

```
mysql> create table Employees(EmployeeID int primary key auto_increment,Name varchar(100),
-> Email varchar(100)unique,HireDate,DepartmentID int, foreign key(DepartmentID)references Departments(DepartmentID));
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '
,DepartmentID int, foreign key(DepartmentID)references Departments(DepartmentID)' at line 2
mysql> CREATE TABLE Employees (
-> EmployeeID INT PRIMARY KEY AUTO_INCREMENT,
-> Name VARCHAR(100),
-> Email VARCHAR(100) UNIQUE,
-> HireDate DATE,
-> DepartmentID INT,
-> FOREIGN KEY (DepartmentID) REFERENCES Departments(DepartmentID)
-> );
Query OK, 0 rows affected (1.700 sec)

mysql> CREATE TABLE Salaries (
-> SalaryID INT PRIMARY KEY AUTO_INCREMENT,
-> EmployeeID INT UNIQUE,
-> BasicSalary DECIMAL(10, 2),
-> Bonus DECIMAL(10, 2),
-> FOREIGN KEY (EmployeeID) REFERENCES Employees(EmployeeID)
-> );
Query OK, 0 rows affected (1.544 sec)

mysql> CREATE TABLE LeaveRequests (
-> RequestID INT PRIMARY KEY AUTO_INCREMENT,
-> EmployeeID INT,
-> StartDate DATE,
-> EndDate DATE,
-> Reason TEXT,
-> Status ENUM('Pending', 'Approved', 'Rejected'),
-> FOREIGN KEY (EmployeeID) REFERENCES Employees(EmployeeID)
-> );
Query OK, 0 rows affected (0.956 sec)

mysql> CREATE TABLE Evaluations (
-> EvaluationID INT PRIMARY KEY AUTO_INCREMENT,
-> EmployeeID INT,
-> EvalDate DATE,
-> Score INT CHECK (Score BETWEEN 1 AND 10),
-> Comment TEXT,
-> FOREIGN KEY (EmployeeID) REFERENCES Employees(EmployeeID)
-> );
Query OK, 0 rows affected (0.719 sec)

mysql> INSERT INTO Employees (EmployeeID, Name, Email, HireDate, DepartmentID) VALUES
```

```
mysql> INSERT INTO Employees (EmployeeID, Name, Email, HireDate, DepartmentID) VALUES
```

```
-> (201, 'Ali Hassan', 'ali.hassan@example.com', '2022-03-15', 1),
-> (202, 'Mona Saeed', 'mona.saeed@example.com', '2021-07-20', 2),
-> (203, 'Ahmed Nabil', 'ahmed.nabil@example.com', '2020-05-10', 3),
-> (204, 'Sara Mostafa', 'sara.mostafa@example.com', '2022-12-01', 1),
-> (205, 'Youssef Adel', 'youssef.adel@example.com', '2023-01-25', 2),
-> (206, 'Nour Magdy', 'nour.magdy@example.com', '2021-04-14', 3),
-> (207, 'Khaled Yassin', 'khaled.yassin@example.com', '2020-09-30', 2),
-> (208, 'Rana Sherif', 'rana.sherif@example.com', '2022-08-19', 1),
-> (209, 'Hany Fathy', 'hany.fathy@example.com', '2023-03-22', 3),
-> (210, 'Laila Amr', 'laila.amr@example.com', '2021-11-11', 2),
-> (211, 'Tamer Helmy', 'tamer.helmy@example.com', '2020-02-05', 3),
-> (212, 'Farida Ayman', 'farida.ayman@example.com', '2023-06-18', 1),
-> (213, 'Mahmoud Salah', 'mahmoud.salah@example.com', '2022-07-07', 2),
-> (214, 'Heba Zaki', 'heba.zaki@example.com', '2023-09-09', 1),
-> (215, 'Omar Reda', 'omar.reda@example.com', '2024-01-01', 3);
```

```
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails (`hr_management`.`employees`, CONSTRAINT `employees_ibfk_1` FOREIGN KEY (`DepartmentID`) REFERENCES `departments` (`DepartmentID`))
```

```
mysql> INSERT INTO Departments (DepartmentID, Name) VALUES
```

```
-> (1, 'HR'),
-> (2, 'IT'),
-> (3, 'Finance'),
-> (4, 'Marketing'),
-> (5, 'Operations');
```

```
Query OK, 5 rows affected (0.479 sec)
```

```
Records: 5 Duplicates: 0 Warnings: 0
```

```
mysql> INSERT INTO Employees (EmployeeID, Name, Email, HireDate, DepartmentID) VALUES
```

```
-> (201, 'Ali Hassan', 'ali.hassan@example.com', '2022-03-15', 1),
-> (202, 'Mona Saeed', 'mona.saeed@example.com', '2021-07-20', 2),
-> (203, 'Ahmed Nabil', 'ahmed.nabil@example.com', '2020-05-10', 3),
-> (204, 'Sara Mostafa', 'sara.mostafa@example.com', '2022-12-01', 1),
-> (205, 'Youssef Adel', 'youssef.adel@example.com', '2023-01-25', 2),
-> (206, 'Nour Magdy', 'nour.magdy@example.com', '2021-04-14', 3),
-> (207, 'Khaled Yassin', 'khaled.yassin@example.com', '2020-09-30', 2),
-> (208, 'Rana Sherif', 'rana.sherif@example.com', '2022-08-19', 1),
-> (209, 'Hany Fathy', 'hany.fathy@example.com', '2023-03-22', 3),
-> (210, 'Laila Amr', 'laila.amr@example.com', '2021-11-11', 2),
-> (211, 'Tamer Helmy', 'tamer.helmy@example.com', '2020-02-05', 3),
-> (212, 'Farida Ayman', 'farida.ayman@example.com', '2023-06-18', 1),
-> (213, 'Mahmoud Salah', 'mahmoud.salah@example.com', '2022-07-07', 2),
-> (214, 'Heba Zaki', 'heba.zaki@example.com', '2023-09-09', 1),
-> (215, 'Omar Reda', 'omar.reda@example.com', '2024-01-01', 3);
```

```
Query OK, 15 rows affected (0.114 sec)
```

```
Records: 15 Duplicates: 0 Warnings: 0
```



```
mysql> INSERT INTO Salaries (SalaryID, EmployeeID, BasicSalary, Bonus) VALUES
```

```
-> (1, 201, 5000, 200),  
-> (2, 202, 6000, 300),  
-> (3, 203, 5500, 250),  
-> (4, 204, 5800, 270),  
-> (5, 205, 6200, 400),  
-> (6, 206, 5300, 150),  
-> (7, 207, 5100, 100),  
-> (8, 208, 4950, 120),  
-> (9, 209, 7000, 500),  
-> (10, 210, 6700, 350),  
-> (11, 211, 5600, 180),  
-> (12, 212, 5250, 130),  
-> (13, 213, 6100, 300),  
-> (14, 214, 4800, 100),  
-> (15, 215, 7500, 600);
```

Query OK, 15 rows affected (0.170 sec)

Records: 15 Duplicates: 0 Warnings: 0

```
mysql> INSERT INTO LeaveRequests (RequestID, EmployeeID, StartDate, EndDate, Reason, Status) VALUES
```

```
-> (1, 201, '2024-01-10', '2024-01-15', 'Vacation', 'Approved'),  
-> (2, 202, '2024-02-01', '2024-02-03', 'Medical', 'Pending'),  
-> (3, 203, '2024-03-12', '2024-03-17', 'Emergency', 'Rejected'),  
-> (4, 204, '2024-04-05', '2024-04-09', 'Personal', 'Approved'),  
-> (5, 205, '2024-05-01', '2024-05-02', 'Sick', 'Approved'),  
-> (6, 206, '2024-05-10', '2024-05-15', 'Maternity', 'Pending'),  
-> (7, 207, '2024-06-01', '2024-06-06', 'Vacation', 'Approved'),  
-> (8, 208, '2024-07-10', '2024-07-15', 'Emergency', 'Rejected'),  
-> (9, 209, '2024-08-01', '2024-08-05', 'Travel', 'Approved'),  
-> (10, 210, '2024-09-15', '2024-09-18', 'Personal', 'Approved'),  
-> (11, 211, '2024-10-10', '2024-10-13', 'Sick', 'Pending'),  
-> (12, 212, '2024-11-01', '2024-11-07', 'Vacation', 'Approved'),  
-> (13, 213, '2024-12-05', '2024-12-10', 'Emergency', 'Rejected'),  
-> (14, 214, '2025-01-01', '2025-01-04', 'Medical', 'Approved'),  
-> (15, 215, '2025-02-10', '2025-02-12', 'Personal', 'Pending');
```

Query OK, 15 rows affected (0.508 sec)

Records: 15 Duplicates: 0 Warnings: 0

```
mysql> INSERT INTO Evaluations (EvaluationID, EmployeeID, EvalDate, Score, Comment) VALUES
```

```
-> (1, 201, '2024-01-15', 9, 'Great work ethic'),  
-> (2, 202, '2024-01-20', 8, 'Good team player'),  
-> (3, 203, '2024-02-01', 7, 'Improved performance'),  
-> (4, 204, '2024-02-18', 6, 'Needs supervision'),  
-> (5, 205, '2024-03-05', 9, 'Excellent contribution'),  
-> (6, 206, '2024-03-25', 5, 'Below expectations'),  
-> (7, 207, '2024-04-01', 8, 'Positive attitude'),
```

```
-> (8, 208, '2024-04-15', 10, 'Outstanding'),
-> (9, 209, '2024-05-01', 6, 'Average work'),
-> (10, 210, '2024-05-10', 7, 'Consistent'),
-> (11, 211, '2024-06-01', 4, 'Needs improvement'),
-> (12, 212, '2024-06-20', 8, 'Shows initiative'),
-> (13, 213, '2024-07-01', 9, 'Very good work'),
-> (14, 214, '2024-07-15', 10, 'Top performer'),
-> (15, 215, '2024-08-01', 7, 'Good under pressure');
```

Query OK, 15 rows affected (0.454 sec)

Records: 15 Duplicates: 0 Warnings: 0

mysql> show tables;

```
+-----+
| Tables_in_hr_management |
+-----+
| departments              |
| employees                 |
| evaluations               |
| leaverequests            |
| salaries                  |
+-----+
```

5 rows in set (0.052 sec)

mysql> describe departments;

Field	Type	Null	Key	Default	Extra
DepartmentID	int	NO	PRI	NULL	auto_increment
Name	varchar(100)	NO		NULL	

2 rows in set (0.034 sec)

mysql> describe employees;

Field	Type	Null	Key	Default	Extra
EmployeeID	int	NO	PRI	NULL	auto_increment
Name	varchar(100)	YES		NULL	
Email	varchar(100)	YES	UNI	NULL	
HireDate	date	YES		NULL	
DepartmentID	int	YES	MUL	NULL	

5 rows in set (0.015 sec)

mysql> describe evaluations;

```
+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+
```

MySQL

mysql> describe evaluations;

Field	Type	Null	Key	Default	Extra
EvaluationID	int	NO	PRI	NULL	auto_increment
EmployeeID	int	YES	MUL	NULL	
EvalDate	date	YES		NULL	
Score	int	YES		NULL	
Comment	text	YES		NULL	

5 rows in set (0.016 sec)

mysql> describe leaverequests;

Field	Type	Null	Key	Default	Extra
RequestID	int	NO	PRI	NULL	auto_increment
EmployeeID	int	YES	MUL	NULL	
StartDate	date	YES		NULL	
EndDate	date	YES		NULL	
Reason	text	YES		NULL	
Status	enum('Pending','Approved','Rejected')	YES		NULL	

6 rows in set (0.022 sec)

mysql> describe salaries;

Field	Type	Null	Key	Default	Extra
SalaryID	int	NO	PRI	NULL	auto_increment
EmployeeID	int	YES	UNI	NULL	
BasicSalary	decimal(10,2)	YES		NULL	
Bonus	decimal(10,2)	YES		NULL	

4 rows in set (0.026 sec)


```
mysql> select * from departments;
```

DepartmentID	Name
1	HR
2	IT
3	Finance
4	Marketing
5	Operations

5 rows in set (0.007 sec)

```
mysql> select * from employees;
```

EmployeeID	Name	Email	HireDate	DepartmentID
201	Ali Hassan	ali.hassan@example.com	2022-03-15	1
202	Mona Saeed	mona.saeed@example.com	2021-07-20	2
203	Ahmed Nabil	ahmed.nabil@example.com	2020-05-10	3
204	Sara Mostafa	sara.mostafa@example.com	2022-12-01	1
205	Youssef Adel	youssef.adel@example.com	2023-01-25	2
206	Nour Magdy	nour.magdy@example.com	2021-04-14	3
207	Khaled Yassin	khaled.yassin@example.com	2020-09-30	2
208	Rana Sherif	rana.sherif@example.com	2022-08-19	1
209	Hany Fathy	hany.fathy@example.com	2023-03-22	3
210	Laila Amr	laila.amr@example.com	2021-11-11	2
211	Tamer Helmy	tamer.helmy@example.com	2020-02-05	3
212	Farida Ayman	farida.ayman@example.com	2023-06-18	1
213	Mahmoud Salah	mahmoud.salah@example.com	2022-07-07	2
214	Heba Zaki	heba.zaki@example.com	2023-09-09	1
215	Omar Reda	omar.reda@example.com	2024-01-01	3

15 rows in set (0.004 sec)

```
mysql> select * from evaluations;
```

EvaluationID	EmployeeID	EvalDate	Score	Comment
1	201	2024-01-15	9	Great work ethic
2	202	2024-01-20	8	Good team player
3	203	2024-02-01	7	Improved performance
4	204	2024-02-18	6	Needs supervision
5	205	2024-03-05	9	Excellent contribution
6	206	2024-03-25	5	Below expectations
7	207	2024-04-01	8	Positive attitude
8	208	2024-04-15	10	Outstanding

```
mysql> select*from leaverequests;
```

RequestID	EmployeeID	StartDate	EndDate	Reason	Status
1	201	2024-01-10	2024-01-15	Vacation	Approved
2	202	2024-02-01	2024-02-03	Medical	Pending
3	203	2024-03-12	2024-03-17	Emergency	Rejected
4	204	2024-04-05	2024-04-09	Personal	Approved
5	205	2024-05-01	2024-05-02	Sick	Approved
6	206	2024-05-10	2024-05-15	Maternity	Pending
7	207	2024-06-01	2024-06-06	Vacation	Approved
8	208	2024-07-10	2024-07-15	Emergency	Rejected
9	209	2024-08-01	2024-08-05	Travel	Approved
10	210	2024-09-15	2024-09-18	Personal	Approved
11	211	2024-10-10	2024-10-13	Sick	Pending
12	212	2024-11-01	2024-11-07	Vacation	Approved
13	213	2024-12-05	2024-12-10	Emergency	Rejected
14	214	2025-01-01	2025-01-04	Medical	Approved
15	215	2025-02-10	2025-02-12	Personal	Pending

15 rows in set (0.007 sec)

```
mysql> select*from salaries;
```

SalaryID	EmployeeID	BasicSalary	Bonus
1	201	5000.00	200.00
2	202	6000.00	300.00
3	203	5500.00	250.00
4	204	5800.00	270.00
5	205	6200.00	400.00
6	206	5300.00	150.00
7	207	5100.00	100.00
8	208	4950.00	120.00
9	209	7000.00	500.00
10	210	6700.00	350.00
11	211	5600.00	180.00
12	212	5250.00	130.00
13	213	6100.00	300.00
14	214	4800.00	100.00
15	215	7500.00	600.00

15 rows in set (0.005 sec)

```
mysql> SELECT * FROM Employees WHERE Name LIKE '%Ali%';
```

EmployeeID	Name	Email	HireDate	DepartmentID
201	Ali Hassan	ali.hassan@example.com	2022-03-15	1

```
1 row in set (0.326 sec)
```

```
mysql> SELECT AVG(BasicSalary + Bonus) AS AverageTotalSalary FROM Salaries;
```

AverageTotalSalary
6050.000000

```
1 row in set (0.432 sec)
```

```
mysql> SELECT d.Name, COUNT(*) AS TotalEmployees
-> FROM Employees e
-> JOIN Departments d ON e.DepartmentID = d.DepartmentID
-> GROUP BY d.Name;
```

Name	TotalEmployees
HR	5
IT	5
Finance	5

```
3 rows in set (0.163 sec)
```

```
mysql> SELECT * FROM Employees ORDER BY HireDate ASC;
```

EmployeeID	Name	Email	HireDate	DepartmentID
211	Tamer Helmy	tamer.helmy@example.com	2020-02-05	3
203	Ahmed Nabil	ahmed.nabil@example.com	2020-05-10	3
207	Khaled Yassin	khaled.yassin@example.com	2020-09-30	2
206	Nour Magdy	nour.magdy@example.com	2021-04-14	3
202	Mona Saeed	mona.saeed@example.com	2021-07-20	2
210	Laila Amr	laila.amr@example.com	2021-11-11	2
201	Ali Hassan	ali.hassan@example.com	2022-03-15	1
213	Mahmoud Salah	mahmoud.salah@example.com	2022-07-07	2
208	Rana Sherif	rana.sherif@example.com	2022-08-19	1
204	Sara Mostafa	sara.mostafa@example.com	2022-12-01	1
205	Youssef Adel	youssef.adel@example.com	2023-01-25	2
209	Hany Fathy	hany.fathy@example.com	2023-03-22	3


```
mysql> SELECT e.Name, lr.StartDate, lr.EndDate
-> FROM LeaveRequests lr
-> JOIN Employees e ON lr.EmployeeID = e.EmployeeID
-> WHERE lr.Status = 'Approved';
```

Name	StartDate	EndDate
Ali Hassan	2024-01-10	2024-01-15
Sara Mostafa	2024-04-05	2024-04-09
Youssef Adel	2024-05-01	2024-05-02
Khaled Yassin	2024-06-01	2024-06-06
Hany Fathy	2024-08-01	2024-08-05
Laila Amr	2024-09-15	2024-09-18
Farida Ayman	2024-11-01	2024-11-07
Heba Zaki	2025-01-01	2025-01-04

8 rows in set (0.325 sec)

```
mysql> SELECT E.Name, EV.Score
-> FROM Employees E
-> JOIN Evaluations EV ON E.EmployeeID = EV.EmployeeID
-> ORDER BY EV.Score DESC;
```

Name	Score
Rana Sherif	10
Heba Zaki	10
Ali Hassan	9
Youssef Adel	9
Mahmoud Salah	9
Mona Saeed	8
Khaled Yassin	8
Farida Ayman	8
Ahmed Nabil	7
Laila Amr	7
Omar Reda	7
Sara Mostafa	6
Hany Fathy	6
Nour Magdy	5
Tamer Helmy	4

15 rows in set (0.049 sec)

```
mysql> SELECT D.Name AS DepartmentName, COUNT(E.EmployeeID) AS NumEmployees
-> FROM Departments D
-> LEFT JOIN Employees E ON D.DepartmentID = E.DepartmentID
```

```
mysql> SELECT D.Name AS DepartmentName, COUNT(E.EmployeeID) AS NumEmployees
-> FROM Departments D
-> LEFT JOIN Employees E ON D.DepartmentID = E.DepartmentID
-> GROUP BY D.Name;
```

```
+-----+
| DepartmentName | NumEmployees |
+-----+
| HR              | 5            |
| IT              | 5            |
| Finance         | 5            |
| Marketing       | 0            |
| Operations      | 0            |
+-----+
```

5 rows in set (0.336 sec)

```
mysql> SELECT D.Name AS DepartmentName, COUNT(E.EmployeeID) AS NumEmployees
-> FROM Departments D
-> LEFT JOIN Employees E ON D.DepartmentID = E.DepartmentID
-> GROUP BY D.Name;
```

```
+-----+
| DepartmentName | NumEmployees |
+-----+
| HR              | 5            |
| IT              | 5            |
| Finance         | 5            |
| Marketing       | 0            |
| Operations      | 0            |
+-----+
```

5 rows in set (0.045 sec)

```
mysql> SELECT E.Name, L.StartDate, L.EndDate, L.Reason
-> FROM LeaveRequests L
-> JOIN Employees E ON L.EmployeeID = E.EmployeeID
-> WHERE L.Status = 'Pending';
```

```
+-----+-----+-----+-----+
| Name      | StartDate | EndDate | Reason |
+-----+-----+-----+-----+
| Mona Saeed | 2024-02-01 | 2024-02-03 | Medical |
| Nour Magdy | 2024-05-10 | 2024-05-15 | Maternity |
| Tamer Helmy | 2024-10-10 | 2024-10-13 | Sick |
| Omar Reda  | 2025-02-10 | 2025-02-12 | Personal |
+-----+-----+-----+-----+
```

4 rows in set (0.027 sec)

```
mysql> SELECT E.Name, EV.Score
-> FROM Evaluations EV
```

Tamer Helmy	2024-10-10	2024-10-13	Sick
Omar Reda	2025-02-10	2025-02-12	Personal

4 rows in set (0.027 sec)

```
mysql> SELECT E.Name, EV.Score
-> FROM Evaluations EV
-> JOIN Employees E ON EV.EmployeeID = E.EmployeeID
-> WHERE EV.Score >= 9;
```

Name	Score
Ali Hassan	9
Youssef Adel	9
Rana Sherif	10
Mahmoud Salah	9
Heba Zaki	10

5 rows in set (0.017 sec)

```
mysql> SELECT D.Name AS DepartmentName, SUM(S.Bonus) AS TotalBonus
-> FROM Employees E
-> JOIN Salaries S ON E.EmployeeID = S.EmployeeID
-> JOIN Departments D ON E.DepartmentID = D.DepartmentID
-> GROUP BY D.Name;
```

DepartmentName	TotalBonus
HR	820.00
IT	1450.00
Finance	1680.00

3 rows in set (0.020 sec)

mysql>