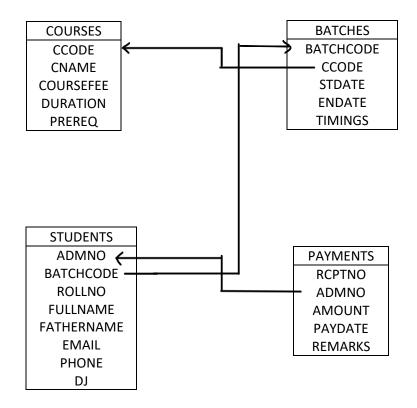
IMAGINARY STUDENT DATABASE

BY ANNWESHA NAHA

The following tables are used to store the details of students of an imaginary institute.



Courses

This table contains details of all courses offered by the institute.

COLUMN NAME	DATATYPE	DESCRIPTION
CCODE	VARCHAR2(10)	COURSE CODE – PRIMARY KEY
CNAME	VARCHAR2(20)	COURSE NAME
COURSEFEE	NUMBER(6)	COURSE FEE IN INR.
DURATION	NUMBER(3)	DURATION OF COURSE IN MINUTES
PREREQ	VARCHAR2(30)	PREREQUISITE FOR THE COURSE

Batches

This table contains details of all batches, running and completes and yet to start.

COLUMN NAME	DATATYPE	DESCRIPTION

BATCHCODE	VARCHAR2(10)	A UNIQUE CODE FOR EACH BATCH
		WITH FORMAT - PRIMARY KEY
CCODE	VARCHAR2(10)	A FOREIGN KEY REFERENCING THE
		COURSE TAUGHT IN THIS BATCH.
STDATE	DATE	STARTING DATE OF THIS BATCH
ENDDATE	DATE	ENDING DATE OF THE BATCH. COULD
		BE NULL UNTIL BATCH IS COMPLETED
TIMINGS	VARCHAR2(20)	BATCH TIMINGS

<u>Students</u>

This table contains details of all students of all batches. Each student is given a unique admission number. Each student in the batch is given a roll number, which is unique in the batch.

COLUMN NAME	DATATYPE	DESCRIPTION				
ADMNO	NUMBER(5)	A UNIQUE NUMBER ASSIGNED TO EACH				
		STUDENT OF THE INSTITUTE – PRIMARY				
		KEY				
BATCHCODE	VARCHAR2(10)	BATCH CODE FOR THE BATCH TO				
		WHICH STUDENT BELONGS. FOREIGN				
		KEY, REFERENCES BATCHES TABLE.				
ROLLNO	NUMBER(3)	ROLL NUMBER OF THE STUDENT IN THE				
		BATCH				
FULLNAME	VARCHAR2(20)	NAME OF THE STUDENT.				
FATHERNAME	VARCHAR2(20)	FATHER'S NAME OF THE STUDENT.				
EMAIL	VARCHAR2(30)	EMAIL THE STUDENT				
PHONENO	VARCHAR2(12)	PHONE NUMBEROF THE STUDENT				
DJ	DATE	DATE ON WHICH STUDENT JOINED.				

Payments

This table contains details of all payments made by students.

COLUMN NAME	DATATYPE	DESCRIPTION			
RCPTNO	NUMBER(5)	RECEIPT NUMBER FOR PAYMENT –			
		PRIMARY KEY.			
ADMNO	NUMBER(5)	ADMISSION NUMBER OF THE STUDENT			
		MAKING THE PAYMENT. FOREIGN KEY,			
		REFERENCING STUDENTS TABLE.			
AMOUNT	NUMBER(6)	AMOUNT PAID BY STUDENT			
PAYDATE	DATE	DATE OF PAYMENT			
REMARKS	VARCHAR2(20)	REMARKS REGARDING PAYMENT			

Commands to create tables and insert sample data

The following CREATE TABLE commands are used to create these tables. Each CREATE TABLE command is followed by some INSERT commands to insert sample data into table.

COURSES

```
SQL> CREATE TABLE COURSES(
2 CCODE VARCHAR2(10) CONSTRAINT COURSES_PK PRIMARY KEY,
3 CNAME VARCHAR2(20) CONSTRAINT COURSES_CNAME_NN NOT NULL,
4 COURSEFEE NUMBER(6),
5 DURATION NUMBER(6),
6 PREREQ VARCHAR2(30)
7 );

Table created.
```

```
SQL> INSERT INTO COURSES VALUES('ORACLE21C','ORACLE DATABASE 21 C',2500,40,'PROGRAMMING KNOWLEDGE');

1 row created.

SQL> INSERT INTO COURSES VALUES('JAVA21','JAVA 21 SE',2500,40,'OBJECT ORIENTED PROGRAMMING');

1 row created.

SQL> INSERT INTO COURSES VALUES('REACTJS','REACTJS',2000,30,'HTML, CSS AND BASIC JS');

1 row created.
```

BATCHES

```
SQL> CREATE TABLE BATCHES(
2 BATCHCODE VARCHAR2(10) CONSTRAINT BATCHES_PK PRIMARY KEY,
3 CCODE VARCHAR2(10) CONSTRAINT BATCHES_CCODE_FK REFERENCES COURSES(CCODE),
4 STDATE DATE,
5 ENDDATE DATE,
6 TIMINGS VARCHAR2(20),
7 CONSTRAINT BATCHES_DATE_CHECK CHECK(STDATE <= ENDDATE)
8 );
Table created.
```

```
SQL> INSERT INTO BATCHES VALUES('ORA130508','ORACLE21C','13-MAY-25','17-JUN-25','4:30 TO 6:00 PM');
1 row created.
SQL> INSERT INTO BATCHES VALUES('RJSX21095','REACTJS','13-MAY-25','5-JUN-25','4:30 TO 6:00 PM');
1 row created.
SQL> INSERT INTO BATCHES VALUES('ORA18237','ORACLE21C','27-JUN-25',NULL,'5:00 TO 6:00 PM');
1 row created.
SQL> INSERT INTO BATCHES VALUES('JAVA92518','JAVA21','27-JUN-25',NULL,'6:00 TO 8:00 PM');
1 row created.
```

STUDENTS

```
SQL> CREATE TABLE STUDENTS(
2 ADMNO NUMBER(5) CONSTRAINT STUDENTS_PK PRIMARY KEY,
3 BATCHCODE VARCHAR2(10) CONSTRAINT STUDENTS_BATCHCODE_FK REFERENCES BATCHES(BATCHCODE),
4 ROLLNO NUMBER(3),
5 FULLNAME VARCHAR2(20) CONSTRAINT STUDENTS_FULLNAME_NN NOT NULL,
6 FATHERNAME VARCHAR2(20),
7 EMAIL VARCHAR2(30),
8 PHONENO VARCHAR2(12),
9 DJ DATE,
10 CONSTRAINT STUDENTS_BATCHCODE_ROLLNO_U UNIQUE(BATCHCODE,ROLLNO));

Table created.
```

```
SQL> INSERT INTO STUDENTS VALUES(1,'ORA130508',1,'ENID BLYTON', 'TIM BLYTON','EBLYTON@GMAIL.COM', '9873737334','11-MAY-25');

1 row created.

SQL> INSERT INTO STUDENTS VALUES(2,'ORA130508',2,'AGATHA CHRISTIE', 'KEN CHRISTIE','CHRISTIE90@GMAIL.COM', '9833334334','11-MAY-25');

1 row created.

SQL> INSERT INTO STUDENTS VALUES(3,'RJSX21095',1,'LUCY FOLEY', 'BOB FOLEY','FOLEYB@GMAIL.COM', '9934344343','11-MAY-25');

1 row created.

SQL> INSERT INTO STUDENTS VALUES(4,'JAVA92518',1,'JAMES PETERSON', 'JAMES ROBERTS','JAMES35@GMAIL.COM', '9989898998','26-JUN-25');

1 row created.

SQL> INSERT INTO STUDENTS VALUES(5,'JAVA92518',2,'FREDRICK BACKMAN', 'KENNY BACKMAN','KBACK12@GMAIL.COM', '9983373333','27-JUN-25');

1 row created.

SQL> INSERT INTO STUDENTS VALUES(6,'ORA18237',1,'JOHN GREEN', 'GLEN GREEN','GREENERY24@GMAIL.COM', '9898398985','28-JUN-25');

1 row created.

SQL> INSERT INTO STUDENTS VALUES(7,'ORA18237',2,'JAY ASHER', 'BATES ASHER','JASHY@GMAIL.COM', '234423232','30-JUN-25');

1 row created.
```

PAYMENTS

```
SQL> CREATE TABLE PAYMENTS(
2 RCPTNO NUMBER(5) CONSTRAINT PAYMENTS_PK PRIMARY KEY,
3 ADMINO NUMBER(5) CONSTRAINT PAYMENTS_ADMINO_FK REFERENCES STUDENTS(ADMINO) ON DELETE CASCADE,
4 AMOUNT NUMBER(6) CONSTRAINT PAYMENTS_AMOUNT_NN NOT NULL
5 CONSTRAINT PAYMENTS_AMOUNT_CHECK CHECK (AMOUNT>0),
6 PAYDATE DATE,
7 REMARKS VARCHAR2(20)
8 );
```

```
SQL> INSERT INTO PAYMENTS VALUES(1,1,300,'11-MAY-25','TOTAL FEE');

1 row created.

SQL> INSERT INTO PAYMENTS VALUES(2,2,2500,'11-MAY-25','TOTAL FEE');

1 row created.

SQL> INSERT INTO PAYMENTS VALUES(3,3,1000,'11-MAY-25','REG. FEE');

1 row created.

SQL> INSERT INTO PAYMENTS VALUES(4,3,2750,'12-MAY-25',NULL);

1 row created.

SQL> INSERT INTO PAYMENTS VALUES(5,4,300,'26-JUN-25','REG. FEE');

1 row created.

SQL> INSERT INTO PAYMENTS VALUES(5,4,300,'26-JUN-25','REG. FEE');

1 row created.

SQL> INSERT INTO PAYMENTS VALUES(6,5,300,'27-JUN-25',NULL);

1 row created.

SQL> INSERT INTO PAYMENTS VALUES(7,4,1700,'27-JUN-25',NULL);

1 row created.

SQL> INSERT INTO PAYMENTS VALUES(8,5,1700,'29-JUN-25',NULL);

1 row created.

SQL> INSERT INTO PAYMENTS VALUES(8,5,2500,'28-JUN-25',NULL);

1 row created.

SQL> INSERT INTO PAYMENTS VALUES(9,6,2500,'28-JUN-25',NCHEQUE NO:3434343');

1 row created.

SQL> INSERT INTO PAYMENTS VALUES(10,7,2500,'30-JUN-25',NULL);

1 row created.
```

SIMPLE QUERIES

1. DISPLAY ALL STUDENTS IN THE ASCENDING ORDER OF BACHCODE AND JOINING DATE

SQL: SELECT * FROM STUDENTS ORDER BY BATCHCODE, DJ;

S	SQL> SELECT * FROM STUDENTS ORDER BY BATCHCODE, DJ;									
	ADMNO	BATCHCODE	ROLLNO	FULLNAME	FATHERNAME	EMAIL	PHONENO	DJ		
-										
	4	JAVA92518	1	JAMES PETERSON	JAMES ROBERTS	JAMES35@GMAIL.COM	9989898998	26-JUN-25		
	5	JAVA92518	2	FREDRICK BACKMAN	KENNY BACKMAN	KBACK12@GMAIL.COM	9983373333	27-JUN-25		
	2	ORA130508	2	AGATHA CHRISTIE	KEN CHRISTIE	CHRISTIE90@GMAIL.COM	9833334334	11-MAY-25		
	1	ORA130508	1	ENID BLYTON	TIM BLYTON	EBLYTON@GMAIL.COM	9873737334	11-MAY-25		
	6	ORA18237	1	JOHN GREEN	GLEN GREEN	GREENERY24@GMAIL.COM	9898398985	28-JUN-25		
	7	ORA18237	2	JAY ASHER	BATES ASHER	JASHY@GMAIL.COM	234423232	30-JUN-25		
	3	RJSX21095	1	LUCY FOLEY	BOB FOLEY	FOLEYB@GMAIL.COM	9934344343	11-MAY-25		

2. DISPLAY ALL PAYMENTS MADE IN THE MONTH OF MAY, 2025

SQL: SELECT * FROM PAYMENTS WHERE PAYDATE BETWEEN '1-MAY-08' AND '31-MAY-08';

```
SQL> SELECT * FROM PAYMENTS WHERE PAYDATE BETWEEN '1-MAY-25' AND '31-MAY-25';

RCPTNO ADMNO AMOUNT PAYDATE REMARKS

1 1 300 11-MAY-25 REG. FEE
2 2 2500 11-MAY-25 TOTAL FEE
3 3 1000 11-MAY-25 REG. FEE
4 3 2750 12-MAY-25
```

3. DISPLAY ALL PAYMENT MADE THROUGH CHEQUE

SQL: SELECT * FROM PAYMENTS WHERE REMARKS LIKE '%CHEQUE%';

4. DISPLAY STUDENT NAME, FATHERNAME AND JOINING DATE.

SQL: SELECT FULLNAME, FATHERNAME, DJ FROM STUDENTS;

5. DISPLAY BATCHES THAT ARE CURRENTLY RUNNING.

SQL: SELECT * FROM BATCHES WHERE ENDDATE IS NULL;

6. DISPLAY BATCHES OF JAVASE AND ORACLE.

SQL: SELECT * FROM BATCHES WHERE CCODE IN ('JAVA21', 'ORACLE21C');

7. DISPLAY DUE DATE FOR THE PAYMENT ASSUMING DUE DATE IS 7 DAYS FROM DJ.

SQL: SELECT FULLNAME, BATCHCODE, DJ, DJ + 7 DUEDATE FROM STUDENTS;

```
      SQL> SELECT FULLNAME, BATCHCODE, DJ, DJ + 7 DUEDATE FROM STUDENTS;

      FULLNAME
      BATCHCODE
      DJ, DJ + 7 DUEDATE

      ENID BLYTON
      ORA130508
      11-MAY-25 18-MAY-25

      AGATHA CHRISTIE
      ORA130508
      11-MAY-25 18-MAY-25

      LUCY FOLEY
      RJSX21095
      11-MAY-25 18-MAY-25

      JAMES PETERSON
      JAVA92518
      26-JUN-25 03-JUL-25

      FEEDRICK BACKMAN
      JAVA92518
      27-JUN-25 04-JUL-25

      JOHN GREEN
      ORA18237
      28-JUN-25 05-JUL-25

      JAY ASHER
      ORA18237
      30-JUN-25 07-JUL-25
```

8. DISPLAY DETAILS OF COURSES WITH A PROPOSED INCREASE OF 10% IN COURSE FEE FOR COURSES WITH COURSE FEE LESS THAN 3000.

SQL: SELECT CNAME, COURSEFEE, COURSEFEE * 1.1 NEWFEE FROM COURSES

WHERE COURSEFEE < 3000;

9. DISPLAY STUDENTS WHOSE NAME CONTAINS LETTER 'J' AND FATHER'S NAME CONTAINS LETTER 'B'.

SQL: SELECT * FROM STUDENTS WHERE FULLNAME LIKE '%J%' AND FATERNAME LIKE '%B%';

SQL> S	SELECT	* FROM	STUDENTS W	HERE	FULLNAME L	.IKE '%J%'	AND F	FATHERNAME LI	IKE	'%B%';		
,	ADMNO	BATCHCOL	DE ROLI	LNO F	FULLNAME		FATHE	ERNAME		EMAIL	PHONENO	DJ
	4	JAVA9251	18	1 3	JAMES PETER	SON	JAMES	ROBERTS		JAMES35@GMAIL.COM	9989898998	26-JUN-25
	7	ORA18237	7	2 3	JAY ASHER		BATES	S ASHER		JASHY@GMAIL.COM	234423232	30-JUN-25

10. DISPLAY BATCHES THAT ARE RUNNING FOR MORE THAN 45 DAYS.

SQL: SELECT * FROM BATCHES WHERE SYSDATE - STDATE > 45;

GROUPING

1. DISPLAY TOTAL AMOUNT PAID BY ALL STUDENTS

SQL: SELECT SUM(AMOUNT) FROM PAYMENTS;

```
SQL> SELECT SUM(AMOUNT) FROM PAYMENTS;

SUM(AMOUNT)

-------
15550
```

2. DISPLAY THE HIGHEST RECEIPT NUMBER FOR PAYMENTS IN THE MONTH OF MAY,2025.

SQL: SELECT MAX(RCPTNO) FROM PAYMENTS WHERE PAYDATE BETWEEN '1-MAY-25' AND '31-MAY-25';

3. DISPLAY BATCHCODE AND NO. OF STUDENTS IN THE BATCH.

SQL: SELECT BATCHCODE, COUNT(ROLLNO) FROM STUDENTS GROUP BY BATCHCODE;

4. DISPLAY THE MOST RECENTLY STATED BATCHED FOR EACH COURSE.

SQL: SELECT CCODE, MAX(STDATE) FROM BATCHES GROUP BY CCODE;

JOINING

1. DISPLAY BATCHCODE, COURSE NAME, STARTING DATE

SQL: SELECT BATCHCODE, CNAME, STDATE FROM BATCHES B, COURSES C WHERE B.CCODE = C.CCODE;

```
SQL> SELECT BATCHCODE, CNAME, STDATE FROM BATCHES B, COURSES C WHERE B.CCODE = C.CCODE;

BATCHCODE

ORA130508

ORACLE DATABASE 21 C 13-MAY-25
RJSX21095
RJSX
```

2. DISPLAY RCPTNO, FULLNAME, AMOUNT PAID AND PAY DATE IN THE ORDER OF PAYDATE.

SQL: SELECT RCPTNO, FULLNAME, AMOUNT, PAYDATE FROM PAYMENTS P, STUDENTS S
WHERE P.ADMNO = S.ADMNO ORDER BY PAYDATE;

3. DISPLAY COURSE NAME, BATCHCODE AND FULLNAME.

SQL: SELECT CNAME, B.BATCHCODE, FULLNAME FROM STUDENTS S, BATCHES B, COURSES C
WHERE B.BATCHCODE = S.BATCHCODE AND C.CCODE = B.CCODE;

```
SQL> SELECT CNAME, B.BATCHCODE, FULLNAME FROM STUDENTS S, BATCHES B, COURSES C
2 WHERE B.BATCHCODE = S.BATCHCODE AND C.CCODE = B.CCODE;

CNAME BATCHCODE FULLNAME

ORACLE DATABASE 21 C ORA139508 ENID BLYTON
ORACLE DATABASE 21 C ORA139508 AGATHA CHRISTIE
REACTOS RJSX21095 LUCY FOLEY
JAVA 21 SE JAVA92518 JAVES PETERSON
JAVA 21 SE JAVA92518 FREDRICK BACKMAN
ORACLE DATABASE 21 C ORA18237 JOHN GREEN
ORACLE DATABASE 21 C ORA18237 JOHN GREEN
ORACLE DATABASE 21 C ORA18237 JAY ASHER
```

4. DISPLAY NO. OF STUDENTS JOINED FOR EACH COURSE.

SQL: SELECT CNAME, COUNT(*) FROM STUDENTS S, BATCHES B, COURSES C

WHERE C.CCODE = B.CCODE AND B.BATCHCODE = S.BATCHCODE

GROUP BY CNAME;

```
SQL> SELECT CNAME, COUNT(*) FROM STUDENTS S, BATCHES B, COURSES C

WHERE C.CCODE = B.CCODE AND B.BATCHCODE = S.BATCHCODE

GROUP BY CNAME;

CNAME

COUNT(*)

JAVA 21 SE

CRACLE DATABASE 21 C

REACTJS

1
```

5. DISPLAY THE AMOUNT PAID BY EACH STUDENT IN BATCH 'ORA130508'.

SQL: SELECT ROLLNO, FULLNAME, SUM (AMOUNT) AMOUNTPAID

FROM STUDENTS S, PAYMENTS P

WHERE S.ADMNO = P.ADMNO AND BATCHCODE = 'ORA130508'

GROUP BY S.ROLLNO, FULLNAME

ORDER BY ROLLNO;

SUB QUERIES

1. DISPLAY THE PAYMENTS MADE BY STUDENT 'LUCY FOLEY'

SQL: SELECT * FROM PAYMENTS

WHERE ADMNO = (SELECT ADMNO FROM STUDENTS

WHERE FULLNAME = 'LUCY FOLEY');

```
SQL> SELECT * FROM PAYMENTS
2 WHERE ADMNO = (SELECT ADMNO FROM STUDENTS
3 WHERE FULLNAME = 'LUCY FOLEY');

RCPTNO ADMNO AMOUNT PAYDATE REMARKS

3 3 1000 11-MAY-25 REG. FEE
4 3 2750 12-MAY-25
```

2. DISPLAY PAYMENTS MADE BY STUDENTS WHO JOINED INTO 'ORA270608' BATCH.

SQL: SELECT * FROM PAYMENTS

WHERE ADMNO IN (SELECT ADMNO FROM STUDENTS

WHERE BATCHCODE = 'ORA18237')

ORDER BY ADMNO;

```
SQL> SELECT * FROM PAYMENTS
2 WHERE ADMNO IN (SELECT ADMNO FROM STUDENTS
3 WHERE BATCHCODE = 'ORA18237')
4 ORDER BY ADMNO;

RCPTNO ADMNO AMOUNT PAYDATE REMARKS

9 6 2500 28-JUN-25 CHEQUE NO:3434343
10 7 2500 30-JUN-25
```