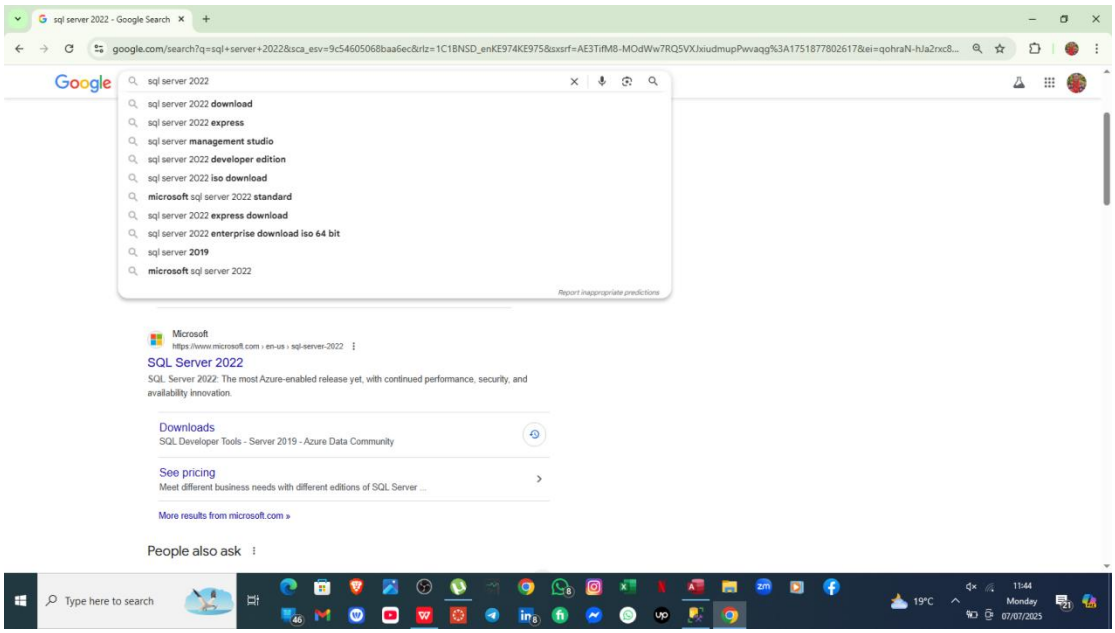
TRAINEE SERVICES MANAGEMENT SYSTEM

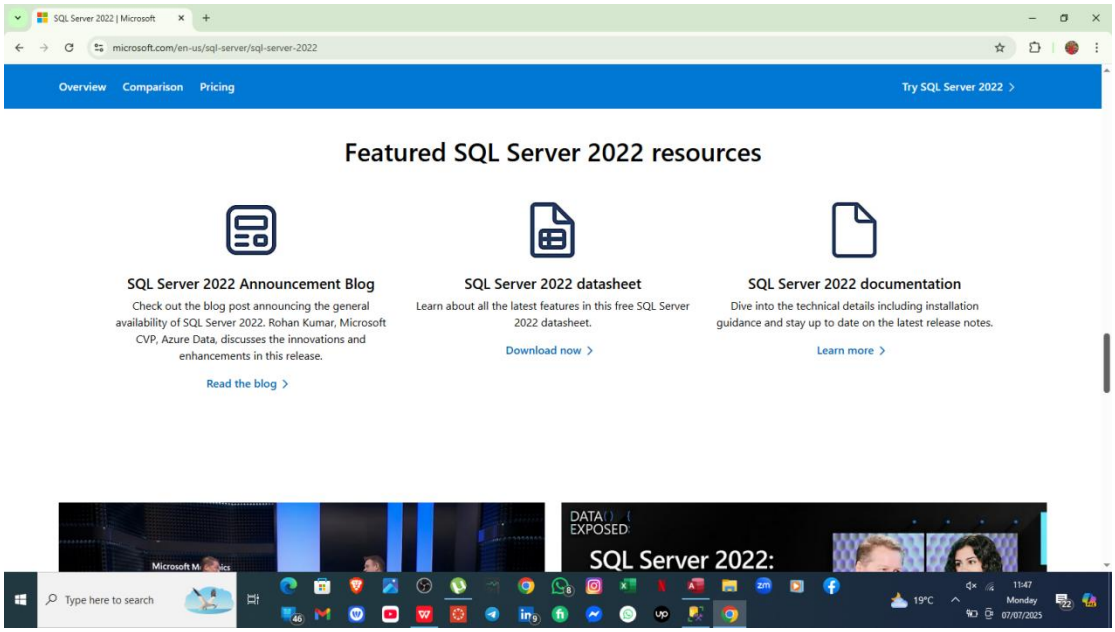
Task 1: Installing a database and/or Web Server.

✓ MySQL

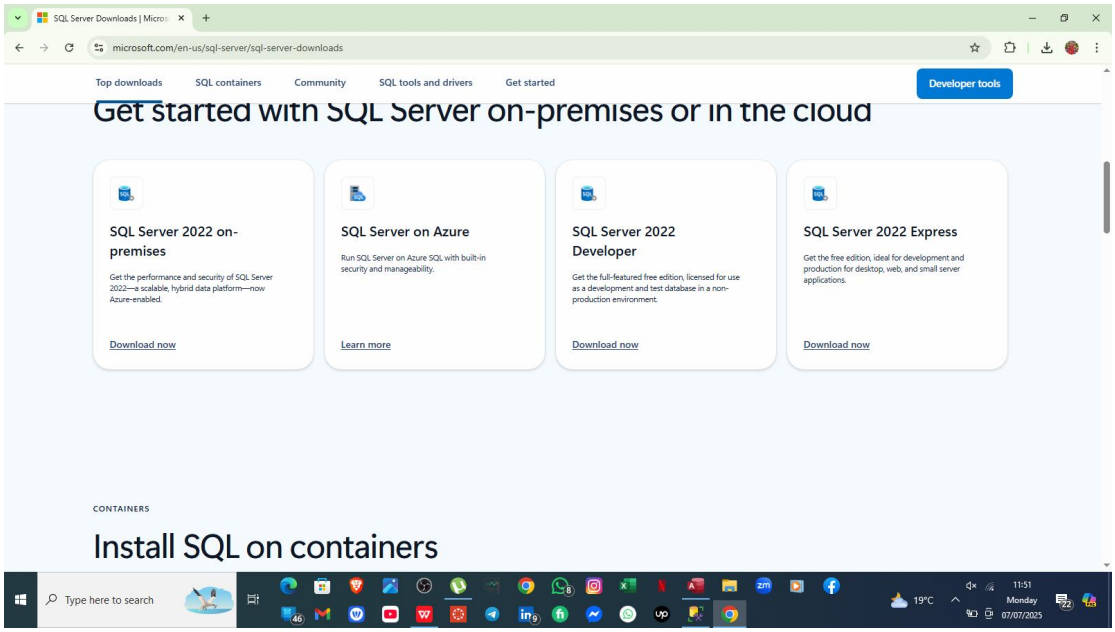
i. Open a web browser and search for SQL Server download.



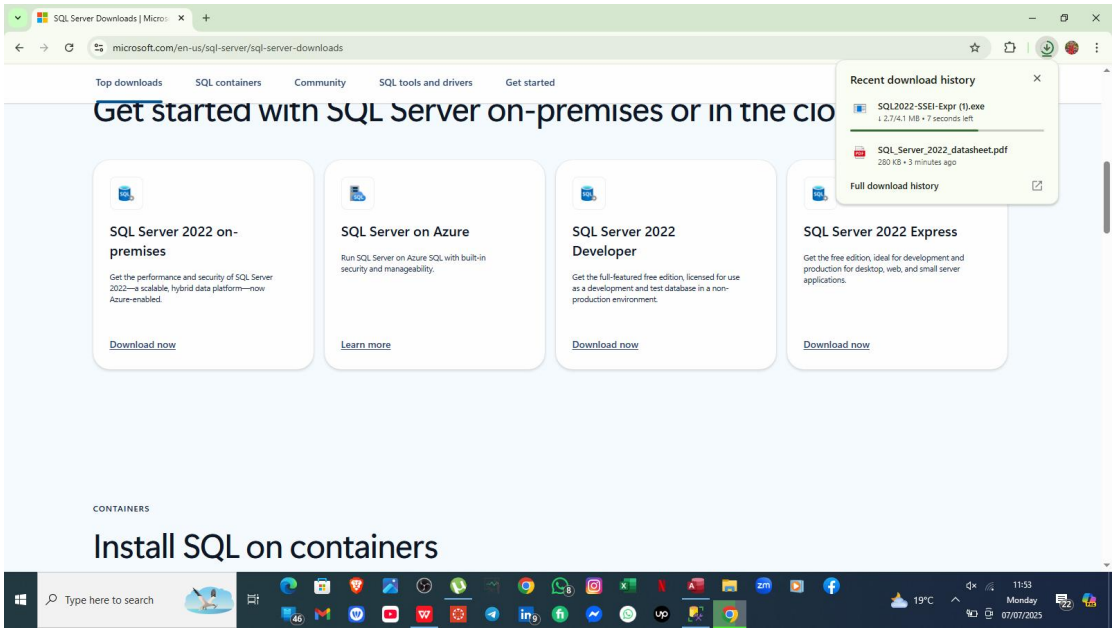
ii. Click on SQL Server 2022 on Microsoft.



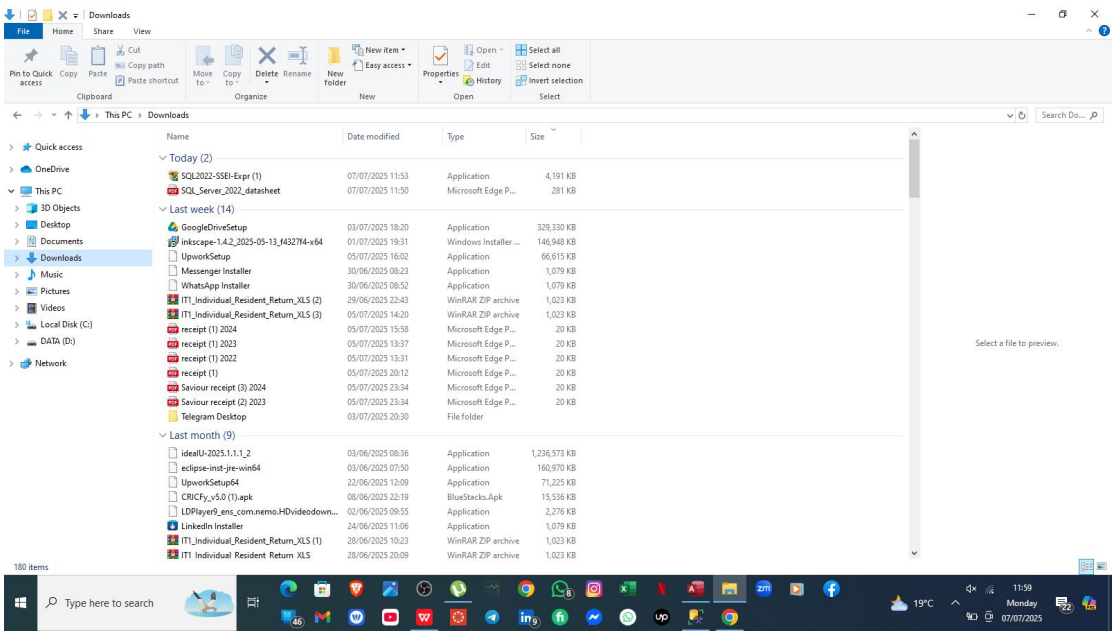
iii. After opening, scroll down and select SQL Server 2022 Express



iv. Click download and observe the downloading progress on the downloads tab.

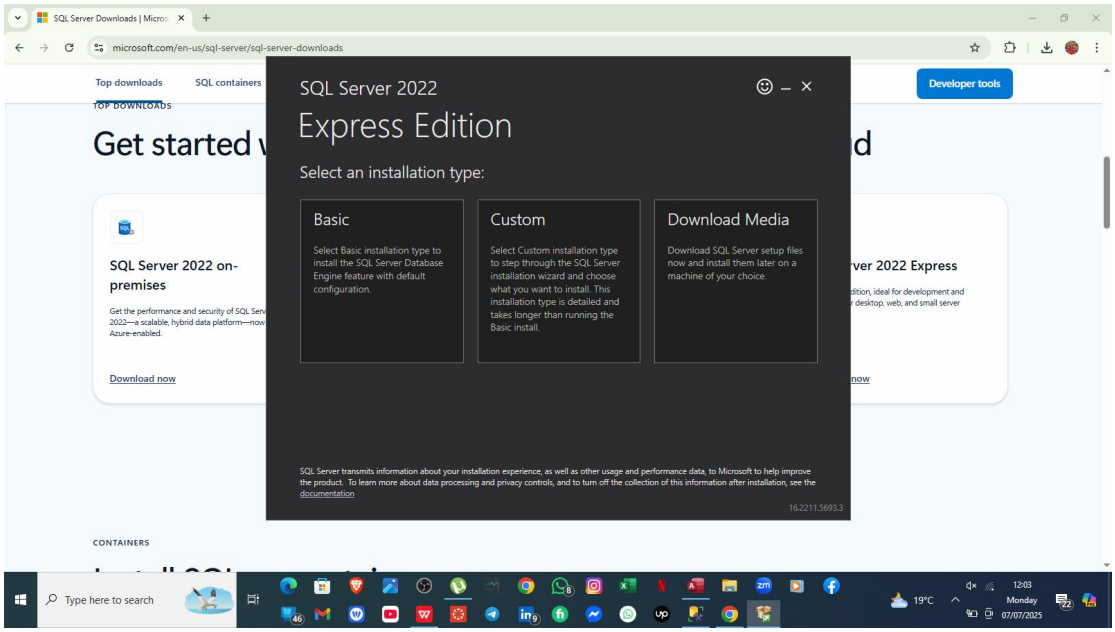


v. After finishing the download, open file explorer, open my downloads where the server is located.

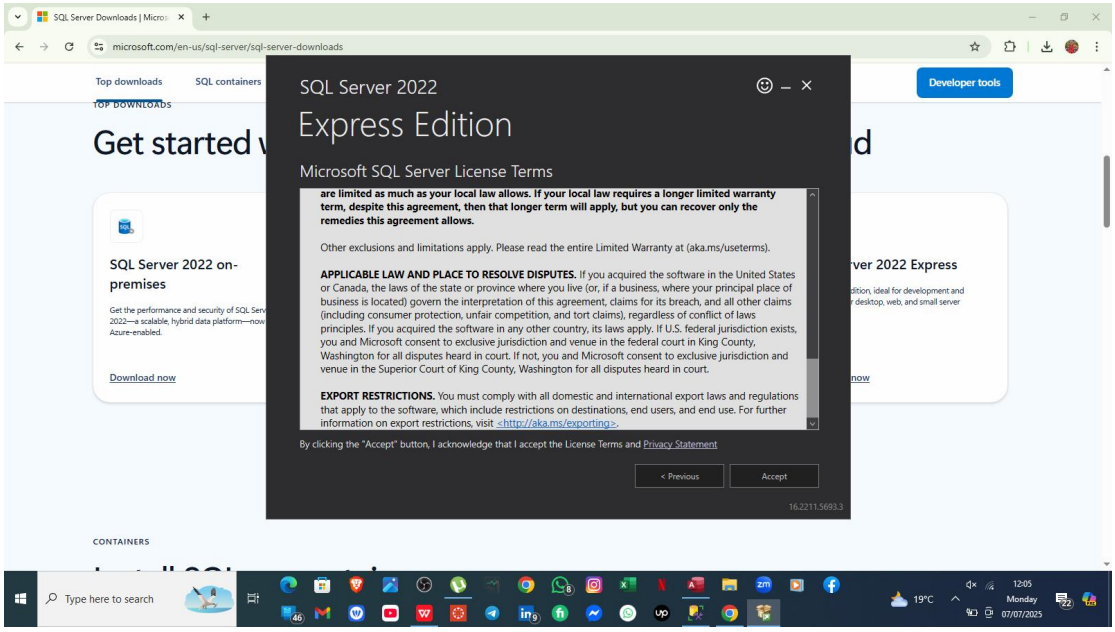


vi. Click the server to Run, and allow it to make changes on PC by clicking YES.

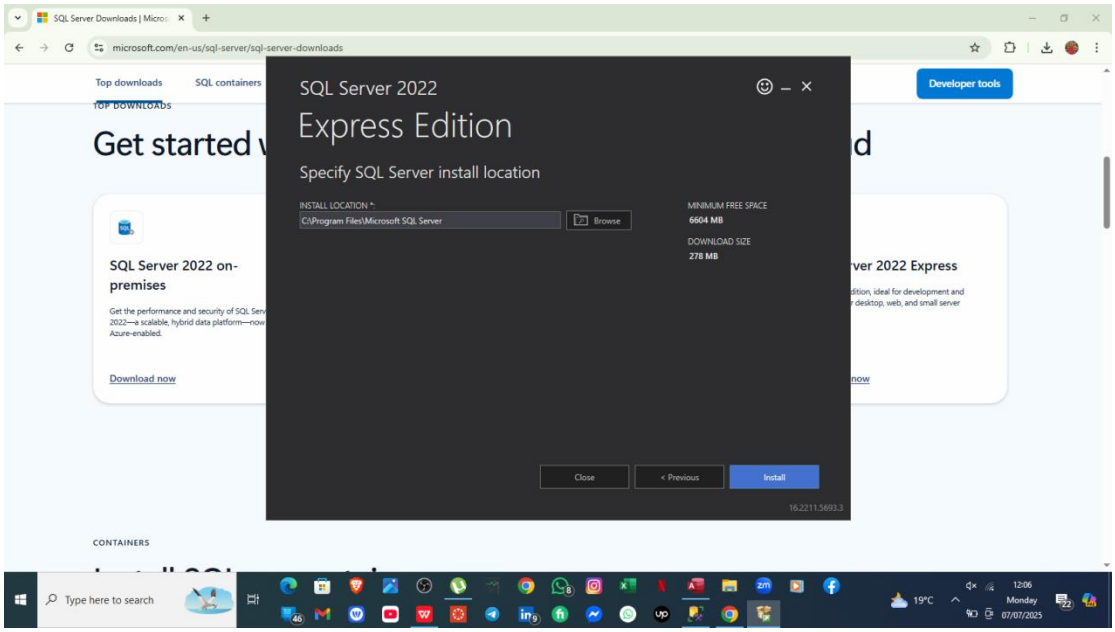
vii. Select the Basic to download it, and accept and agree with terms and conditions by clicking agree.



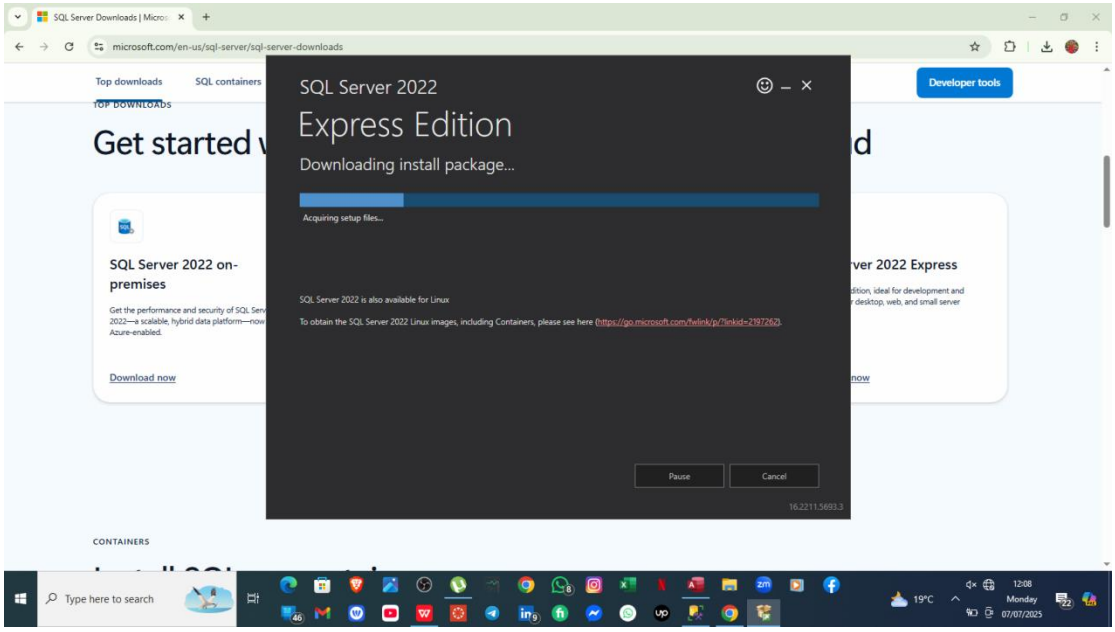
viii. Click Accept



ix. Click Install to start the installation process.



x. Give it time to finish installation, and make sure that all the packages and SSMS are downloaded successfully.



◆ Configure Supporting Infrastructure

✓ Server Specifications and Configuration

Component	Specification
Operating System	Windows Server
Processor	Intel 3.4GHz (6 cores)
Memory(RAM)	16 GB DDR4 ECC
Storage	512 GB SSD (NTFS)
Roles Installed	Active Directory, File Server, Remote Desktop
Database	MySQL 8.0, SQL Server Express 2022
Security	Windows Defender, BitLocker
Backup	Windows Server Backup
Remote Access	RDB enabled with Network Level

Task 2: Perform Database Design

◆ Define Entities and Relations

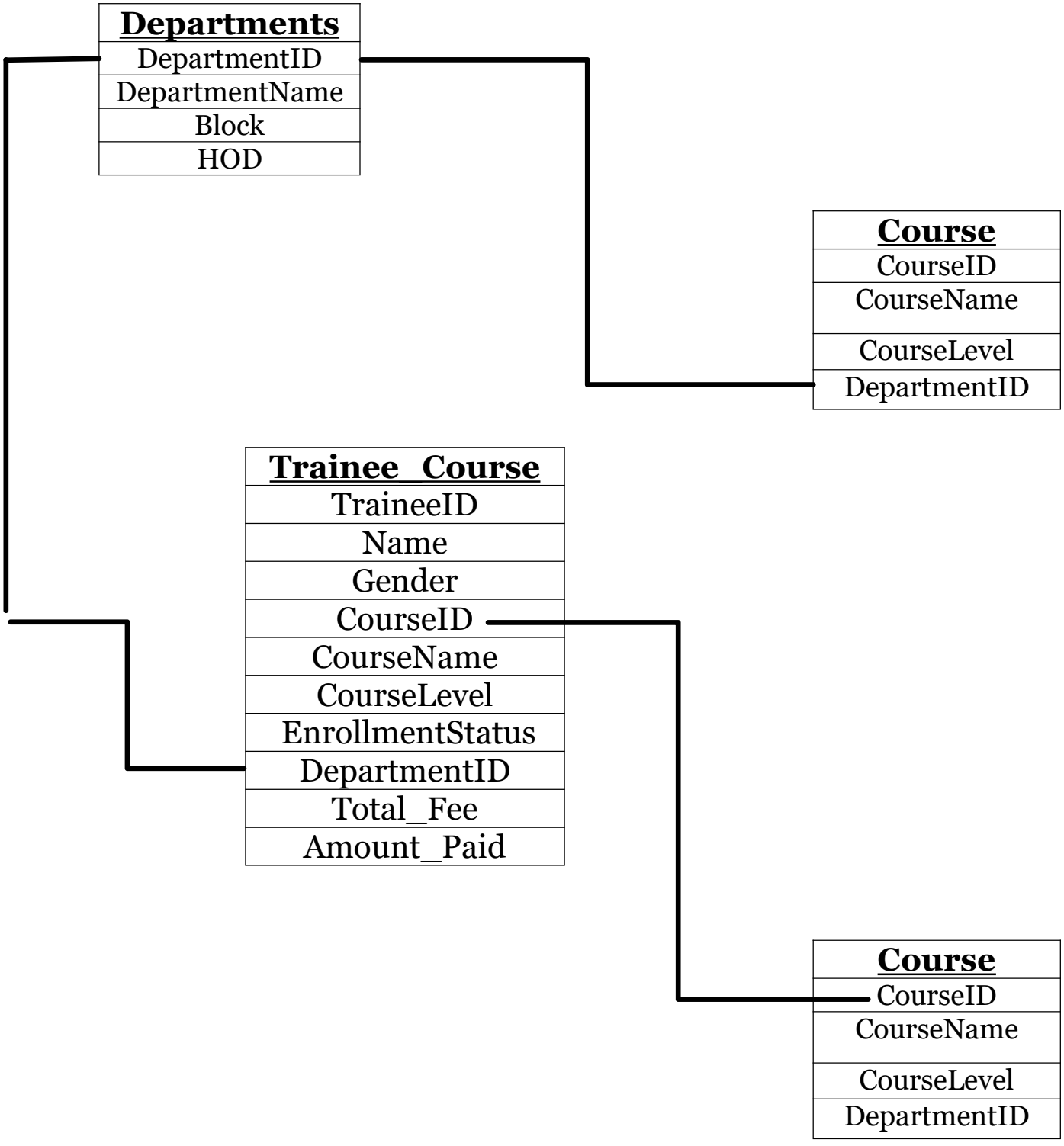
✓ **Attributes for each entity:**

Entity	Attributes
Departments	DepartmentID, DepartmentName, Block, HOD
Trainee_Details	TraineeID, Name, DateOfBirth, Gender, Address
Course	CourseID, CourseName, CourseLevel, DepartmentID, DepartmentName
Trainee_Course	TraineeID, Name, Gender, CourseID, CourseName, CourseLevel, EnrollmentStatus, DepartmentID, Total_Fee, Amount_Paid
Trainer_Marks	TraineeID, Name, Gender, CourseID, CourseName, CatScore, ExamScore, Grade
Trainers	TrainerID, TrainerName, Contacts, CourseID, CourseName, DepartmentName
Attachment	TraineeID, Name, Gender, CourseID, CourseName, CourseLevel, DepartmentID, EnrollmentStatus, AttachmentPeriod

◆ Entity Relationships (ER)

Relationship	Type
Trainee has one profile(trainee_details)	One-to-One
One Course can be taken by several Trainees	One-to-Many
Trainer can train many Courses	Many-to-Many

Several Trainees can access one Department	Many-to-One


Departments
DepartmentID
DepartmentName
Block
HOD
Course
CourseID
CourseName
CourseLevel
DepartmentID
Trainee_Course
TraineeID
Name
Gender
CourseID
CourseName
CourseLevel
EnrollmentStatus
DepartmentID
Total_Fee
Amount_Paid
Course
CourseID
CourseName
CourseLevel
DepartmentID

◆ Create CRUD Matrix

✓ Develop a Create, Read, Update, Delete (CRUD) matrix aligning system roles with database tables. Specify which roles can perform each operation on each table.

Table	Create (C)	Read (R)	Update (U)	Delete (D)
Departments	**C**	**R**	**U**	
Trainee_Details	**C**		**U**	**D**
Course	**C**	**R**	**U**	
Trainee_Course	**C**		**U**	**D**
Trainee_Marks	**C**	**R**	**U**	
Trainers	**C**		**U**	
Attachment	**C**	**R**	**U**	**D**

Task 6: Table, views design, SQL Statements and their Outputs.

```
CREATE TABLE Departments (
        DepartmentID INT NOT NULL,
        DepartmentName VARCHAR(20) NOT NULL,
        Block VARCHAR(10) NOT NULL,
        HOD VARCHAR(20) NOT NULL,
        PRIMARY KEY (departmentID)
        );

INSERT INTO Departments VALUES
        (1, 'ICT', 'A', 'Jeremy Munene'),
        (2, 'EDA', 'B', 'Bernice Njagi'),
        (3, 'EDS', 'B', 'Cloudias Kemunto'),
        (4, 'OS', 'C', 'Steve Biko'),
        (5, 'MATHS', 'D', 'Faith Mideva');
```

```
CREATE TABLE Trainee_Details (
        TraineeID INT NOT NULL,
        Name VARCHAR(20) NOT NULL,
        DateOfBirth CHAR(20) NOT NULL,
        Gender VARCHAR(10) NOT NULL,
        Address CHAR(20) NOT NULL,
        PRIMARY KEY (TraineeID)
        );

INSERT INTO Trainee_Details VALUES
        (1, 'Ramesh', '03/02/2001', 'Male', 'Ahmedbad'),
        (2, 'Khilan', '25/01/2004', 'Male', 'Delhi'),
        (3, 'Mwende', '23/07/2003', 'Female', 'Kota'),
        (4, 'Chaitali', '25/03/2002', 'Male', 'Mumbai'),
        (5, 'Jane', '27/04/2001', 'Female', 'Bhopal'),
        (6, 'Komal', '22/11/2003', 'Female', 'Hyderabad'),
        (7, 'Mary', '24/10/2000', 'Female', 'Indore'),
        (8, 'George', '22/12/2003', 'Male', 'Kitui'),
        (9, 'Oscar', '20/12/2004', 'Male', 'Kisii'),
        (10, 'Wanjiru', '21/6/2004', 'Female', 'Makueni'),
        (11, 'Gramoh', '19/5/2001', 'Female', 'Mombasa'),
        (12, 'Oleh', '01/01/2004', 'Male', 'Busia'),
        (13, 'Jack', '02/6/2004', 'Male', 'Busia'),
        (14, 'Grace', '11/5/2001', 'Female', 'Mogadishu'),
        (15, 'Fatso', '01/12/2004', 'Male', 'Vihiga');




CREATE TABLE Course (
        CourseID INT NOT NULL,
        CourseName VARCHAR(20) NOT NULL,
        CourseLevel VARCHAR(10) NOT NULL,
        DepartmentID INT NOT NULL,
        DepartmentName VARCHAR(20) NOT NULL,
        PRIMARY KEY(CourseID)
        );
```

```
INSERT INTO Course VALUES
	(1, 'Computer Science', 'L6', 1, 'ICT'),
	(2, 'Education Science', 'L5', 3, 'EDS'),
	(3, 'Education Arts', 'L5', 2, 'EDA'),
	(4, 'Cybersecurity', 'L4', 4, 'OS'),
	(5, 'Mathematics', 'L4', 5, 'MATHS');



CREATE TABLE Trainee_Course (
	TraineeID INT NOT NULL,
	Name VARCHAR(20) NOT NULL,
	Gender VARCHAR(10) NOT NULL,
	CourseID INT NOT NULL,
	CourseName VARCHAR(20) NOT NULL,
	CourseLevel VARCHAR(10) NOT NULL,
	EnrollmentStatus VARCHAR(25) NOT NULL,
	DepartmentID INT NOT NULL,
	Total_Fee DECIMAL(18,2),
	Amount_Paid DECIMAL(18,2),
	PRIMARY KEY(TraineeID)
	);

INSERT INTO Trainee_Course VALUES
	(1, 'Ramesh', 'Male', 1, 'Computer Science', 'L6', 'In
Session', 1, 25000, 7500),
	(2, 'Khilan', 'Male', 2, 'Education Science', 'L5', 'In
Session', 3, 23000, 12000),
	(3, 'Mwende', 'Female', 4, 'Cybersecurity', 'L4', 'In
Session', 4, 20000, 10000),
	(4, 'Chaitali', 'Male', 4, 'Cybersecurity', 'L4', 'In
Session', 4, 20000, 12500),
	(5, 'Jane', 'Female', 1, 'Computer Science', 'L6', 'In
Session', 1, 25000, 15000),
	(6, 'Komal', 'Female', 3, 'Education Arts', 'L5', 'In
Session', 2, 18000, 5500),
```

```
    (7, 'Mary', 'Female', 2, 'Education Science', 'L5', 'In
Session', 3, 23000, 4500),
    (8, 'George', 'Male', 1, 'Computer Science', 'L6', 'In
Session', 1, 25000, 12500),
    (9, 'Oscar', 'Male', 4, 'Cybersecurity', 'L4', 'In Session',
4, 20000, 5000),
    (10, 'Wanjiru', 'Female', 1, 'Computer Science', 'L6',
'In Session', 1, 25000, 6500),
    (11, 'Gramoh', 'Female', 3, 'Education Arts', 'L4', 'In
Session', 2, 18000, 11000),
    (12, 'Oleh', 'Male', 2, 'Education Science', 'L6', 'In
Session', 3, 23000, 10500),
    (13, 'Jack', 'Male', 5, 'Mathematics', 'L4', 'In Session',
5, 27000, 13000),
    (14, 'Grace', 'Female', 5, 'Mathematics', 'L4', 'In
Session', 5, 27000, 8500),
    (15, 'Fatso', 'Male', 5, 'Mathematics', 'L4', 'In Session',
5, 27000, 14000);
```

```
CREATE TABLE Trainee_Marks (
    TraineeID INT NOT NULL,
    Name VARCHAR(20) NOT NULL,
    Gender VARCHAR(10) NOT NULL,
    CourseID INT NOT NULL,
    CourseName VARCHAR(20) NOT NULL,
    CatScore INT NOT NULL,
    ExamScore INT NOT NULL,
    Grade INT NOT NULL,
    PRIMARY KEY(TraineeID)
    );

INSERT INTO Trainee_Marks VALUES
    (1, 'Ramesh', 'Male', 1, 'Computer Science', 16, 55, 71),
    (2, 'Khilan', 'Male', 2, 'Education Science', 10, 50, 60),
```

```
        (3, 'Mwende', 'Female', 4, 'Cybersecurity', 12, 45, 57),
        (4, 'Chaitali', 'Male', 4, 'Cybersecurity', 19, 59, 78),
        (5, 'Jane', 'Female', 1, 'Computer Science', 15, 35, 50),
        (6, 'Komal', 'Female', 3, 'Education Arts', 11, 49, 60),
        (7, 'Mary', 'Female', 2, 'Education Science', 09, 55, 64),
        (8, 'George', 'Male', 1, 'Computer Science', 13, 54, 67),
        (9, 'Oscar', 'Male', 4, 'Cybersecurity', 17, 50, 67),
        (10, 'Wanjiru', 'Female', 1, 'Computer Science', 14, 53,
67),
        (11, 'Gramoh', 'Female', 3, 'Education Arts', 20, 45,
65),
        (12, 'Oleh', 'Male', 2, 'Education Science', 15, 50, 65),
        (13, 'Jack', 'Male', 5, 'Mathematics', 12, 53, 65),
        (14, 'Grace', 'Female', 5, 'Mathematics', 16, 44, 60),
        (15, 'Fatso', 'Male', 5, 'Mathematics', 18, 57, 75);



CREATE TABLE Trainers (
        TrainerID INT NOT NULL,
        TrainerName VARCHAR(20) NOT NULL,
        Contacts CHAR(10),
        CourseID VARCHAR(20) NOT NULL,
        CourseName VARCHAR(20) NOT NULL,
        DepartmentName VARCHAR(20) NOT NULL,
        PRIMARY KEY(TrainerID)
        );

INSERT INTO Trainers VALUES
        (1, 'Nyachae', '0768070764', 2, 'Education Science',
'EDS'),
        (2, 'Meshack', '0789675432', 4, 'Cybersecurity', 'OS'),
        (3, 'Macdyy', '0705454633', 1, 'Computer Science',
'ICT'),
        (4, 'Alex', '0112344522', 3, 'Education Arts', 'EDA'),
        (5, 'Elly', '0768954430', 4, 'Cybersecurity', 'OS'),
```

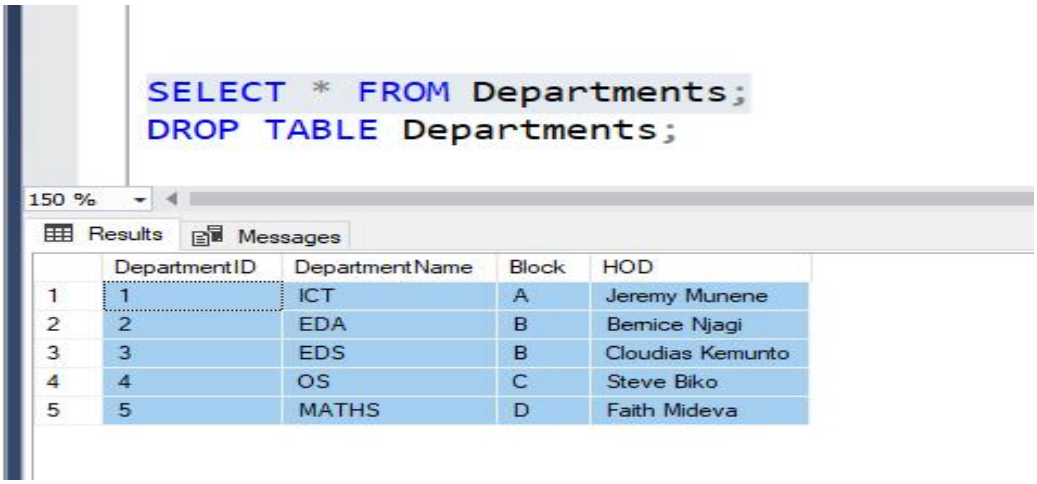
```
        (6, 'Timothy', '0788009954', 1, 'Computer Science',
'ICT'),
        (7, 'Nelly', '0752424264',  2, 'Education Science',
'EDS'),
        (8, 'Sos', '0760054430', 4, 'Cybersecurity', 'OS'),
        (9, 'Mutunga', '0711009954', 1, 'Computer Science',
'ICT'),
        (10, 'Seth', '0751124264',  3, 'Education Arts', 'EDA'),
        (11, 'Moseti', '0711003654', 1, 'Computer Science',
'ICT'),
        (12, 'Shabir', '0751104264',  3, 'Mathematics',
'MATHS');



CREATE TABLE Attachment (
        TraineeID INT NOT NULL,
        Name VARCHAR(20) NOT NULL,
        Gender VARCHAR(10) NOT NULL,
        CourseID INT NOT NULL,
        CourseName VARCHAR(20) NOT NULL,
        CourseLevel VARCHAR(10) NOT NULL,
        DepartmentID INT NOT NULL,
        EnrollmentStatus VARCHAR(25) NOT NULL,
        AttachmentPeriod VARCHAR(25) NOT NULL,
        PRIMARY KEY(TraineeID)
        );

INSERT INTO Attachment VALUES
        (1, 'Ramesh', 'Male', 1, 'Computer Science', 'L6', 1, 'On
attachment', '3 Months'),
        (2, 'Khilan', 'Male', 2, 'Education Science', 'L5', 3, 'On
attachment', '4 Months'),
        (4, 'Chaitali', 'Male', 4, 'Cybersecurity', 'L4', 4, 'On
attachment', '3 Months'),
```

(6, 'Komal', 'Female', 3, 'Education Arts', 'L5', 2, 'On attachment', '4 Months'),
(7, 'Mary', 'Female', 2, 'Education Science', 'L5', 3, 'On attachment', '3 Months'),
(8, 'George', 'Male', 1, 'Computer Science', 'L6', 1, 'On attachment', '4 Months'),
(9, 'Oscar', 'Male', 4, 'Cybersecurity', 'L4', 4, 'On attachment', '4 Months'),
(10, 'Wanjiru', 'Female', 1, 'Computer Science', 'L6', 1, 'On attachment', '5 Months'),
(11, 'Gramoh', 'Female', 3, 'Education Arts', 'L4', 2, 'On attachment', '3 Months'),
(12, 'Oleh', 'Male', 2, 'Education Science', 'L6', 3, 'On attachment', '4 Months'),
(13, 'Jack', 'Male', 5, 'Mathematics', 'L4', 5, 'On Session', '5 Months'),
(14, 'Grace', 'Female', 5, 'Mathematics', 'L4', 5, 'On Session', '5 Months'),
(15, 'Fatso', 'Male', 5, 'Mathematics', 'L4', 5, 'On Session', '5 Months');

SQL STATEMENTS AND THE OUTPUTS

SQL Statement:
SELECT * FROM Departments;
DROP TABLE Departments;

Output:



	DepartmentID	DepartmentName	Block	HOD
1	1	ICT	A	Jeremy Munene
2	2	EDA	B	Bernice Njagi
3	3	EDS	B	Cloudias Kemunto
4	4	OS	C	Steve Biko
5	5	MATHS	D	Faith Mideva

SQL Statement:
SELECT * FROM Trainee_Details;

Output:

```
SELECT * FROM Trainee_Details;
```

150 %

Results | Messages

	TraineeID	Name	DateOfBirth	Gender	Address
1	1	Ramesh	03/02/2001	Male	Ahmedbad
2	2	Khilan	25/01/2004	Male	Delhi
3	3	Mwende	23/07/2003	Female	Kota
4	4	Chaitali	25/03/2002	Male	Mumbai
5	5	Jane	27/04/2001	Female	Bhopal
6	6	Komal	22/11/2003	Female	Hyderabad
7	7	Mary	24/10/2000	Female	Indore
8	8	George	22/12/2003	Male	Kitui
9	9	Oscar	20/12/2004	Male	Kisii
10	10	Wanjiru	21/6/2004	Female	Makueni
11	11	Gramoh	19/5/2001	Female	Mombasa
12	12	Oleh	01/01/2004	Male	Busia
13	13	Jack	02/6/2004	Male	Busia
14	14	Grace	11/5/2001	Female	Mogadishu
15	15	Fatso	01/12/2004	Male	Vihiga

SQL Statement:

ALTER TABLE Trainee_Details ADD Phone_Number VARCHAR(20)

Output:

```
ALTER TABLE Trainee_Details ADD Phone_Number VARCHAR(20)
```

150 %

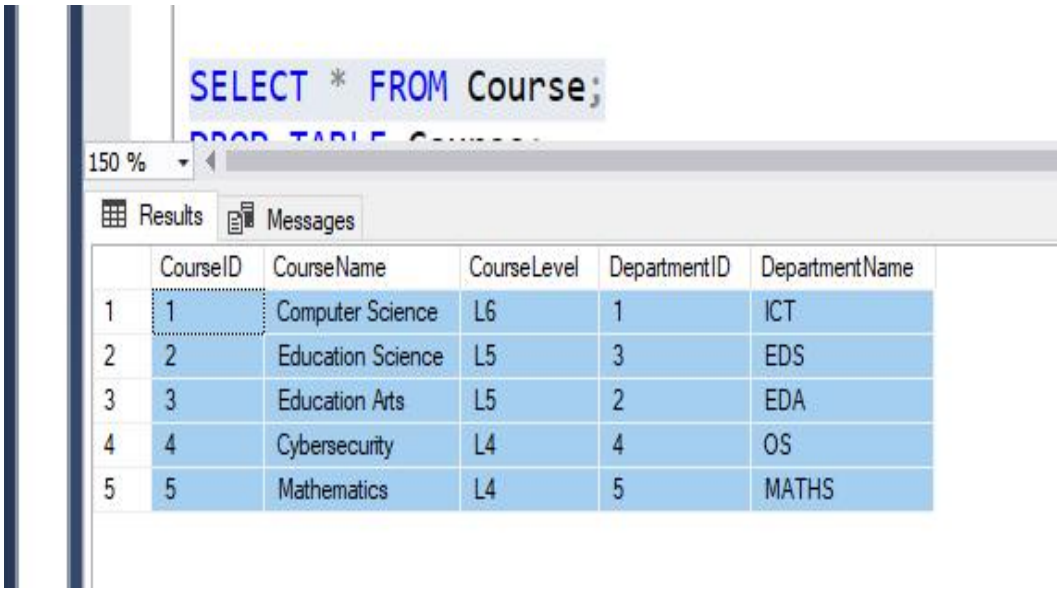
Results | Messages

	TraineeID	Name	DateOfBirth	Gender	Address	Phone_Number
1	1	Ramesh	03/02/2001	Male	Ahmedbad	NULL
2	2	Khilan	25/01/2004	Male	Delhi	NULL
3	3	Mwende	23/07/2003	Female	Kota	NULL
4	4	Chaitali	25/03/2002	Male	Mumbai	NULL
5	5	Jane	27/04/2001	Female	Bhopal	NULL
6	6	Komal	22/11/2003	Female	Hyderabad	NULL
7	7	Mary	24/10/2000	Female	Indore	NULL
8	8	George	22/12/2003	Male	Kitui	NULL
9	9	Oscar	20/12/2004	Male	Kisii	NULL
10	10	Wanjiru	21/6/2004	Female	Makueni	NULL
11	11	Gramoh	19/5/2001	Female	Mombasa	NULL
12	12	Oleh	01/01/2004	Male	Busia	NULL
13	13	Jack	02/6/2004	Male	Busia	NULL
14	14	Grace	11/5/2001	Female	Mogadishu	NULL
15	15	Fatso	01/12/2004	Male	Vihiga	NULL

DROP TABLE Trainee_Details;

SQL Statement:
SELECT * FROM Course;
DROP TABLE Course;

Output:



	CourseID	CourseName	CourseLevel	DepartmentID	DepartmentName
1	1	Computer Science	L6	1	ICT
2	2	Education Science	L5	3	EDS
3	3	Education Arts	L5	2	EDA
4	4	Cybersecurity	L4	4	OS
5	5	Mathematics	L4	5	MATHS

SQL Statement:
SELECT * FROM Trainee_Course;
DROP TABLE Trainee_Course;

Output:

```
SELECT * FROM Trainee_Course;
```

150 %

Results | Messages

	TraineeID	Name	Gender	CourseID	CourseName	CourseLevel	EnrollmentStatus	DepartmentID	Total_Fee	Amount_Paid
1	1	Ramesh	Male	1	Computer Science	L6	In Session	1	25000.00	7500.00
2	2	Khilan	Male	2	Education Science	L5	In Session	3	23000.00	12000.00
3	3	Mwende	Female	4	Cybersecurity	L4	In Session	4	20000.00	10000.00
4	4	Chaitali	Male	4	Cybersecurity	L4	In Session	4	20000.00	12500.00
5	5	Jane	Female	1	Computer Science	L6	In Session	1	25000.00	15000.00
6	6	Komal	Female	3	Education Arts	L5	In Session	2	18000.00	5500.00
7	7	Mary	Female	2	Education Science	L5	In Session	3	23000.00	4500.00
8	8	George	Male	1	Computer Science	L6	In Session	1	25000.00	12500.00
9	9	Oscar	Male	4	Cybersecurity	L4	In Session	4	20000.00	5000.00
10	10	Wanjiru	Female	1	Computer Science	L6	In Session	1	25000.00	6500.00
11	11	Gramoh	Female	3	Education Arts	L4	In Session	2	18000.00	11000.00
12	12	Oleh	Male	2	Education Science	L6	In Session	3	23000.00	10500.00
13	13	Jack	Male	5	Mathematics	L4	In Session	5	27000.00	13000.00
14	14	Grace	Female	5	Mathematics	L4	In Session	5	27000.00	8500.00
15	15	Fatso	Male	5	Mathematics	L4	In Session	5	27000.00	14000.00

SQL Statement:

```
SELECT * FROM Trainee_Marks;
DROP TABLE Trainee_Marks;
```

Output:

```
SELECT * FROM Trainee_Marks;
```

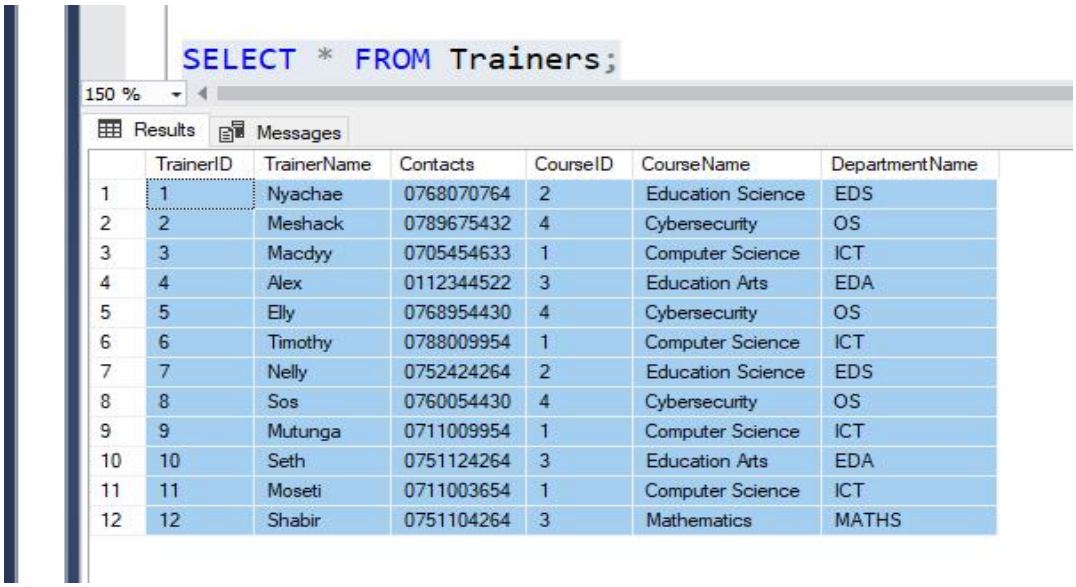
150 %

Results | Messages

	TraineeID	Name	Gender	CourseID	CourseName	CatScore	ExamScore	Grade
1	1	Ramesh	Male	1	Computer Science	16	55	71
2	2	Khilan	Male	2	Education Science	10	50	60
3	3	Mwende	Female	4	Cybersecurity	12	45	57
4	4	Chaitali	Male	4	Cybersecurity	19	59	78
5	5	Jane	Female	1	Computer Science	15	35	50
6	6	Komal	Female	3	Education Arts	11	49	60
7	7	Mary	Female	2	Education Science	9	55	64
8	8	George	Male	1	Computer Science	13	54	67
9	9	Oscar	Male	4	Cybersecurity	17	50	67
10	10	Wanjiru	Female	1	Computer Science	14	53	67
11	11	Gramoh	Female	3	Education Arts	20	45	65
12	12	Oleh	Male	2	Education Science	15	50	65
13	13	Jack	Male	5	Mathematics	12	53	65
14	14	Grace	Female	5	Mathematics	16	44	60
15	15	Fatso	Male	5	Mathematics	18	57	75

SQL Statement:
SELECT * FROM Trainers;
DROP TABLE Trainers;

Output:



	TrainerID	TrainerName	Contacts	CourseID	CourseName	DepartmentName
1	1	Nyachae	0768070764	2	Education Science	EDS
2	2	Meshack	0789675432	4	Cybersecurity	OS
3	3	Macdyy	0705454633	1	Computer Science	ICT
4	4	Alex	0112344522	3	Education Arts	EDA
5	5	Elly	0768954430	4	Cybersecurity	OS
6	6	Timothy	0788009954	1	Computer Science	ICT
7	7	Nelly	0752424264	2	Education Science	EDS
8	8	Sos	0760054430	4	Cybersecurity	OS
9	9	Mutunga	0711009954	1	Computer Science	ICT
10	10	Seth	0751124264	3	Education Arts	EDA
11	11	Moseti	0711003654	1	Computer Science	ICT
12	12	Shabir	0751104264	3	Mathematics	MATHS

SQL Statement:
SELECT * FROM Attachment;
DROP TABLE Attachment;

Output:

```
SELECT * FROM Attachment;
```

150 %

Results | Messages

	TraineeID	Name	Gender	CourseID	CourseName	CourseLevel	DepartmentID	EnrollmentStatus	AttachmentPeriod
1	1	Ramesh	Male	1	Computer Science	L6	1	On attachment	3 Months
2	2	Khilan	Male	2	Education Science	L5	3	On attachment	4 Months
3	4	Chaitali	Male	4	Cybersecurity	L4	4	On attachment	3 Months
4	6	Komal	Female	3	Education Arts	L5	2	On attachment	4 Months
5	7	Mary	Female	2	Education Science	L5	3	On attachment	3 Months
6	8	George	Male	1	Computer Science	L6	1	On attachment	4 Months
7	9	Oscar	Male	4	Cybersecurity	L4	4	On attachment	4 Months
8	10	Wanjiru	Female	1	Computer Science	L6	1	On attachment	5 Months
9	11	Gramoh	Female	3	Education Arts	L4	2	On attachment	3 Months
10	12	Oleh	Male	2	Education Science	L6	3	On attachment	4 Months
11	13	Jack	Male	5	Mathematics	L4	5	On Session	5 Months
12	14	Grace	Female	5	Mathematics	L4	5	On Session	5 Months
13	15	Fatso	Male	5	Mathematics	L4	5	On Session	5 Months

SQL Statement:

SELECT * FROM Trainee_Details WHERE Name LIKE 'M%';

Output:

```
SELECT * FROM Trainee_Details WHERE Name LIKE 'M%';
```

150 %

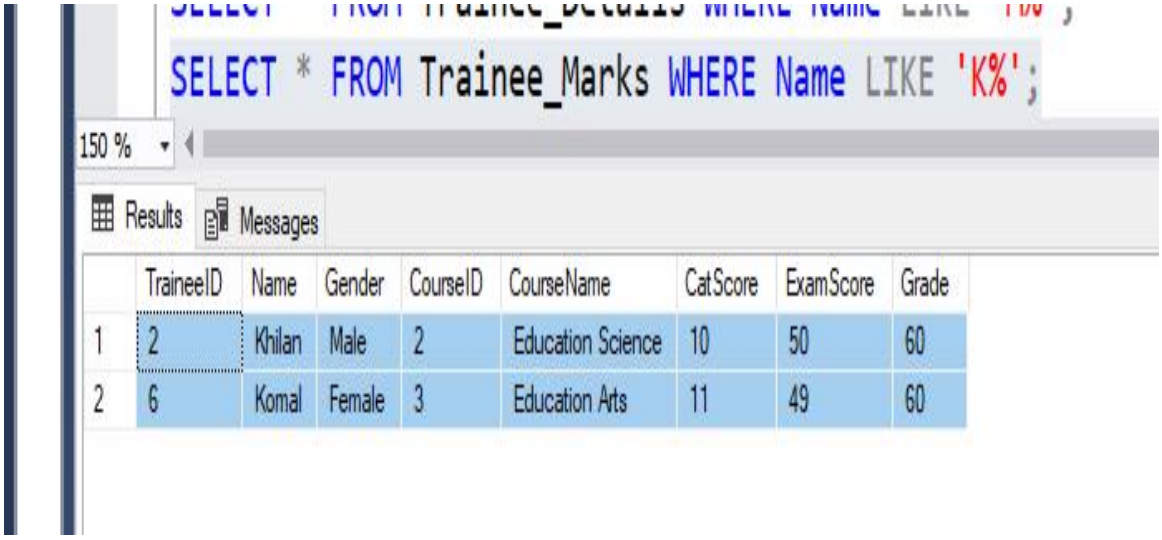
Results | Messages

	TraineeID	Name	DateOfBirth	Gender	Address	Phone_Number
1	3	Mwende	23/07/2003	Female	Kota	NULL
2	7	Mary	24/10/2000	Female	Indore	NULL

SQL Statement:

SELECT * FROM Trainee_Marks WHERE Name LIKE 'K%';

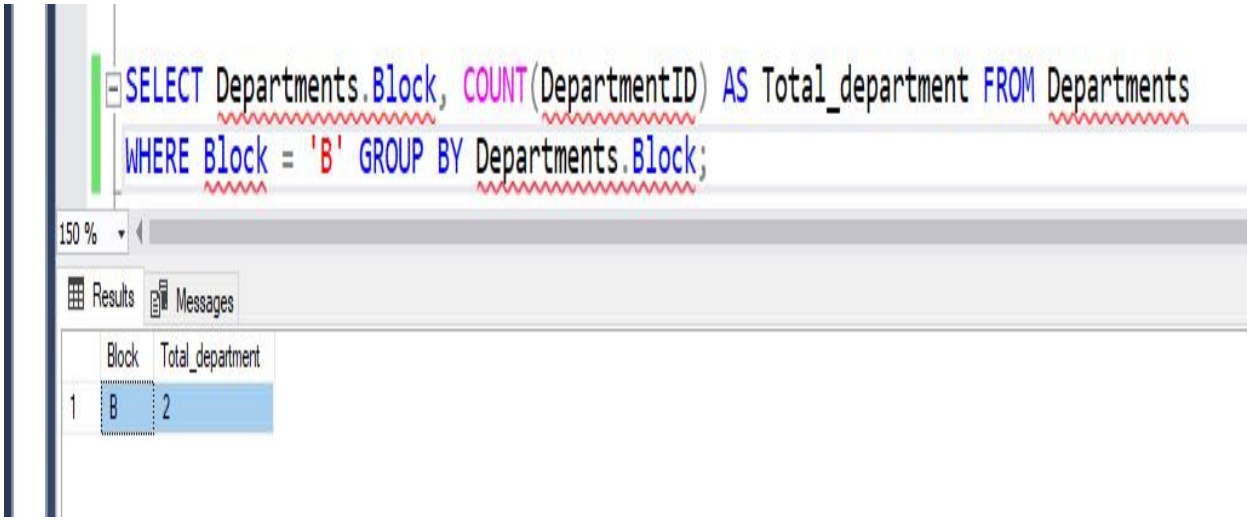
Output:



SQL Statement:

SELECT Departments.Block, COUNT(DepartmentID) AS Total_department FROM Departments WHERE Block = 'B' GROUP BY Departments.Block;

Output:



SQL Statement:

SELECT * FROM Trainee_Course WHERE CourseName = 'Computer Science';

Output:

	TraineeID	Name	Gender	CourseID	CourseName	CourseLevel	EnrollmentStatus	DepartmentID	Total_Fee	Amount_Paid
1	1	Ramesh	Male	1	Computer Science	L6	In Session	1	25000.00	7500.00
2	5	Jane	Female	1	Computer Science	L6	In Session	1	25000.00	15000.00
3	8	George	Male	1	Computer Science	L6	In Session	1	25000.00	12500.00
4	10	Wanjiru	Female	1	Computer Science	L6	In Session	1	25000.00	6500.00

SQL Statement:
UPDATE Trainers SET Contacts = '0113455200' WHERE TrainerID = 7;

Output:

```
UPDATE Trainers SET Contacts = '0113455200' WHERE TrainerID = 7;
```

150 %

Results | Messages

	TrainerID	TrainerName	Contacts	CourseID	CourseName	DepartmentName
1	1	Nyachae	0768070764	2	Education Science	EDS
2	2	Meshack	0789675432	4	Cybersecurity	OS
3	3	Macdyy	0705454633	1	Computer Science	ICT
4	4	Alex	0112344522	3	Education Arts	EDA
5	5	Elly	0768954430	4	Cybersecurity	OS
6	6	Timothy	0788009954	1	Computer Science	ICT
7	7	Nelly	0113455200	2	Education Science	EDS
8	8	Sos	0760054430	4	Cybersecurity	OS
9	9	Mutunga	0711009954	1	Computer Science	ICT
10	10	Seth	0751124264	3	Education Arts	EDA
11	11	Moseti	0711003654	1	Computer Science	ICT
12	12	Shabir	0751104264	3	Mathematics	MATHS

SQL Statement:

UPDATE Trainee_Course SET EnrollmentStatus = 'On attachment' WHERE TraineeID = 2;

Output:

```
UPDATE Trainee_Course SET EnrollmentStatus = 'On attachment' WHERE TraineeID = 2;
```

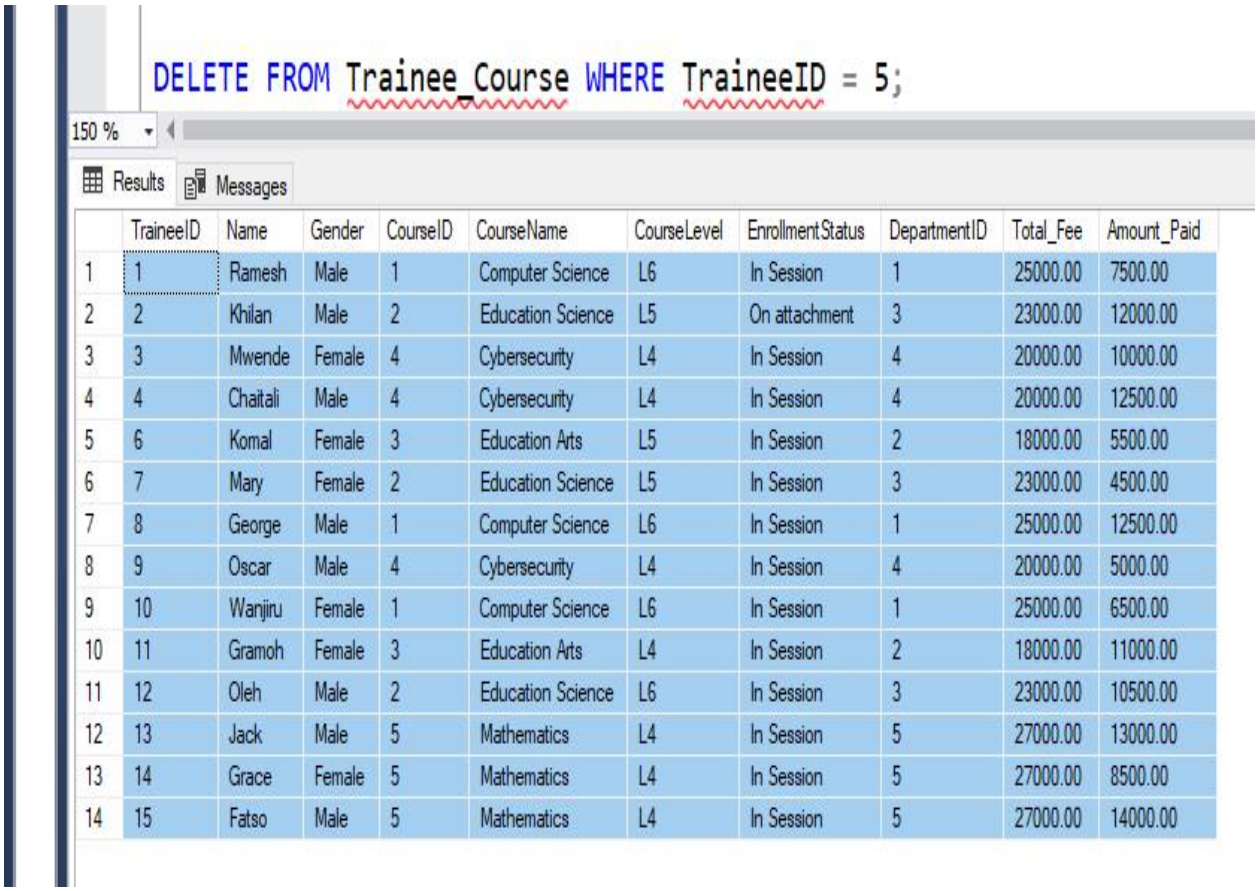
150 %

Results | Messages

	TraineeID	Name	Gender	CourseID	CourseName	CourseLevel	EnrollmentStatus	DepartmentID	Total_Fee	Amount_Paid
1	1	Ramesh	Male	1	Computer Science	L6	In Session	1	25000.00	7500.00
2	2	Khilan	Male	2	Education Science	L5	On attachment	3	23000.00	12000.00
3	3	Mwende	Female	4	Cybersecurity	L4	In Session	4	20000.00	10000.00
4	4	Chaitali	Male	4	Cybersecurity	L4	In Session	4	20000.00	12500.00
5	5	Jane	Female	1	Computer Science	L6	In Session	1	25000.00	15000.00
6	6	Komal	Female	3	Education Arts	L5	In Session	2	18000.00	5500.00
7	7	Mary	Female	2	Education Science	L5	In Session	3	23000.00	4500.00
8	8	George	Male	1	Computer Science	L6	In Session	1	25000.00	12500.00
9	9	Oscar	Male	4	Cybersecurity	L4	In Session	4	20000.00	5000.00
10	10	Wanjiru	Female	1	Computer Science	L6	In Session	1	25000.00	6500.00
11	11	Gramoh	Female	3	Education Arts	L4	In Session	2	18000.00	11000.00
12	12	Oleh	Male	2	Education Science	L6	In Session	3	23000.00	10500.00
13	13	Jack	Male	5	Mathematics	L4	In Session	5	27000.00	13000.00
14	14	Grace	Female	5	Mathematics	L4	In Session	5	27000.00	8500.00
15	15	Fatso	Male	5	Mathematics	L4	In Session	5	27000.00	14000.00

SQL Statement:
DELETE FROM Trainee_Course WHERE TraineeID = 5;

Output:



```
DELETE FROM Trainee_Course WHERE TraineeID = 5;
```

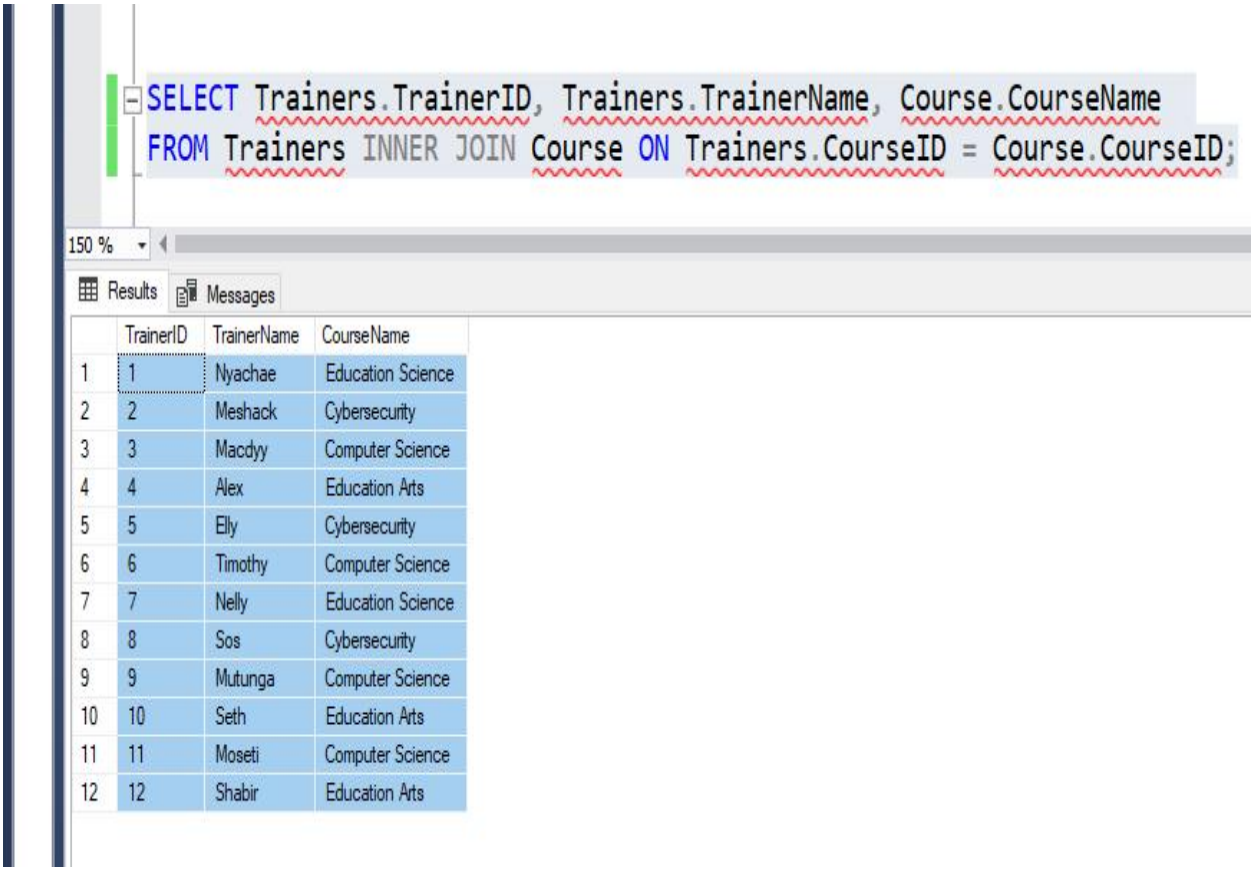
150 %

Results | Messages

	TraineeID	Name	Gender	CourseID	CourseName	CourseLevel	EnrollmentStatus	DepartmentID	Total_Fee	Amount_Paid
1	1	Ramesh	Male	1	Computer Science	L6	In Session	1	25000.00	7500.00
2	2	Khilan	Male	2	Education Science	L5	On attachment	3	23000.00	12000.00
3	3	Mwende	Female	4	Cybersecurity	L4	In Session	4	20000.00	10000.00
4	4	Chaitali	Male	4	Cybersecurity	L4	In Session	4	20000.00	12500.00
5	6	Komal	Female	3	Education Arts	L5	In Session	2	18000.00	5500.00
6	7	Mary	Female	2	Education Science	L5	In Session	3	23000.00	4500.00
7	8	George	Male	1	Computer Science	L6	In Session	1	25000.00	12500.00
8	9	Oscar	Male	4	Cybersecurity	L4	In Session	4	20000.00	5000.00
9	10	Wanjiru	Female	1	Computer Science	L6	In Session	1	25000.00	6500.00
10	11	Gramoh	Female	3	Education Arts	L4	In Session	2	18000.00	11000.00
11	12	Oleh	Male	2	Education Science	L6	In Session	3	23000.00	10500.00
12	13	Jack	Male	5	Mathematics	L4	In Session	5	27000.00	13000.00
13	14	Grace	Female	5	Mathematics	L4	In Session	5	27000.00	8500.00
14	15	Fatso	Male	5	Mathematics	L4	In Session	5	27000.00	14000.00

SQL Statement:
SELECT Trainers.TrainerID, Trainers.TrainerName, Course.CourseName FROM Trainers INNER JOIN Course ON Trainers.CourseID = Course.CourseID;

Output:

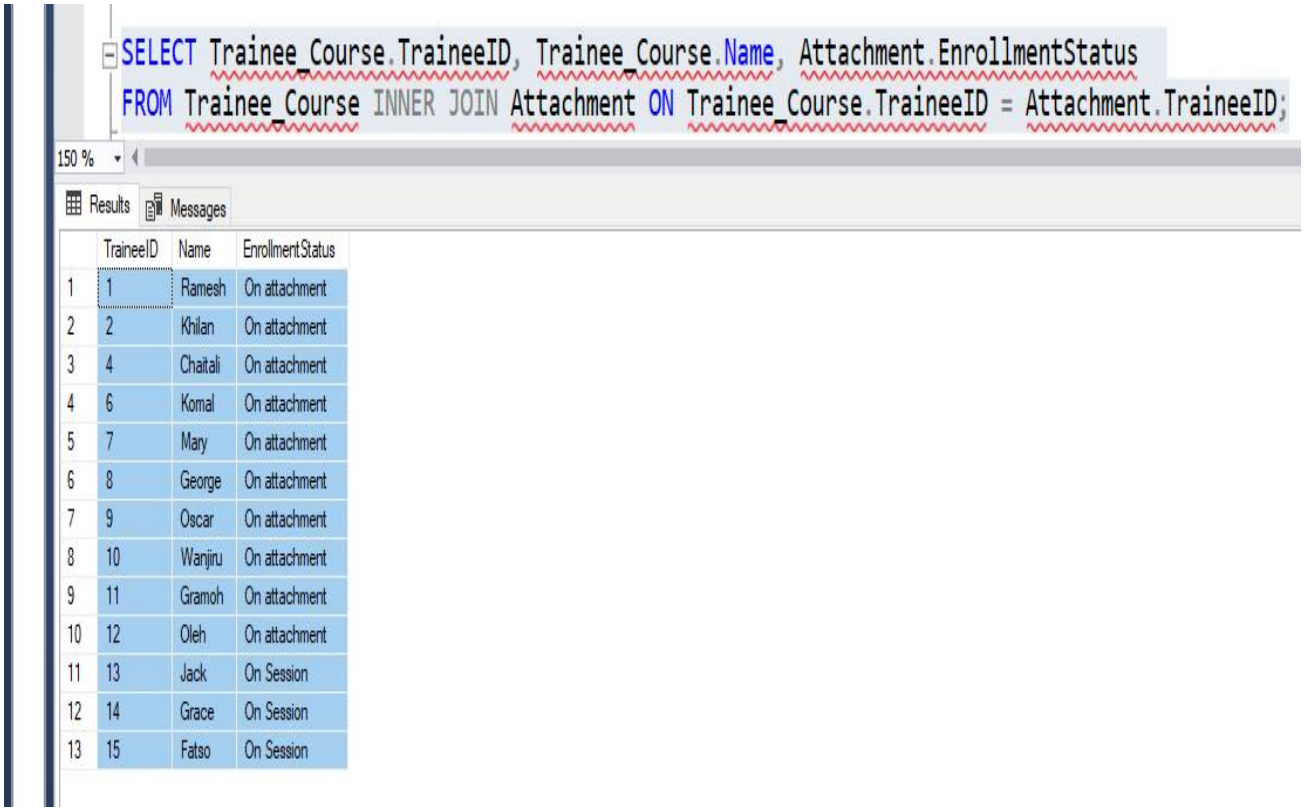


	TrainerID	TrainerName	CourseName
1	1	Nyachae	Education Science
2	2	Meshack	Cybersecurity
3	3	Macdyy	Computer Science
4	4	Alex	Education Arts
5	5	Elly	Cybersecurity
6	6	Timothy	Computer Science
7	7	Nelly	Education Science
8	8	Sos	Cybersecurity
9	9	Mutunga	Computer Science
10	10	Seth	Education Arts
11	11	Moseti	Computer Science
12	12	Shabir	Education Arts

SQL Statement:

SELECT Trainee_Course.TraineeID,
Trainee_Course.Name, Attachment.EnrollmentStatus
FROM Trainee_Course INNER JOIN Attachment ON
Trainee_Course.TraineeID = Attachment.TraineeID;

Output:



```
SELECT Trainee_Course.TraineeID, Trainee_Course.Name, Attachment.EnrollmentStatus
FROM Trainee_Course INNER JOIN Attachment ON Trainee_Course.TraineeID = Attachment.TraineeID;
```

150 %

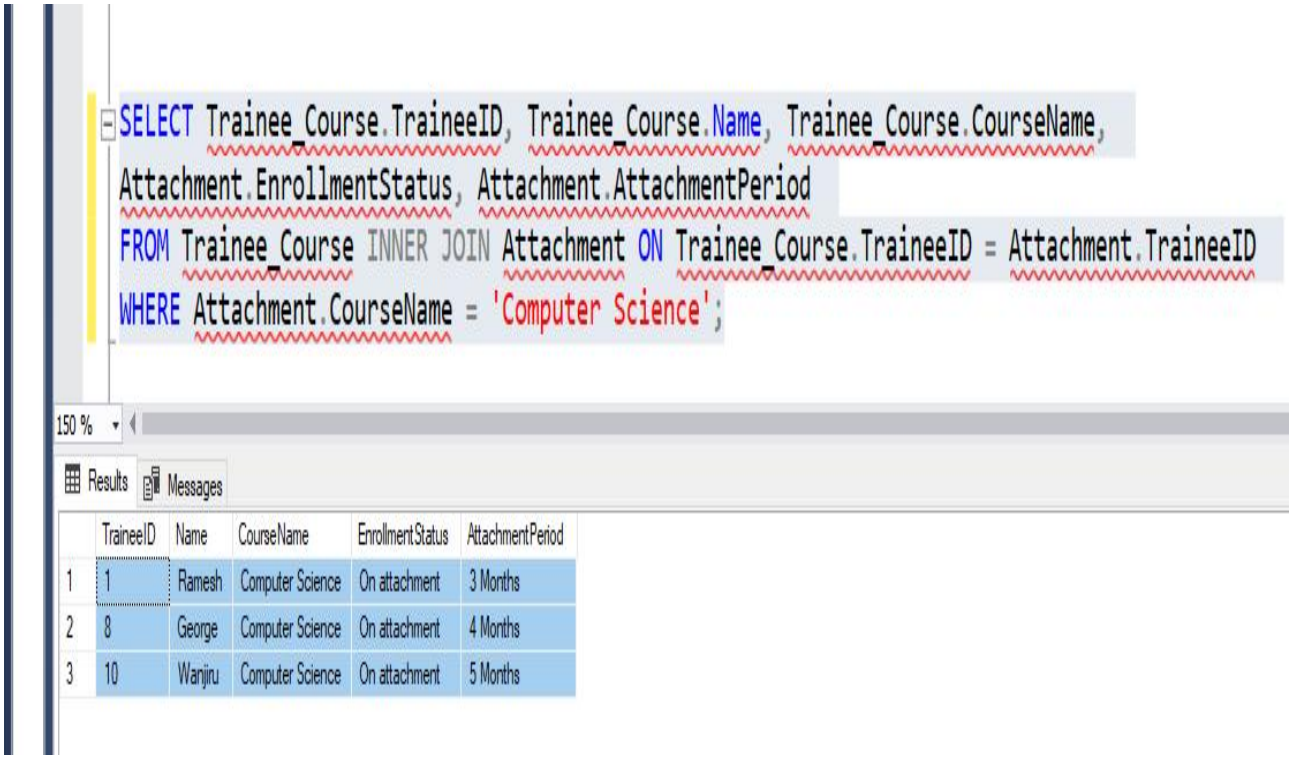
Results | Messages

	TraineeID	Name	EnrollmentStatus
1	1	Ramesh	On attachment
2	2	Khilan	On attachment
3	4	Chaitali	On attachment
4	6	Komal	On attachment
5	7	Mary	On attachment
6	8	George	On attachment
7	9	Oscar	On attachment
8	10	Wanjiru	On attachment
9	11	Gramoh	On attachment
10	12	Oleh	On attachment
11	13	Jack	On Session
12	14	Grace	On Session
13	15	Fatso	On Session

SQL Statement:

```
SELECT Trainee_Course.TraineeID,
Trainee_Course.Name, Trainee_Course.CourseName,
Attachment.EnrollmentStatus,
Attachment.AttachmentPeriod
FROM Trainee_Course INNER JOIN Attachment ON
Trainee_Course.TraineeID = Attachment.TraineeID
WHERE Attachment.CourseName = 'Computer Science';
```

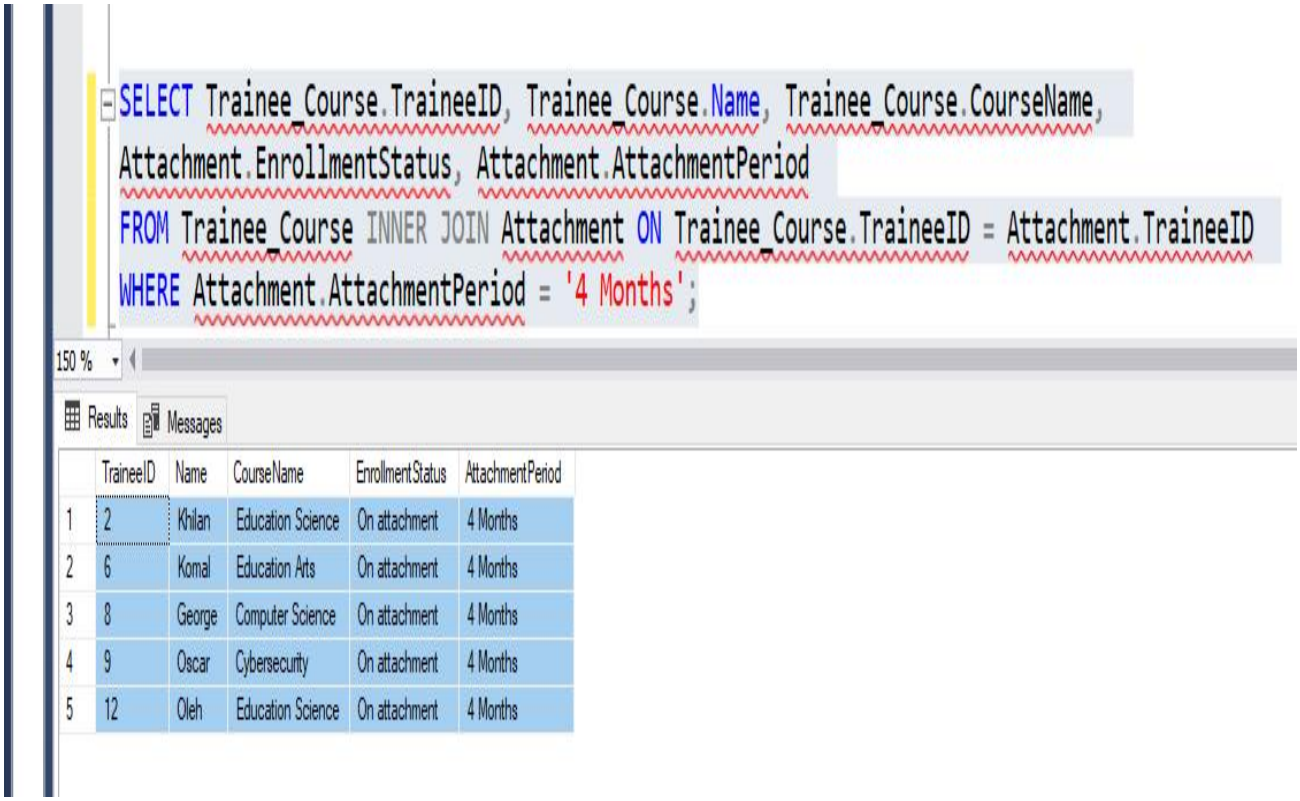
Output:



SQL Statement:

```
SELECT Trainee_Course.TraineeID,
Trainee_Course.Name, Trainee_Course.CourseName,
Attachment.EnrollmentStatus,
Attachment.AttachmentPeriod
FROM Trainee_Course INNER JOIN Attachment ON
Trainee_Course.TraineeID = Attachment.TraineeID
WHERE Attachment.AttachmentPeriod = '4 Months';
```

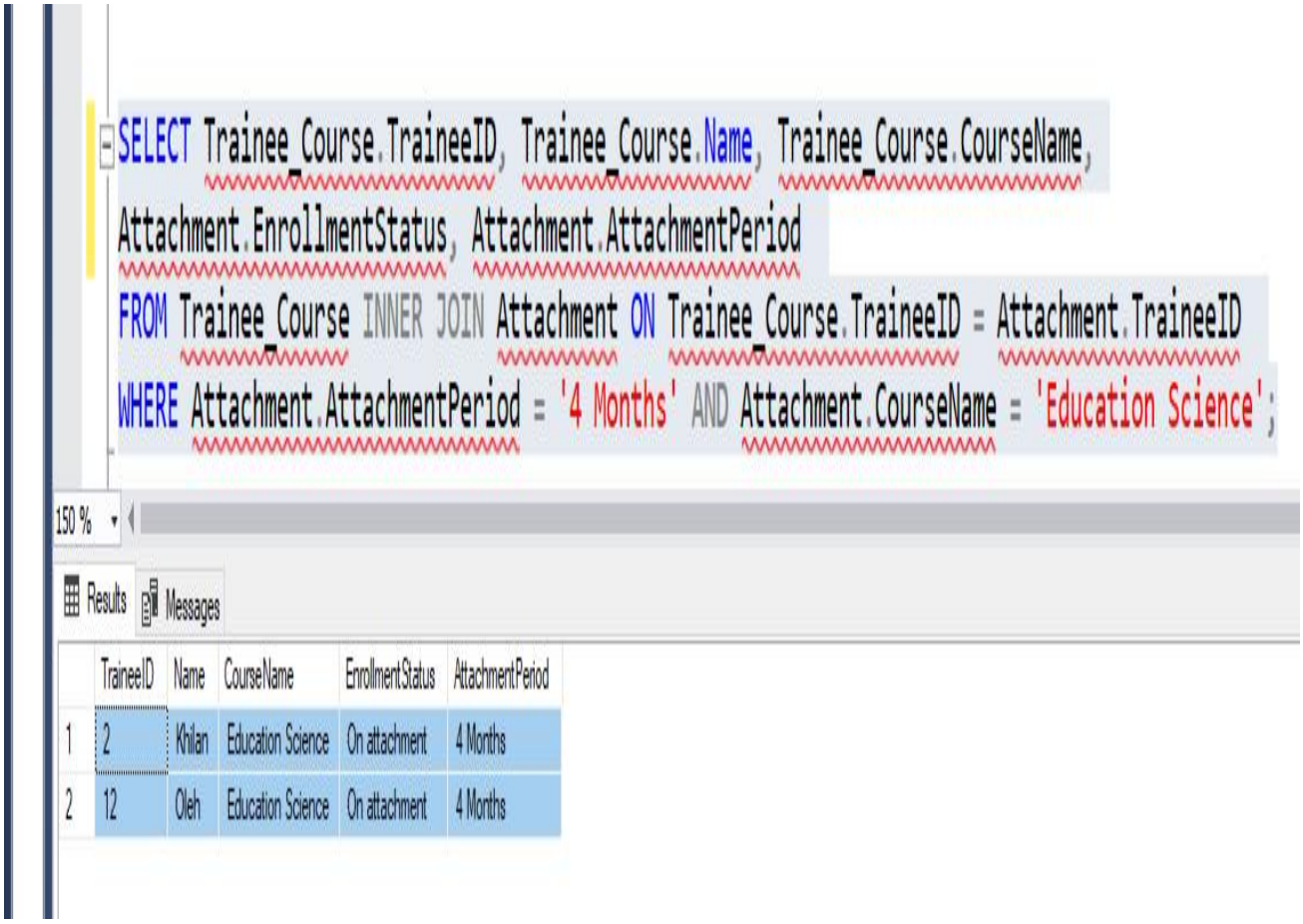
Output:



SQL Statement:

```
SELECT Trainee_Course.TraineeID,
Trainee_Course.Name, Trainee_Course.CourseName,
Attachment.EnrollmentStatus,
Attachment.AttachmentPeriod
FROM Trainee_Course INNER JOIN Attachment ON
Trainee_Course.TraineeID = Attachment.TraineeID
WHERE Attachment.AttachmentPeriod = '4 Months' AND
Attachment.CourseName = 'Education Science';
```

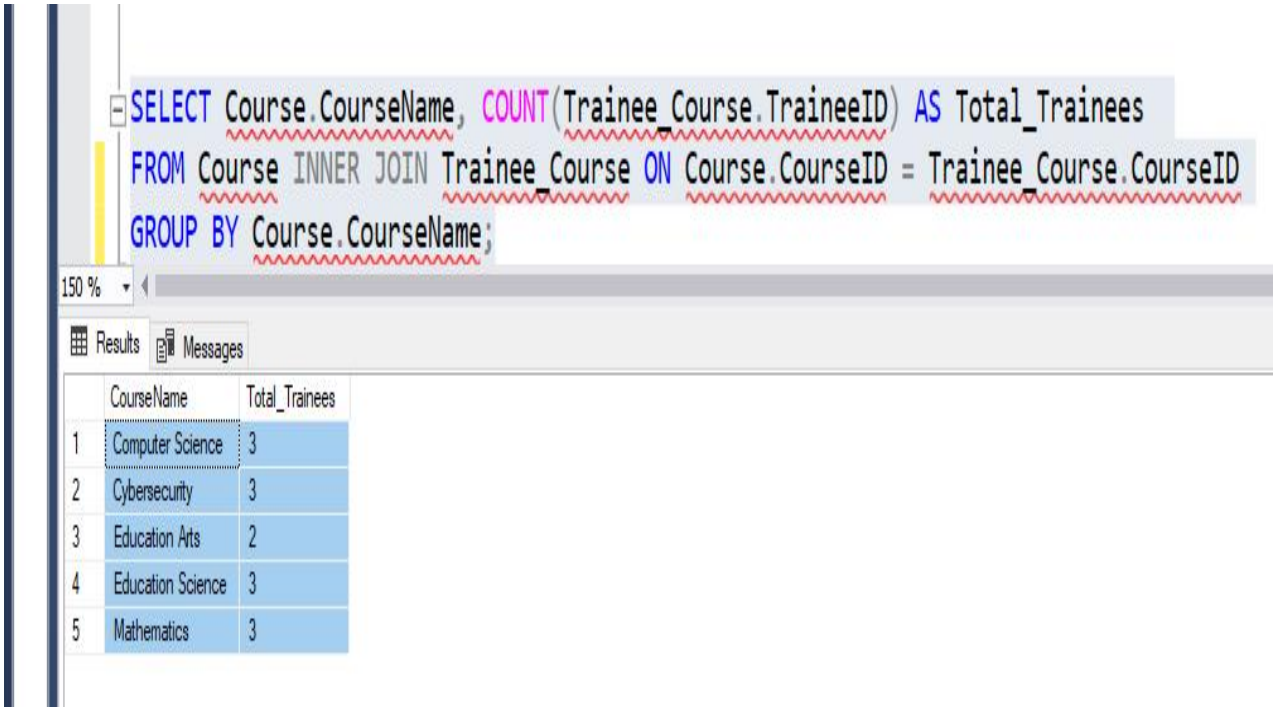
Output:



SQL Statement:

SELECT Course.CourseName,
COUNT(Trainee_Course.TraineeID) AS Total_Trainees
FROM Course INNER JOIN Trainee_Course ON
Course.CourseID = Trainee_Course.CourseID GROUP BY
Course.CourseName;

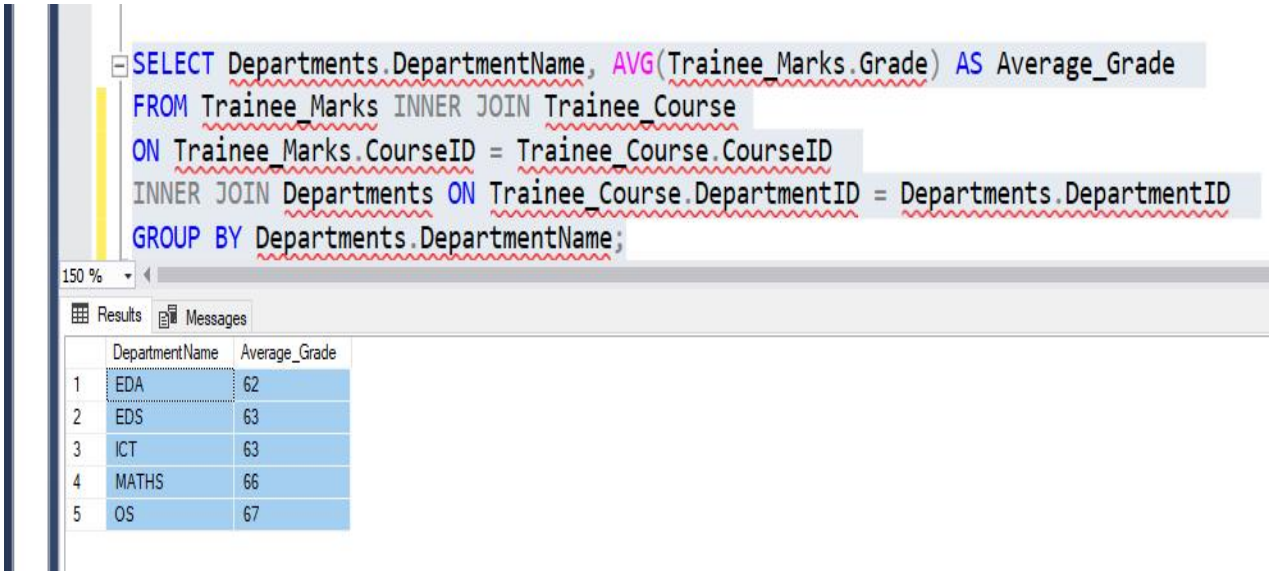
Output:



SQL Statement:

SELECT Departments.DepartmentName,
AVG(Trainee_Marks.Grade) AS Average_Grade
FROM Trainee_Marks INNER JOIN Trainee_Course ON
Trainee_Marks.CourseID = Trainee_Course.CourseID
INNER JOIN Departments ON
Trainee_Course.DepartmentID =
Departments.DepartmentID GROUP BY
Departments.DepartmentName;

Output:



SQL Statement:

SELECT Trainee_Details.Name AS Trainee_Name, Course.CourseName, SUM(Trainee_Marks.CatScore) AS Total_Marks
FROM Trainee_Marks INNER JOIN Trainee_Details ON Trainee_Marks.TraineeID = Trainee_Details.TraineeID INNER JOIN Course ON Trainee_Marks.CourseID = Course.CourseID GROUP BY Trainee_Details.Name, Course.CourseName;

Output:

```
SELECT Trainee_Details.Name AS Trainee_Name, Course.CourseName,
SUM(Trainee_Marks.CatScore) AS Total_Marks
FROM Trainee_Marks INNER JOIN Trainee_Details
ON Trainee_Marks.TraineeID = Trainee_Details.TraineeID
INNER JOIN Course ON Trainee_Marks.CourseID = Course.CourseID
GROUP BY Trainee_Details.Name, Course.CourseName;
```

150 %

Results | Messages

	Trainee_Name	CourseName	Total_Marks
1	George	Computer Science	13
2	Jane	Computer Science	15
3	Ramesh	Computer Science	16
4	Wanjiru	Computer Science	14
5	Chaitali	Cybersecurity	19
6	Mwende	Cybersecurity	12
7	Oscar	Cybersecurity	17
8	Gramoh	Education Arts	20
9	Komal	Education Arts	11
10	Khilan	Education Science	10
11	Mary	Education Science	9
12	Oleh	Education Science	15
13	Fatso	Mathematics	18
14	Grace	Mathematics	16
15	Jack	Mathematics	12

SQL Statement:

SELECT Departments.DepartmentName,
COUNT(Attachment.TraineeID) AS Total_Attachees
FROM Departments INNER JOIN Attachment ON
Departments.DepartmentID = Attachment.DepartmentID
GROUP BY Departments.DepartmentName;

Output:

```
SELECT Departments.DepartmentName,
COUNT(Attachment.TraineeID) AS Total_Attachees
FROM Departments INNER JOIN Attachment
ON Departments.DepartmentID = Attachment.DepartmentID
GROUP BY Departments.DepartmentName;
```

150 %

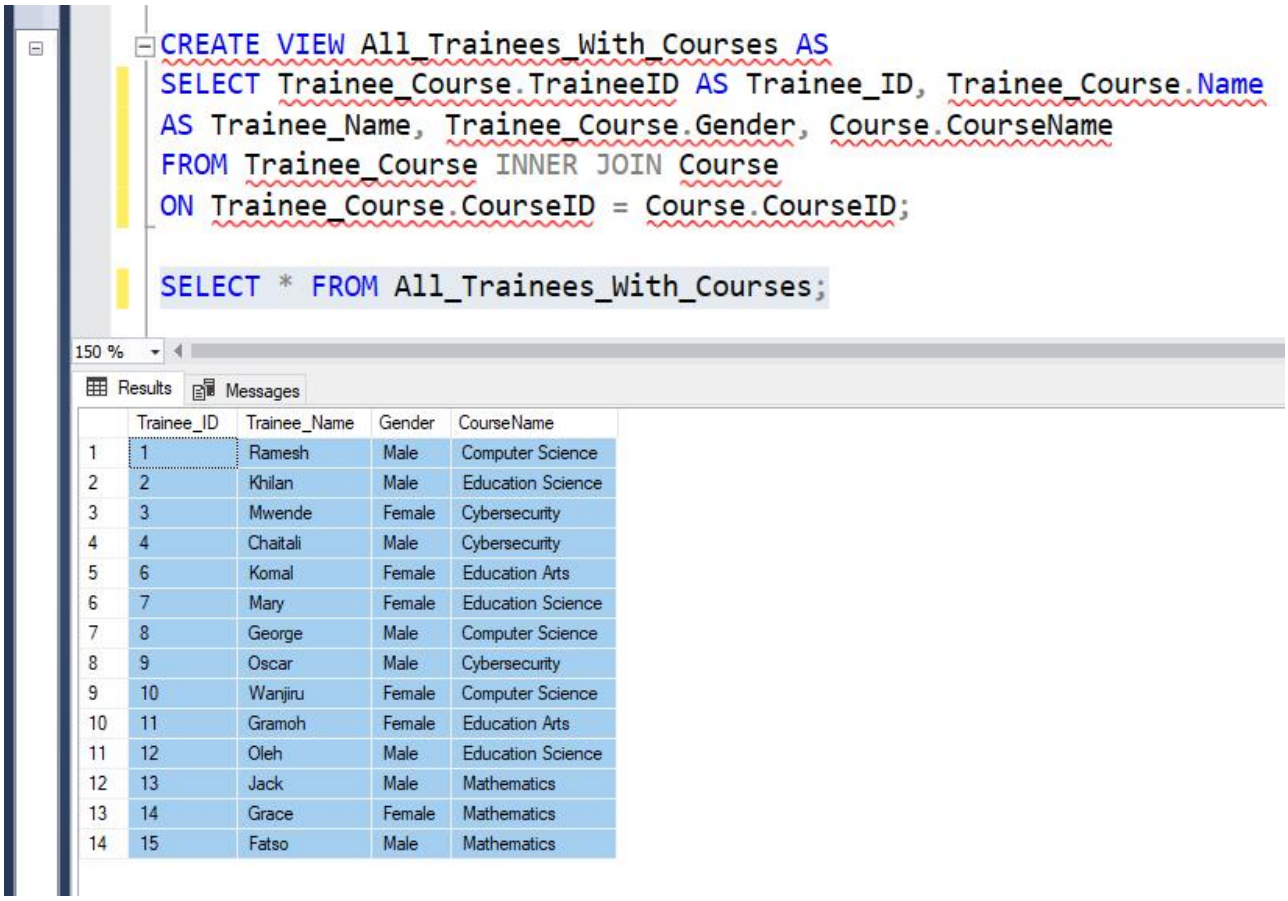
Results | Messages

	DepartmentName	Total_Attachees
1	EDA	2
2	EDS	3
3	ICT	3
4	MATHS	3
5	OS	2

SQL Statement:

```
CREATE VIEW All_Trainees_With_Courses AS
SELECT Trainee_Course.TraineeID AS Trainee_ID,
Trainee_Course.Name AS Trainee_Name,
Trainee_Course.Gender, Course.CourseName
FROM Trainee_Course INNER JOIN Course ON
Trainee_Course.CourseID = Course.CourseID;
```

Output:



```
CREATE VIEW All_Trainees_With_Courses AS
SELECT Trainee_Course.TraineeID AS Trainee_ID, Trainee_Course.Name
AS Trainee_Name, Trainee_Course.Gender, Course.CourseName
FROM Trainee_Course INNER JOIN Course
ON Trainee_Course.CourseID = Course.CourseID;

SELECT * FROM All_Trainees_With_Courses;
```

150 %

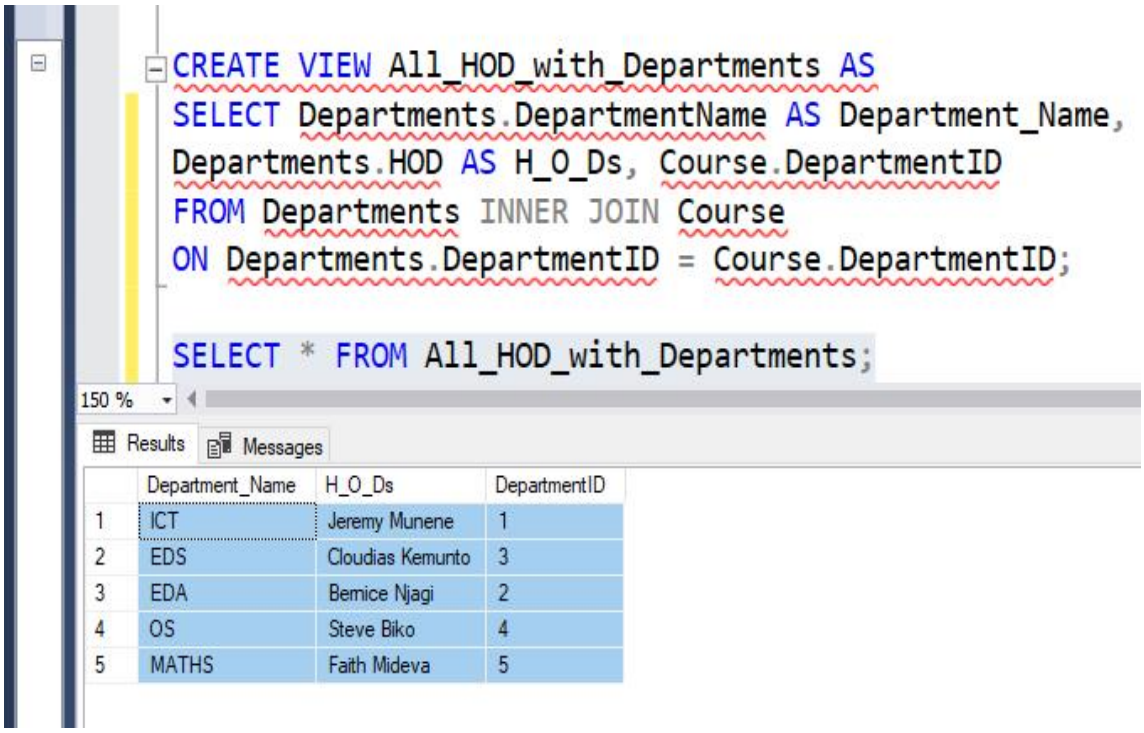
Results | Messages

	Trainee_ID	Trainee_Name	Gender	CourseName
1	1	Ramesh	Male	Computer Science
2	2	Khilan	Male	Education Science
3	3	Mwende	Female	Cybersecurity
4	4	Chaitali	Male	Cybersecurity
5	6	Komal	Female	Education Arts
6	7	Mary	Female	Education Science
7	8	George	Male	Computer Science
8	9	Oscar	Male	Cybersecurity
9	10	Wanjiru	Female	Computer Science
10	11	Gramoh	Female	Education Arts
11	12	Oleh	Male	Education Science
12	13	Jack	Male	Mathematics
13	14	Grace	Female	Mathematics
14	15	Fatso	Male	Mathematics

SQL Statement:

```
CREATE VIEW All_HOD_with_Departments AS
SELECT Departments.DepartmentName AS
Department_Name, Departments.HOD AS H_O_Ds,
Course.DepartmentID
FROM Departments INNER JOIN Course ON
Departments.DepartmentID = Course.DepartmentID;
```

Output:

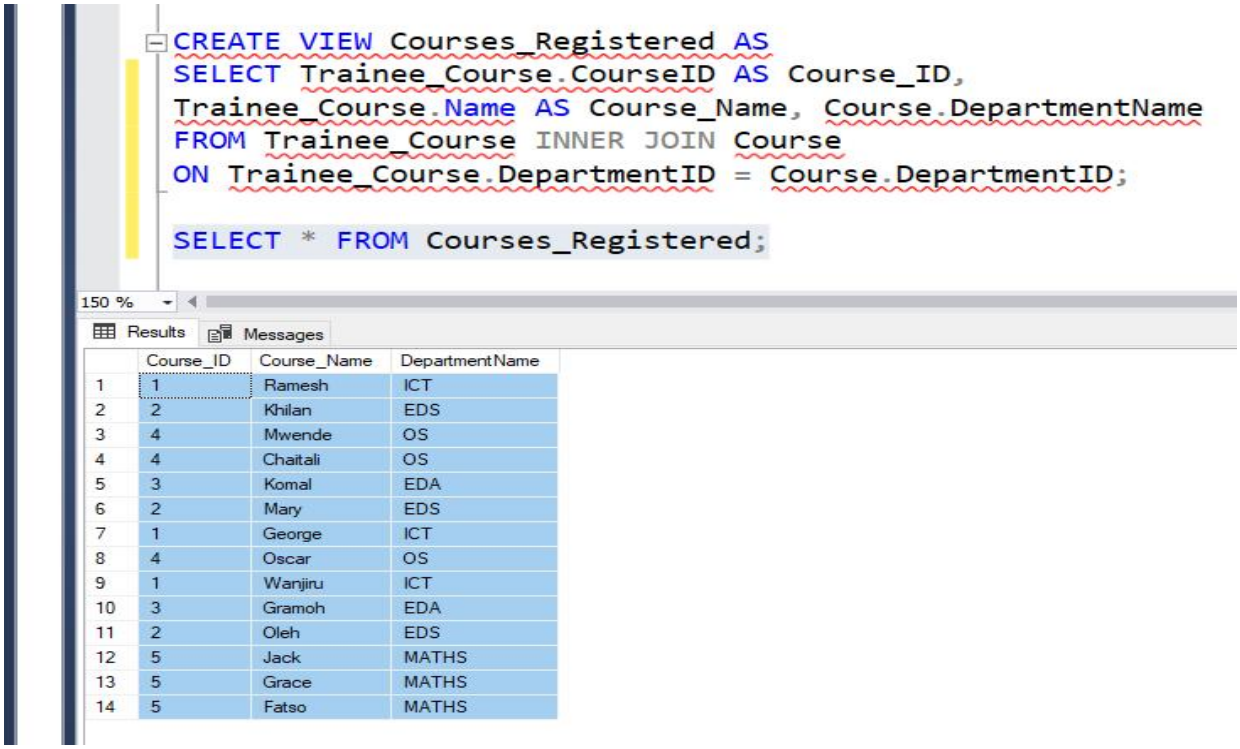


	Department_Name	H_O_Ds	DepartmentID
1	ICT	Jeremy Munene	1
2	EDS	Cloudias Kemunto	3
3	EDA	Bernice Njagi	2
4	OS	Steve Biko	4
5	MATHS	Faith Mideva	5

SQL Statement:

```
CREATE VIEW Courses_Registered AS
SELECT Trainee_Course.CourseID AS Course_ID,
Trainee_Course.Name AS Course_Name,
Course.DepartmentName
FROM Trainee_Course INNER JOIN Course ON
Trainee_Course.DepartmentID = Course.DepartmentID;
```

Output:

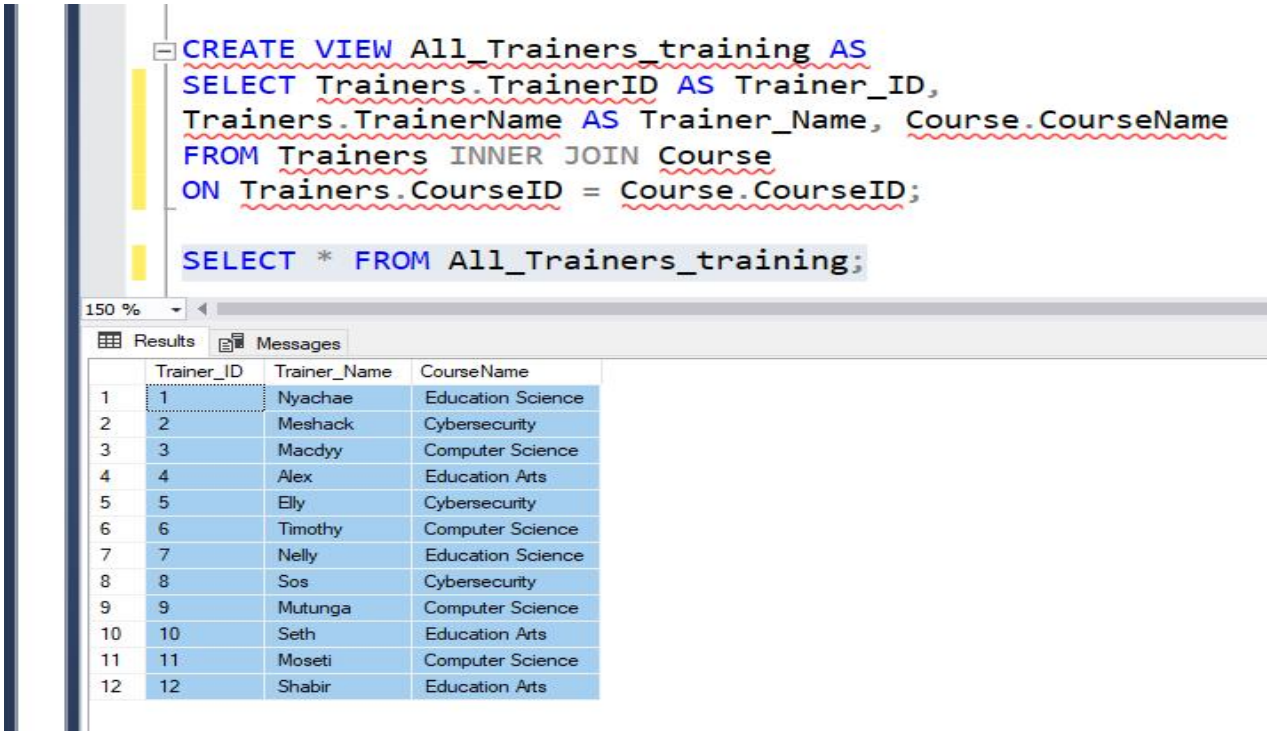


	Course_ID	Course_Name	DepartmentName
1	1	Ramesh	ICT
2	2	Khilan	EDS
3	4	Mwende	OS
4	4	Chaitali	OS
5	3	Komal	EDA
6	2	Mary	EDS
7	1	George	ICT
8	4	Oscar	OS
9	1	Wanjiru	ICT
10	3	Gramoh	EDA
11	2	Oleh	EDS
12	5	Jack	MATHS
13	5	Grace	MATHS
14	5	Fatso	MATHS

SQL Statement:

CREATE VIEW All_Trainers_training AS
SELECT Trainers.TrainerID AS Trainer_ID,
Trainers.TrainerName AS Trainer_Name,
Course.CourseName
FROM Trainers INNER JOIN Course ON
Trainers.CourseID = Course.CourseID;

Output:



```
CREATE VIEW All_Trainers_training AS
SELECT Trainers.TrainerID AS Trainer_ID,
Trainers.TrainerName AS Trainer_Name, Course.CourseName
FROM Trainers INNER JOIN Course
ON Trainers.CourseID = Course.CourseID;

SELECT * FROM All_Trainers_training;
```

150 %

Results | Messages

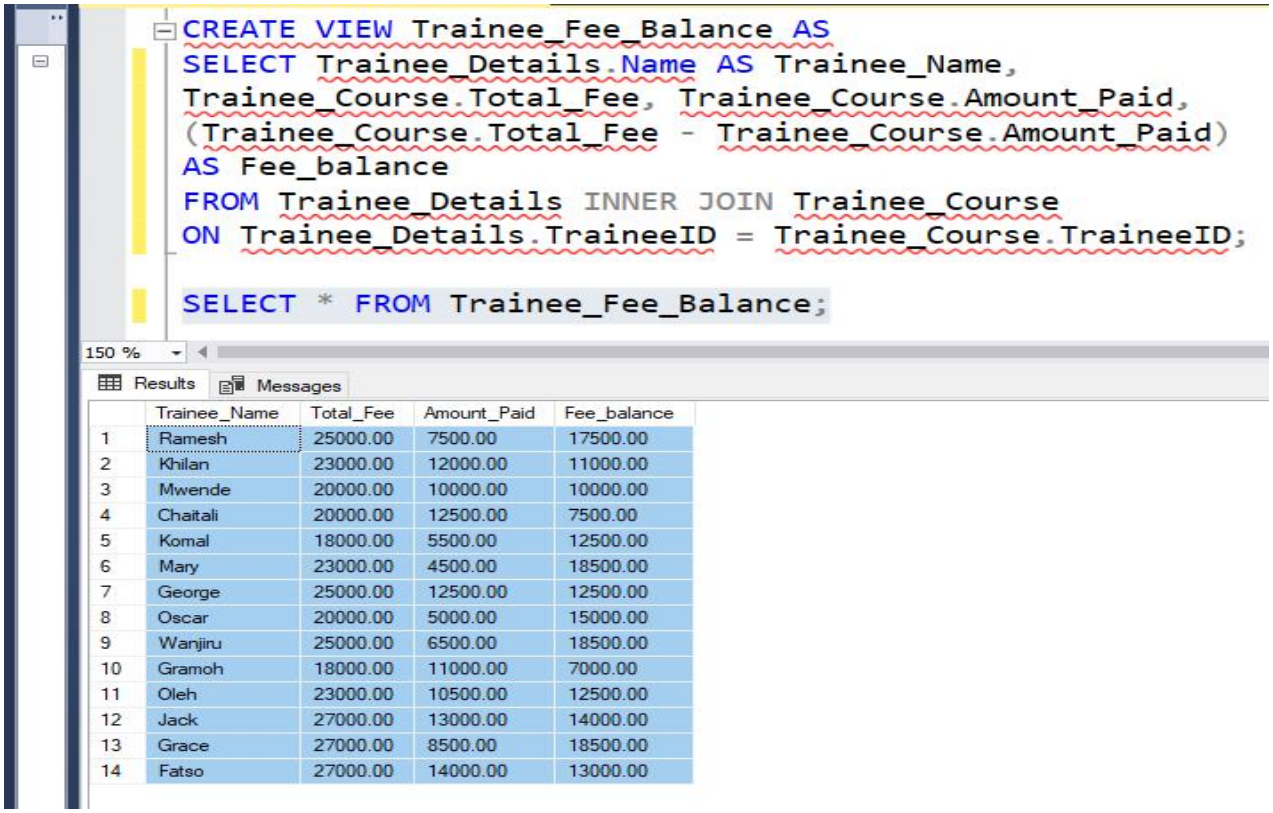
	Trainer_ID	Trainer_Name	CourseName
1	1	Nyachae	Education Science
2	2	Meshack	Cybersecurity
3	3	Macdyy	Computer Science
4	4	Alex	Education Arts
5	5	Elly	Cybersecurity
6	6	Timothy	Computer Science
7	7	Nelly	Education Science
8	8	Sos	Cybersecurity
9	9	Mutunga	Computer Science
10	10	Seth	Education Arts
11	11	Moseti	Computer Science
12	12	Shabir	Education Arts

CREATE VIEW Trainee_Grade AS
SELECT Trainee_Course.Name AS Trainee_Name,
Trainee_Course.Gender AS Trainee_Gender,
Trainee_Marks.Grade
FROM Trainee_Course INNER JOIN Trainee_Marks ON
Trainee_Course.CourseID = Trainee_Marks.CourseID;

SQL Statement:

CREATE VIEW Trainee_Fee_Balance AS
SELECT Trainee_Details.Name AS Trainee_Name,
Trainee_Course.Total_Fee,
Trainee_Course.Amount_Paid,
(Trainee_Course.Total_Fee -
Trainee_Course.Amount_Paid) AS Fee_balance
FROM Trainee_Details INNER JOIN Trainee_Course ON
Trainee_Details.TraineeID = Trainee_Course.TraineeID;

Output:



```
CREATE VIEW Trainee_Fee_Balance AS
SELECT Trainee_Details.Name AS Trainee_Name,
Trainee_Course.Total_Fee, Trainee_Course.Amount_Paid,
(Trainee_Course.Total_Fee - Trainee_Course.Amount_Paid)
AS Fee_balance
FROM Trainee_Details INNER JOIN Trainee_Course
ON Trainee_Details.TraineeID = Trainee_Course.TraineeID;

SELECT * FROM Trainee_Fee_Balance;
```

150 %

Results | Messages

	Trainee_Name	Total_Fee	Amount_Paid	Fee_balance
1	Ramesh	25000.00	7500.00	17500.00
2	Khilan	23000.00	12000.00	11000.00
3	Mwende	20000.00	10000.00	10000.00
4	Chaitali	20000.00	12500.00	7500.00
5	Komal	18000.00	5500.00	12500.00
6	Mary	23000.00	4500.00	18500.00
7	George	25000.00	12500.00	12500.00
8	Oscar	20000.00	5000.00	15000.00
9	Wanjiru	25000.00	6500.00	18500.00
10	Gramoh	18000.00	11000.00	7000.00
11	Oleh	23000.00	10500.00	12500.00
12	Jack	27000.00	13000.00	14000.00
13	Grace	27000.00	8500.00	18500.00
14	Fatso	27000.00	14000.00	13000.00

SQL Statement:

CREATE VIEW View_Exam_department AS
SELECT Departments.DepartmentName,
Trainee_Marks.Grade
FROM Trainee_Marks INNER JOIN Course ON
Trainee_Marks.CourseID = Course.CourseID INNER
JOIN Departments ON Course.DepartmentID =
Departments.DepartmentID;

Output:

```
CREATE VIEW View_Exam_department AS
SELECT Departments.DepartmentName, Trainee_Marks.Grade
FROM Trainee_Marks INNER JOIN Course
ON Trainee_Marks.CourseID = Course.CourseID INNER JOIN Departments
ON Course.DepartmentID = Departments.DepartmentID;

SELECT * FROM View_Exam_department;
```

150 %

Results | Messages

	DepartmentName	Grade
1	ICT	71
2	EDS	60
3	OS	57
4	OS	78
5	ICT	50
6	EDA	60
7	EDS	64
8	ICT	67
9	OS	67
10	ICT	67
11	EDA	65
12	EDS	65
13	MATHS	65
14	MATHS	60
15	MATHS	75

SQL Statement:

CREATE VIEW Tainees_On_Attachment AS
SELECT Trainee_Details.Name AS Trainee_Name,
Trainee_Details.Gender AS Trainee_Gender,
Attachment.EnrollmentStatus
FROM Trainee_Details INNER JOIN Attachment ON
Trainee_Details.TraineeID = Attachment.TraineeID;

Output:

```
CREATE VIEW Trainees_On_Attachment AS
SELECT Trainee_Details.Name AS Trainee_Name,
Trainee_Details.Gender AS Trainee_Gender, Attachment.EnrollmentStatus
FROM Trainee_Details INNER JOIN Attachment
ON Trainee_Details.TraineeID = Attachment.TraineeID;

SELECT * FROM Trainees_on_Attachment;
```

150 %

Results | Messages

	Trainee_Name	Trainee_Gender	EnrollmentStatus
1	Ramesh	Male	On attachment
2	Khilan	Male	On attachment
3	Chaitali	Male	On attachment
4	Komal	Female	On attachment
5	Mary	Female	On attachment
6	George	Male	On attachment
7	Oscar	Male	On attachment
8	Wanjiru	Female	On attachment
9	Gramoh	Female	On attachment
10	Oleh	Male	On attachment
11	Jack	Male	On Session
12	Grace	Female	On Session
13	Fatso	Male	On Session

DROP VIEW All_Trainees_With_Courses;

DROP VIEW All_HOD_with_Departments;

TASK 7: Compiling Project

Commenting all SQL scripts to Explain the purpose of each statement.

SQL Statement	Purpose
CREATE TABLE	Syntax used to create a table in a database.
INSERT INTO	Used to insert data into database tables.
SELECT	Used to retrieve the result of the stored data from a database table.
UPDATE	Used to update data in a table without having the need to delete it .
DELETE	Used to delete certain parts of data in a table without deleting the entire table.
DROP TABLE	Used to delete the entire table when it is no-longer needed.
ALTER TABLE	Used to alter the structure of a table, can Add, Rename, Modify or Change a column or Data Type in a table.
WHERE Clause	Used to filter rows from a table by applying a condition.
AND / OR Operators	Used to apply multiple conditions in the where clause.
LIKE Clause	Used to retrieve the values from a table that match a certain pattern using WHERE Clause.
ORDER BY Clause	Used to arrange the column values in a given / Specified order.
GROUP BY Clause	Used to group the values of a column together.
COUNT Function	Gives the number of Non-Null values present in the specified column.
AVG	Gives the average of Non-Null values present.

CREATE VIEW	Used to create views in a database tables.
DROP VIEW	Used to delete the entire view created in a table.
JOIN	Used to join data from different tables in a database.