```sql
CREATE TABLE CourseType (

    CourseCode VARCHAR (10) NOT NULL,

    CourseTitle VARCHAR (200) NOT NULL,

    CourseLevel VARCHAR (50) NOT NULL,

CONSTRAINT CourseType_CourseCode_pk PRIMARY KEY(CourseCode));



INSERT INTO CourseType VALUES

    ('CIMW1', 'Introduction to Microsoft Word', 'Beginner');

INSERT INTO CourseType VALUES

    ('CIMW2', 'Advanced Microsoft Word', 'Advanced');

INSERT INTO CourseType VALUES

    ('CIES1', 'Introduction to Excel', 'Beginner');

INSERT INTO CourseType VALUES

    ('CAES1', 'Advanced Excel Skills', 'Advanced');

INSERT INTO CourseType VALUES

    ('CJAV1', 'Introduction to Java', 'Beginner');

INSERT INTO CourseType VALUES

    ('CPHP1', 'Introduction to PHP', 'Beginner');

INSERT INTO CourseType VALUES

    ('CNET1', 'Networking Basics', 'Beginner');

INSERT INTO CourseType VALUES

    ('CSEC1', 'Advanced Cyber Security', 'Advanced');

INSERT INTO CourseType VALUES

    ('CSEC', 'Fundamentals of Cyber Security', 'Beginner');

INSERT INTO CourseType VALUES

    ('CMAL', 'Introduction to Machine Learning', 'Beginner');
```

```sql
CREATE TABLE AllocatedStudent(

    StudentNO NUMBER (3) NOT NULL,

    StudentName VARCHAR (20) NOT NULL,

    Email VARCHAR (50) NOT NULL,

    PhoneNO VARCHAR (20) NOT NULL,

CONSTRAINT AllocatedStudent_StudentNO_pk PRIMARY KEY (StudentNO));



INSERT INTO AllocatedStudent VALUES

    (135, 'Alice Whitney', 'alicewhitney@gmail.com', '333-444-2222');

INSERT INTO AllocatedStudent VALUES

    (164, 'Johnson Smith', 'johns@gmail.com', '333-123-4567');

INSERT INTO AllocatedStudent VALUES

    (258, 'Charlie Lean', 'charlielean@gmail.com', '333-567-9876');

INSERT INTO AllocatedStudent VALUES

    (262, 'Dan Rose', 'danrose@gmail.com', '333-445-2345');

INSERT INTO AllocatedStudent VALUES

    (269, 'Bruce Lock', 'brucelock@gmail.com', '333-987-1234');

INSERT INTO AllocatedStudent VALUES

    (384, 'Fiona Gold', 'fionagold@gmail.com', '333-124-6752');

INSERT INTO AllocatedStudent VALUES

    (395, 'Barry Fab', 'barryfab@gmail.com', '333-456-4867');

INSERT INTO AllocatedStudent VALUES

    (422, 'Diamond Grape', 'diamondg@gmail.com', '333-456-3456');

INSERT INTO AllocatedStudent VALUES

    (423, 'Uju Okoye', 'uj@gmail.com', '333-455-1456');

INSERT INTO AllocatedStudent VALUES
```

(425, 'Okpa James', 'okpa@gmail.com', '333-666-2134');

INSERT INTO AllocatedStudent VALUES

   (426, 'Chuks Cliv', 'cc@gmail.com', '333-898-2134');

INSERT INTO AllocatedStudent VALUES

   (427, 'Ibe Clint', 'ibeclinton@gmail.com', '333-956-7896');

INSERT INTO AllocatedStudent VALUES

   (428, 'Will Bill', 'willbill@gmail.com', '333-111-8989');

INSERT INTO AllocatedStudent VALUES

   (429, 'Edith Bruce', 'edith@gmail.com', '333-123-7777');

INSERT INTO AllocatedStudent VALUES

   (430, 'BaK Tak', 'baktak@gmail.com', '333-143-8565');

INSERT INTO AllocatedStudent VALUES

   (431, 'Ota Baa', 'ota@gmail.com', '333-444-4123');

INSERT INTO AllocatedStudent VALUES

   (432, 'Ella Race', 'er@gmail.com', '333-555-5556');

INSERT INTO AllocatedStudent VALUES

   (433, 'Reed Crace', 'reed@gmail.com', '333-343-2345');

INSERT INTO AllocatedStudent VALUES

   (435, 'Glory Bless', 'gloryb@gmail.com', '333-344-2856');

INSERT INTO AllocatedStudent VALUES

   (436, 'Yub Jak', 'yub@gmail.com', '333-382-1234');

INSERT INTO AllocatedStudent VALUES

   (437, 'Rach Tab', 'rach@gmail.com', '333-421-4567');

INSERT INTO AllocatedStudent VALUES

   (438, 'Dylan Kyle', 'dylan@gmail.com', '333-588-4567');

INSERT INTO AllocatedStudent VALUES

   (439, 'Crag Abel', 'cragabel@gmail.com', '333-111-0987');

INSERT INTO AllocatedStudent VALUES

   (440, 'Ken Bees', 'kenbees@gmail.com', '333-656-3456');

INSERT INTO AllocatedStudent VALUES

(441, 'Oga Vance', 'oga@gmail.com', '333-777-8787');

INSERT INTO AllocatedStudent VALUES

(442, 'Chef Che', 'chee@gmail.com', '333-565-8045');

INSERT INTO AllocatedStudent VALUES

(443, 'Kanke Manny', 'km@gmail.com', '333-142-1423');

INSERT INTO AllocatedStudent VALUES

(444, 'Ony Gab', 'onygab@gmail.com', '333-143-1987');

CREATE TABLE Room (

RoomNO NUMBER (2) NOT NULL,

RoomName VARCHAR (50) NOT NULL,

RoomType VARCHAR (50) NOT NULL,

RoomCapacity NUMBER (3) NOT NULL,

CONSTRAINT Room_RoomNO_pk PRIMARY KEY (RoomNO));

INSERT INTO Room VALUES

(11, 'Computer Suite', 'Computer Lab', 40);

INSERT INTO Room VALUES

(13, 'Multipurpose Room', 'Lecture Hall', 100);

INSERT INTO Room VALUES

(15, 'TRJ4', 'Standard Classroom', 50);

INSERT INTO Room VALUES

(16, 'Vivi Area', 'AV facilities', 35);

```sql
CREATE TABLE Trainer (

    TrainerNO NUMBER (4) NOT NULL,

    TrainerName VARCHAR (20) NOT NULL,

    Expertise VARCHAR (50) NOT NULL,

    Email VARCHAR (50) NOT NULL,

    PhoneNO VARCHAR (20) NOT NULL,

CONSTRAINT Trainer_TrainerNO_pk PRIMARY KEY (TrainerNO));



INSERT INTO Trainer VALUES

    (7721, 'June Grace', 'Microsoft Word', 'june@gtb.co', '333-111-4532');

INSERT INTO Trainer VALUES

    (7742, 'Love Smith', 'Excel', 'lovesmith@gtb.co', '333-222-4545');

INSERT INTO Trainer VALUES

    (7758, 'Kanye Blue', 'Programming', 'kanyeb@gtb.co', '333-419-9999');

INSERT INTO Trainer VALUES

    (7764, 'David West', 'Cyber Security', 'davidwest@gbt.co', '333-444-1928');



CREATE TABLE CurrentCourse (

    CourseCode VARCHAR (10) NOT NULL,

    StartDate DATE NOT NULL,

    Duration NUMBER (2) NOT NULL,

    MaxNoStudents NUMBER (3) NOT NULL,

    CourseCost NUMBER (10,2),

    RoomNO NUMBER (2) NOT NULL,

    TrainerNO NUMBER (4) NOT NULL,

    CONSTRAINT CurrentCourse_CoursecodeStartDate_pk PRIMARY KEY (CourseCode, StartDate),
```

```sql
    CONSTRAINT CurrentCourse_Coursecode_fk FOREIGN KEY (CourseCode) REFERENCES
CourseType(CourseCode),

    CONSTRAINT CurrentCourse_RoomN0_fk FOREIGN KEY (RoomNO) REFERENCES Room (RoomNO),

    CONSTRAINT CurrentCourse_TrainerNO_fk FOREIGN KEY (TrainerNO) REFERENCES Trainer (TrainerNO)

);


INSERT INTO CurrentCourse VALUES
('CIMW1', '20-NOV-23', 3, 20, 100, 13, 7721);
INSERT INTO CurrentCourse VALUES
('CIES1', '23-NOV-23', 3, 25, 120, 11, 7742);
INSERT INTO CurrentCourse VALUES
('CJAV1', '28-NOV-23', 3, 15, 160, 15, 7758);
INSERT INTO CurrentCourse VALUES
('CIMW2', '04- DEC-23', 5, 20, 130, 13, 7721);
INSERT INTO CurrentCourse VALUES
('CAES1', '11-DEC-23', 5, 25, 180, 11, 7742);
INSERT INTO CurrentCourse VALUES
('CNET1', '08-JAN-24', 3, 20, 150, 16, 7764);
INSERT INTO CurrentCourse VALUES
('CPHP1', '15-JAN-24', 5, 15, 250, 15, 7758);
INSERT INTO CurrentCourse VALUES
('CSEC1', '22-JAN-24', 5, 10, 300, 16, 7764);
INSERT INTO CurrentCourse VALUES
('CIMW1', '29-JAN-24', 3, 20, 100, 13, 7721);
INSERT INTO CurrentCourse VALUES
('CSEC1', '12-FEB-24', 5, 10, 300, 16, 7764);
```

```sql
CREATE TABLE Allocation (

    AllocationNO NUMBER (3) NOT NULL,

    StudentNO NUMBER (3) NOT NULL,

    CourseCode VARCHAR (10) NOT NULL,

    StartDate DATE NOT NULL,

    CONSTRAINT Allocation_AllocationNO_pk PRIMARY KEY (AllocationNO),

    CONSTRAINT Allocation_StudentNO_fk FOREIGN KEY (StudentNO) REFERENCES
AllocatedStudent(StudentNO),

    CONSTRAINT Allocation_CourseCodeStartDate_fk FOREIGN KEY (CourseCode, StartDate) REFERENCES
CurrentCourse(CourseCode, StartDate)

);


INSERT INTO Allocation VALUES

    (101, 135, 'CIMW1', '20-NOV-23');

INSERT INTO Allocation VALUES

    (102, 262, 'CIMW1', '20-NOV-23');

INSERT INTO Allocation VALUES

    (103, 164, 'CIMW1', '20-NOV-23');

INSERT INTO Allocation VALUES

    (104, 269, 'CIMW1', '20-NOV-23');

INSERT INTO Allocation VALUES

    (105, 425, 'CIMW1', '20-NOV-23');

INSERT INTO Allocation VALUES

    (106, 426, 'CIMW1', '20-NOV-23');

INSERT INTO Allocation VALUES

    (107, 164, 'CIES1', '23-NOV-23');

INSERT INTO Allocation VALUES
```

```
    (108, 262, 'CIES1', '23-NOV-23');
INSERT INTO Allocation VALUES
    (109, 425, 'CIES1', '23-NOV-23');
INSERT INTO Allocation VALUES
    (110, 426, 'CIES1', '23-NOV-23');
INSERT INTO Allocation VALUES
    (111, 258, 'CJAV1', '28-NOV-23');
INSERT INTO Allocation VALUES
    (112, 427, 'CJAV1', '28-NOV-23');
INSERT INTO Allocation VALUES
    (113, 428, 'CJAV1', '28-NOV-23');
INSERT INTO Allocation VALUES
    (114, 429, 'CJAV1', '28-NOV-23');
INSERT INTO Allocation VALUES
    (115, 430, 'CJAV1', '28-NOV-23');
INSERT INTO Allocation VALUES
    (116, 262, 'CIMW2', '04- DEC-23');
INSERT INTO Allocation VALUES
    (117, 164, 'CIMW2', '04- DEC-23');
INSERT INTO Allocation VALUES
    (118, 269, 'CIMW2', '04- DEC-23');
INSERT INTO Allocation VALUES
    (119, 425, 'CIMW2', '04- DEC-23');
INSERT INTO Allocation VALUES
    (120, 426, 'CIMW2', '04- DEC-23');
INSERT INTO Allocation VALUES
    (121,164, 'CAES1', '11-DEC-23');
INSERT INTO Allocation VALUES
    (122, 269, 'CAES1', '11-DEC-23');
```

INSERT INTO Allocation VALUES

(123, 426, 'CAES1', '11-DEC-23');

INSERT INTO Allocation VALUES

(124, 384, 'CNET1', '08-JAN-24');

INSERT INTO Allocation VALUES

(125, 431, 'CNET1', '08-JAN-24');

INSERT INTO Allocation VALUES

(126, 432, 'CNET1', '08-JAN-24');

INSERT INTO Allocation VALUES

(127, 433, 'CNET1', '08-JAN-24');

INSERT INTO Allocation VALUES

(128, 269, 'CNET1', '08-JAN-24');

INSERT INTO Allocation VALUES

(129, 395, 'CPHP1', '15-JAN-24');

INSERT INTO Allocation VALUES

(130, 437, 'CPHP1', '15-JAN-24');

INSERT INTO Allocation VALUES

(131, 439, 'CPHP1', '15-JAN-24');

INSERT INTO Allocation VALUES

(132, 422, 'CSEC1', '22-JAN-24');

INSERT INTO Allocation VALUES

(133, 435, 'CSEC1', '22-JAN-24');

INSERT INTO Allocation VALUES

(134, 436, 'CSEC1', '22-JAN-24');

INSERT INTO Allocation VALUES

(135, 438, 'CSEC1', '22-JAN-24');

INSERT INTO Allocation VALUES

(136, 440, 'CSEC1', '22-JAN-24');

INSERT INTO Allocation VALUES

(137, 441, 'CSEC1', '22-JAN-24');

INSERT INTO Allocation VALUES

(138, 423, 'CIMW1', '29-JAN-24');

INSERT INTO Allocation VALUES

(139, 442, 'CIMW1', '29-JAN-24');

INSERT INTO Allocation VALUES

(140, 443, 'CIMW1', '29-JAN-24');

INSERT INTO Allocation VALUES

(141, 444, 'CIMW1', '29-JAN-24');

INSERT INTO Allocation VALUES

(142, 422, 'CSEC1', '12-FEB-24');

INSERT INTO Allocation VALUES

(143, 262, 'CSEC1', '12-FEB-24');

INSERT INTO Allocation VALUES

(144, 164, 'CSEC1', '12-FEB-24');

INSERT INTO Allocation VALUES

(145, 428, 'CSEC1', '12-FEB-24');

1.
SELECT CourseCode, StartDate
FROM CurrentCourse
ORDER BY CourseCode, StartDate;

COURSECODE	STARTDATE
CAES1	11-DEC-23
CIES1	23-NOV-23
CIMW1	20-NOV-23
CIMW1	29-JAN-24
CIMW2	04-DEC-23
CJAV1	28-NOV-23
CNET1	08-JAN-24
CPHP1	15-JAN-24
CSEC1	22-JAN-24
CSEC1	12-FEB-24

2.

SELECT CourseCode, CourseTitle

FROM CourseType

WHERE CourseTitle LIKE '%Introduction%';

COURSECODE	COURSETITLE
CIMW1	Introduction to Microsoft Word
CIES1	Introduction to Excel
CJAV1	Introduction to Java
CPHP1	Introduction to PHP
CMAL	Introduction to Machine Learning

3.

SELECT * FROM (

  SELECT

    'Most Expensive Course' AS Description, CourseCode, StartDate, Duration, CourseCost

  FROM CurrentCourse

  WHERE CourseCost = (SELECT MAX(CourseCost) FROM CurrentCourse)

  ORDER BY StartDate

)

WHERE ROWNUM = 1

UNION

SELECT * FROM (

   SELECT

   'Least Expensive Course' AS Description, CourseCode, StartDate, Duration, CourseCost

   FROM CurrentCourse

   WHERE CourseCost = (SELECT MIN(CourseCost) FROM CurrentCourse)

   ORDER BY StartDate

)

WHERE ROWNUM = 1;

DESCRIPTION	COURSECODE	STARTDATE	DURATION	COURSECOST
Least Expensive Course	CIMW1	20-NOV-23	3	100
Most Expensive Course	CSEC1	22-JAN-24	5	300

4.

SELECT cc.CourseCode, cc.StartDate, COUNT(a.StudentNO) AS NumberOfStudents

FROM CurrentCourse cc

JOIN Allocation a ON cc.CourseCode = a.CourseCode AND cc.StartDate = a.StartDate

GROUP BY cc.CourseCode, cc.StartDate;

COURSECODE	STARTDATE	NUMBEROFSTUDENTS
CJAV1	28-NOV-23	5
CAES1	11-DEC-23	3
CPHP1	15-JAN-24	3
CSEC1	22-JAN-24	6
CIMW1	20-NOV-23	6
CIMW2	04-DEC-23	5
CIMW1	29-JAN-24	4
CIES1	23-NOV-23	4
CSEC1	12-FEB-24	4
CNET1	08-JAN-24	5

5.

SELECT CourseCode, StartDate

FROM CurrentCourse

WHERE StartDate BETWEEN '01-NOV-23' AND '20-JAN-24';

COURSECODE	STARTDATE
CAES1	11-DEC-23
CIES1	23-NOV-23
CIMW1	20-NOV-23
CIMW2	04-DEC-23
CJAV1	28-NOV-23
CNET1	08-JAN-24
CPHP1	15-JAN-24

6.

SELECT ct.CourseCode, COUNT(cc.CourseCode) AS NumberOfActualCoursesRunning

FROM CourseType ct

JOIN CurrentCourse cc ON ct.CourseCode = cc.CourseCode

WHERE cc.StartDate BETWEEN '01-NOV-23' AND '12-FEB-24'

GROUP BY ct.CourseCode;

COURSECODE	NUMBEROFACTUALCOURSESRUNNING
CAES1	1
CIES1	1
CIMW1	2
CIMW2	1
CJAV1	1
CNET1	1
CPHP1	1
CSEC1	2

7.

SELECT cc.CourseCode, cc.StartDate,

 TRUNC ((cc.StartDate - DATE '2023-11-20') / 7) + 1 AS WeekNumber,

        r.RoomNO, r.RoomName, r.RoomType, t.TrainerName

FROM CurrentCourse cc

JOIN Room r ON cc.RoomNO = r.RoomNO

JOIN Trainer t ON cc.TrainerNO = t.TrainerNO

ORDER BY WeekNumber, cc.StartDate, cc.CourseCode;

COURSECODE	STARTDATE	WEEKNUMBER	ROOMNO	ROOMNAME	ROOMTYPE	TRAINERNAME
CIMW1	20-NOV-23	1	13	Multipurpose Room	Lecture Hall	June Grace
CIES1	23-NOV-23	1	11	Computer Suite	Computer Lab	Love Smith
CJAV1	28-NOV-23	2	15	TRJ4	Standard Classroom	Kanye Blue
CIMW2	04-DEC-23	3	13	Multipurpose Room	Lecture Hall	June Grace
CAES1	11-DEC-23	4	11	Computer Suite	Computer Lab	Love Smith
CNET1	08-JAN-24	8	16	Vivi Area	AV facilities	David West
CPHP1	15-JAN-24	9	15	TRJ4	Standard Classroom	Kanye Blue
CSEC1	22-JAN-24	10	16	Vivi Area	AV facilities	David West
CIMW1	29-JAN-24	11	13	Multipurpose Room	Lecture Hall	June Grace
CSEC1	12-FEB-24	13	16	Vivi Area	AV facilities	David West

8.

SELECT a.StudentNO, s.StudentName, s.Email, s.PhoneNO

FROM Allocation a

JOIN AllocatedStudent s ON a.StudentNO = s.StudentNO

WHERE a.CourseCode = 'CSEC1' AND a.StartDate = '22-JAN-24';

STUDENTNO	STUDENTNAME	EMAIL	PHONENO
422	Diamond Grape	diamondg@gmail.com	333-456-3456
435	Glory Bless	gloryb@gmail.com	333-344-2856
436	Yub Jak	yub@gmail.com	333-382-1234
438	Dylan Kyle	dylan@gmail.com	333-588-4567
440	Ken Bees	kenbees@gmail.com	333-656-3456
441	Oga Vance	oga@gmail.com	333-777-8787

9.

SELECT cc.CourseCode, cc.StartDate AS DateRun, cc.CourseCost, COUNT(a.StudentNO) AS NumberOfStudents, (cc.CourseCost * COUNT(a.StudentNO)) AS Revenue

FROM CurrentCourse cc

JOIN Allocation a ON cc.CourseCode = a.CourseCode AND cc.StartDate = a.StartDate

GROUP BY cc.CourseCode, cc.StartDate, cc.CourseCost;

COURSECODE	DATERUN	COURSECOST	NUMBEROFSTUDENTS	REVENUE
CIES1	23-NOV-23	120	4	480
CSEC1	12-FEB-24	300	4	1200
CPHP1	15-JAN-24	250	3	750
CIMW1	29-JAN-24	100	4	400
CIMW1	20-NOV-23	100	6	600
CAES1	11-DEC-23	180	3	540
CNET1	08-JAN-24	150	5	750
CIMW2	04-DEC-23	130	5	650
CSEC1	22-JAN-24	300	6	1800
CJAV1	28-NOV-23	160	5	800

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