ASSIGNMENT 1

a)

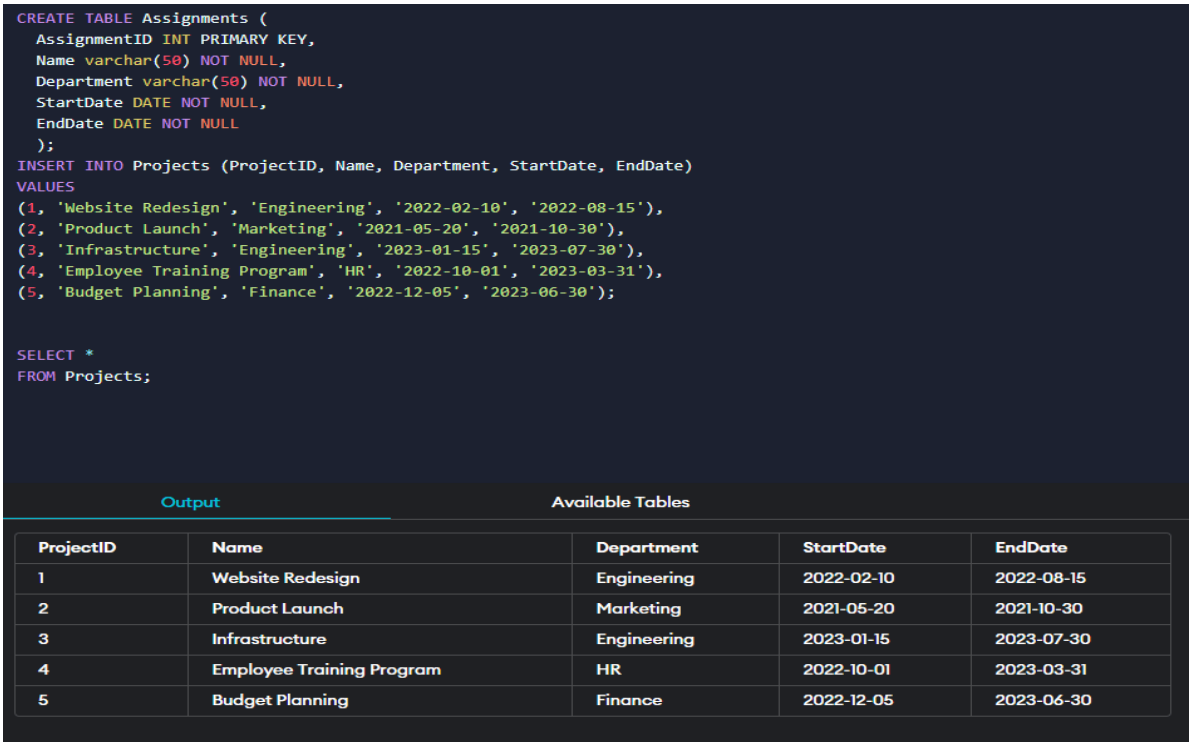
```
CREATE TABLE Employees (
  EmployeeID INT PRIMARY KEY,
  Name varchar(50) NOT NULL,
  Department varchar(50) NOT NULL,
  Salary DECIMAL(10,2),
  HireDate DATE NOT NULL
  );
INSERT INTO Employees (EmployeeID, Name, Department, Salary, HireDate)
VALUES
(1,'John Doe', 'Engineering', 60000, '2022-01-05'),
(2,'Alice Smith', 'Marketing', 55000, '2021-03-12'),
(3, 'Bob Johnson', 'Engineering', 65000, '2023-05-20'),
(4, 'Sarah Williams', 'HR', 50000, '2022-09-10'),
(5, 'Michael Brown', 'Finance', 70000, '2021-11-15');
```

```
SELECT *
FROM Employees;
```

Output | Available Tables

EmployeeID	Name	Department	Salary	HireDate
1	John Doe	Engineering	60000	2022-01-05
2	Alice Smith	Marketing	55000	2021-03-12
3	Bob Johnson	Engineering	65000	2023-05-20
4	Sarah Williams	HR	50000	2022-09-10
5	Michael Brown	Finance	70000	2021-11-15

```
CREATE TABLE Projects (
  ProjectID INT PRIMARY KEY,
  Name varchar(50) NOT NULL,
  Department varchar(50) NOT NULL,
  StartDate DATE NOT NULL,
  EndDate DATE NOT NULL
  );
INSERT INTO Projects (ProjectID, Name, Department, StartDate, EndDate)
VALUES
(1, 'Website Redesign', 'Engineering', '2022-02-10', '2022-08-15'),
(2, 'Product Launch', 'Marketing', '2021-05-20', '2021-10-30'),
(3, 'Infrastructure', 'Engineering', '2023-01-15', '2023-07-30'),
(4, 'Employee Training Program', 'HR', '2022-10-01', '2023-03-31'),
(5, 'Budget Planning', 'Finance', '2022-12-05', '2023-06-30');
```

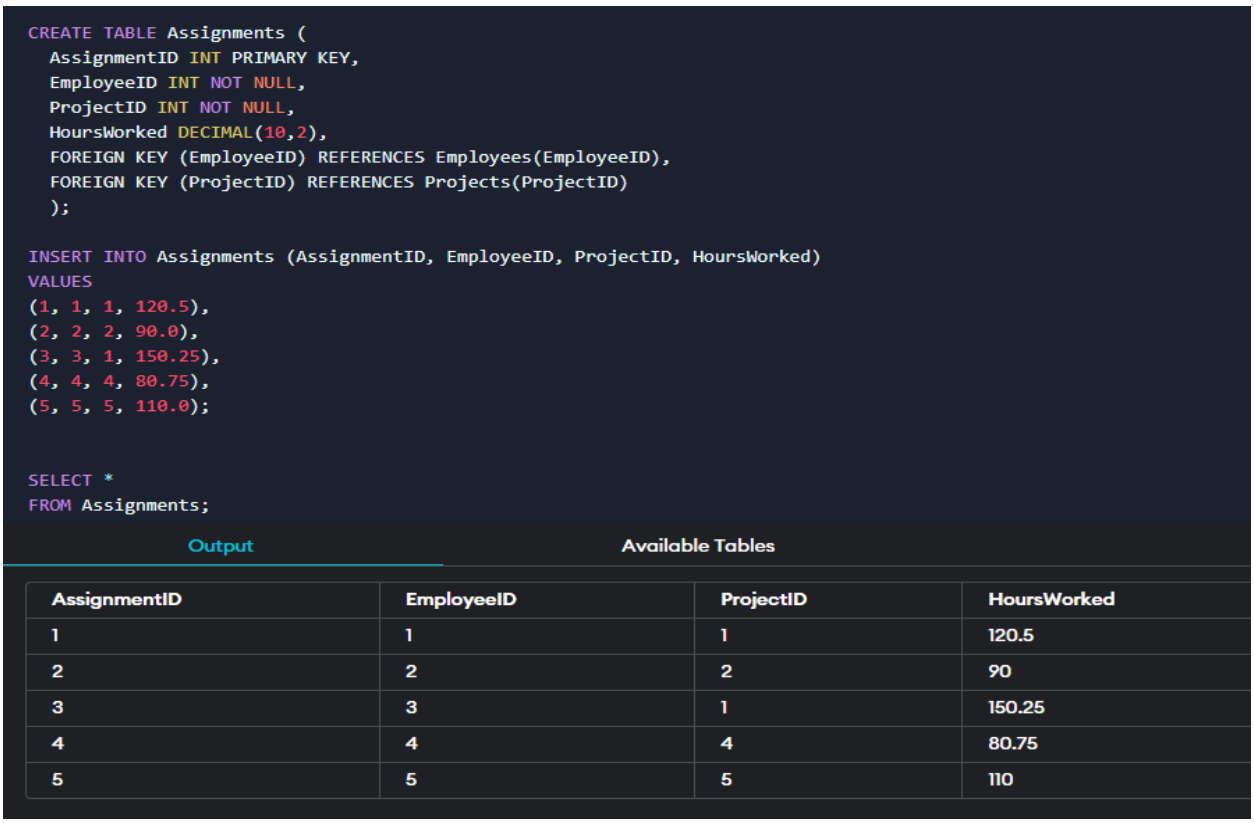


```
CREATE TABLE Assignments (
  AssignmentID INT PRIMARY KEY,
  Name varchar(50) NOT NULL,
  Department varchar(50) NOT NULL,
  StartDate DATE NOT NULL,
  EndDate DATE NOT NULL
  );
INSERT INTO Projects (ProjectID, Name, Department, StartDate, EndDate)
VALUES
(1, 'Website Redesign', 'Engineering', '2022-02-10', '2022-08-15'),
(2, 'Product Launch', 'Marketing', '2021-05-20', '2021-10-30'),
(3, 'Infrastructure', 'Engineering', '2023-01-15', '2023-07-30'),
(4, 'Employee Training Program', 'HR', '2022-10-01', '2023-03-31'),
(5, 'Budget Planning', 'Finance', '2022-12-05', '2023-06-30');


SELECT *
FROM Projects;
```

Output | Available Tables

ProjectID	Name	Department	StartDate	EndDate
1	Website Redesign	Engineering	2022-02-10	2022-08-15
2	Product Launch	Marketing	2021-05-20	2021-10-30
3	Infrastructure	Engineering	2023-01-15	2023-07-30
4	Employee Training Program	HR	2022-10-01	2023-03-31
5	Budget Planning	Finance	2022-12-05	2023-06-30

```
CREATE TABLE Assignments (
  AssignmentID INT PRIMARY KEY,
  EmployeeID INT NOT NULL,
  ProjectID INT NOT NULL,
  HoursWorked DECIMAL(10,2),
  FOREIGN KEY (EmployeeID) REFERENCES Employees(EmployeeID),
  FOREIGN KEY (ProjectID) REFERENCES Projects(ProjectID)
  );

INSERT INTO Assignments (AssignmentID, EmployeeID, ProjectID, HoursWorked)
VALUES
(1, 1, 1, 120.5),
(2, 2, 2, 90.0),
(3, 3, 1, 150.25),
(4, 4, 4, 80.75),
(5, 5, 5, 110.0);
```



```
SELECT *
FROM Assignments;
```

Output | Available Tables

AssignmentID	EmployeeID	ProjectID	HoursWorked
1	1	1	120.5
2	2	2	90
3	3	1	150.25
4	4	4	80.75
5	5	5	110

b)

SELECT e.Name,a.HoursWorked

FROM Employees e

JOIN Assignments a ON e.EmployeeID=a.EmployeeID;

```
SELECT e.Name,a.HoursWorked
FROM Employees e
JOIN Assignments a ON e.EmployeeID=a.EmployeeID;
```

Output | Available Tables

Name	HoursWorked
John Doe	120.5
Alice Smith	90
Bob Johnson	150.25
Sarah Williams	80.75
Michael Brown	110

c)

SELECT Department, AVG(Salary) AS DepartmentAVGSalary

FROM Employees

GROUP BY Department;

```
SELECT Department, AVG(Salary) AS DepartmentAVGSalary
FROM   Employees
GROUP BY Department;
```

Output | Available Tables

Department	DepartmentAVGSalary
Engineering	62500
Finance	70000
HR	50000
Marketing	55000

d)

SELECT p.Name, MAX(a.HoursWorked) AS MaxedHoursWorked

FROM Assignments a

JOIN Projects p ON a.ProjectID = p.ProjectID

GROUP BY p.Name;

```
SELECT p.Name, MAX(a.HoursWorked) AS MaxedHoursWorked
FROM Assignments a
JOIN Projects p ON a.ProjectID = p.ProjectID
GROUP BY p.Name;
```

Output | Available Tables

Name	MaxedHoursWorked
Budget Planning	110
Employee Training Program	80.75
Product Launch	90
Website Redesign	150.25

e)

SELECT Name, Department

FROM Employees

WHERE Department = 'Engineering';

```
SELECT Name, Department
FROM Employees
WHERE Department = 'Engineering';
```

Output | Available Tables

Name	Department
John Doe	Engineering
Bob Johnson	Engineering

f)

SELECT StartDate, Name

FROM Projects

WHERE StartDate > '2022-01-01';

```
SELECT StartDate, Name
FROM Projects
WHERE StartDate > '2022-01-01';
```

Output | Available Tables

StartDate	Name
2022-02-10	Website Redesign
2023-01-15	Infrastructure
2022-10-01	Employee Training Program
2022-12-05	Budget Planning

g)

SELECT AssignmentID, EmployeeID, ProjectID, HoursWorked

FROM Assignments

WHERE HoursWorked > 100;

```
SELECT AssignmentID, EmployeeID, ProjectID, HoursWorked
FROM Assignments
WHERE HoursWorked > 100;
```

Output | Available Tables

AssignmentID	EmployeeID	ProjectID	HoursWorked
1	1	1	120.5
3	3	1	150.25
5	5	5	110

h)

SELECT e.Name AS EmployeeName, p.Name AS ProjectName, a.HoursWorked

FROM Assignments a

JOIN Employees e ON e.EmployeeID = a.EmployeeID

JOIN Projects p ON p.ProjectID = a.ProjectID

GROUP BY e.Name, p.Name;

```
SELECT e.Name AS EmployeeName, p.Name AS ProjectName, a.HoursWorked
FROM Assignments a
JOIN Employees e ON e.EmployeeID = a.EmployeeID
JOIN Projects p ON p.ProjectID = a.ProjectID
GROUP BY e.Name, p.Name;
```

Output | Available Tables

EmployeeName	ProjectName	HoursWorked
Alice Smith	Product Launch	90
Bob Johnson	Website Redesign	150.25
John Doe	Website Redesign	120.5
Michael Brown	Budget Planning	110
Sarah Williams	Employee Training Program	80.75

i)

SELECT *

FROM Employees

ORDER BY Salary DESC LIMIT 3;

```
SELECT *
FROM Employees
ORDER BY Salary DESC LIMIT 3;
```

Output | Available Tables

EmployeeID	Name	Department	Salary	HireDate
5	Michael Brown	Finance	70000	2021-11-15
3	Bob Johnson	Engineering	65000	2023-05-20
1	John Doe	Engineering	60000	2022-01-05

j)

SELECT e.Name AS EmployeeName, p.Name AS ProjectName, a.HoursWorked

FROM Assignments a

JOIN Employees e ON e.EmployeeID = a.EmployeeID

JOIN Projects p ON p.ProjectID = a.ProjectID

WHERE a.HoursWorked > 100 AND p.Name NOT LIKE 'P%';

```
SELECT e.Name AS EmployeeName, p.Name AS ProjectName, a.HoursWorked
FROM Assignments a
JOIN Employees e ON e.EmployeeID = a.EmployeeID
JOIN Projects p ON p.ProjectID = a.ProjectID
WHERE a.HoursWorked > 100 AND p.Name NOT LIKE 'P%';
```

Output | Available Tables

EmployeeName	ProjectName	HoursWorked
John Doe	Website Redesign	120.5
Bob Johnson	Website Redesign	150.25
Michael Brown	Budget Planning	110

k)

SELECT Department, AVG(Salary) AS DepartmentAVGSalary

FROM Employees

GROUP BY Department

HAVING AVG(Salary) > (SELECT SUM(Salary) / COUNT(Salary) AS CompanyAVGSalary FROM Employees);

```
SELECT Department, AVG(Salary) AS DepartmentAVGSalary
FROM   Employees
GROUP BY Department
HAVING AVG(Salary) > (SELECT SUM(Salary) / COUNT(Salary) AS CompanyAVGSalary FROM Employees);
```

Output | Available Tables

Department	DepartmentAVGSalary
Engineering	62500
Finance	70000

I)

SELECT e.Name, p.StartDate, p.EndDate

FROM Projects p

JOIN Employees e ON e.Department = p.Department

WHERE p.StartDate > '2023-01-01' AND EndDate < '2023-12-31';

```
SELECT e.Name, p.StartDate, p.EndDate
FROM   Projects p
JOIN Employees e ON e.Department = p.Department
WHERE p.StartDate > '2023-01-01' AND EndDate < '2023-12-31';
```

Output | Available Tables

Name	StartDate	EndDate
Bob Johnson	2023-01-15	2023-07-30
John Doe	2023-01-15	2023-07-30

m)

SELECT e.Name AS EmployeeName, p.Name AS ProjectName, a.HoursWorked

FROM Assignments a

JOIN Employees e ON e.EmployeeID = a.EmployeeID

JOIN Projects p ON p.ProjectID = p.ProjectID

```
SELECT e.Name AS EmployeeName, p.Name AS ProjectName, a.HoursWorked
FROM Assignments a
JOIN Employees e ON e.EmployeeID = a.EmployeeID
JOIN Projects p ON p.ProjectID = p.ProjectID
WHERE e.Name LIKE '%a%' AND p.Name LIKE 'P%';
```

Output | Available Tables

EmployeeName	ProjectName	HoursWorked
Alice Smith	Product Launch	90
Sarah Williams	Product Launch	80.75
Michael Brown	Product Launch	110

WHERE e.Name LIKE '%a%' AND p.Name LIKE 'P%';