SCHOOL OF: INFOMATICS
DEPARTEMENT OF: COMPUTER SCIENCES
COURSE TITLE: ADAVACED DATABASE
PROJECT TITLE: EMPLOYEE PAYROLL SYSTEM

GROUP MEMBERS

NUMBER	FNAME	MNAME	ID
1	ASHENAFI	DEGIF	UGR/91463/16
2	DEGINESH	DALGA	UGR/91619/16
3	MAHLET	AMSALU	UGR/91944/16
4	METAGES	OROBA	UGR/92705/16

Create Database table

```
create database Employepayrolls;
use Employeeparolls;

create table Departement(
DepartementID int primary key ,
Departementname varchar(100) not null unique,
Budgetlimit int not null);

create table Employees(
EmployeeID int primary key ,
Employeename varchar(100) not null,
DepartementID int,
Jobtitle varchar(100),
salary decimal(10,2) check (salary>=0),
Hiredate date,
foreign key (DepartementID) References Departement(DepartementID)
);
```

Cont...

```
 create table Payroll(
 PayrollID int primary key,
EmployeeID int,
Paymentdate date not null,
Paymentamount decimal(10,2)
foreign key(EmployeeID) References Employees(EmployeeID)
       );
```

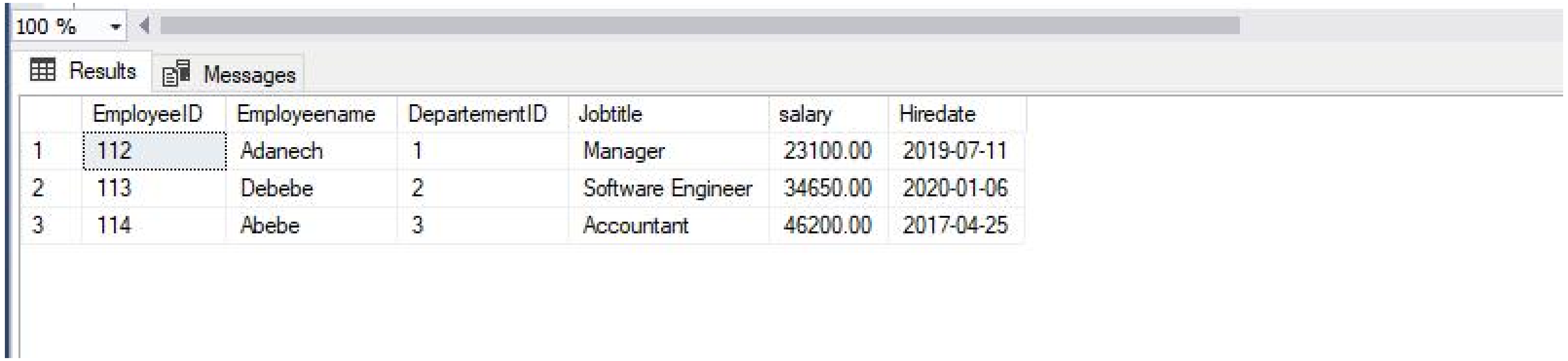
cont...

```
insert into Departement values(1,'Computer science',10);
insert into Departement values(2,'Finance',16);
insert into Departement values(3,'IS',60);


insert into Employees values(112,'Adanech', 1,'Manager','20000.00','2019-07-11');
insert into Employees values(113,'Debebe',2,'Software Engineer','30000.00','2020-01-06');
insert into Employees values(114,'Abebe',3, 'Accountant','40000.00','2017-04-25');


insert into Payroll values(123,112,'2025-02-1','15000.00');
insert into Payroll values(124,113,'2025-02-1','16000.00');
insert into Payroll values(125,114,'2025-02-1','17000.00');
```

cont...

1 select all employee working in the company

```
select * from Employees;
```

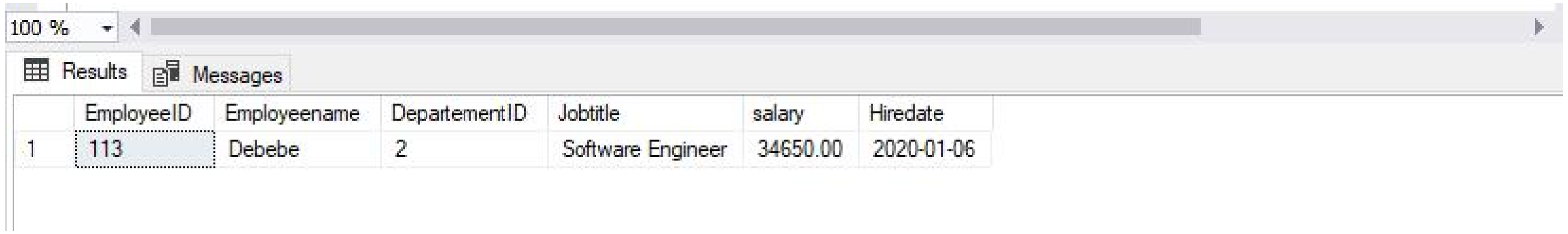


	EmployeeID	Employeename	DepartementID	Jobtitle	salary	Hiredate
1	112	Adanech	1	Manager	23100.00	2019-07-11
2	113	Debebe	2	Software Engineer	34650.00	2020-01-06
3	114	Abebe	3	Accountant	46200.00	2017-04-25

2 select all employees working in ‘finance’ departement

```
select * from Employees where DepartementID=(select DepartementID from Departement where
Departementname='Finance'
```

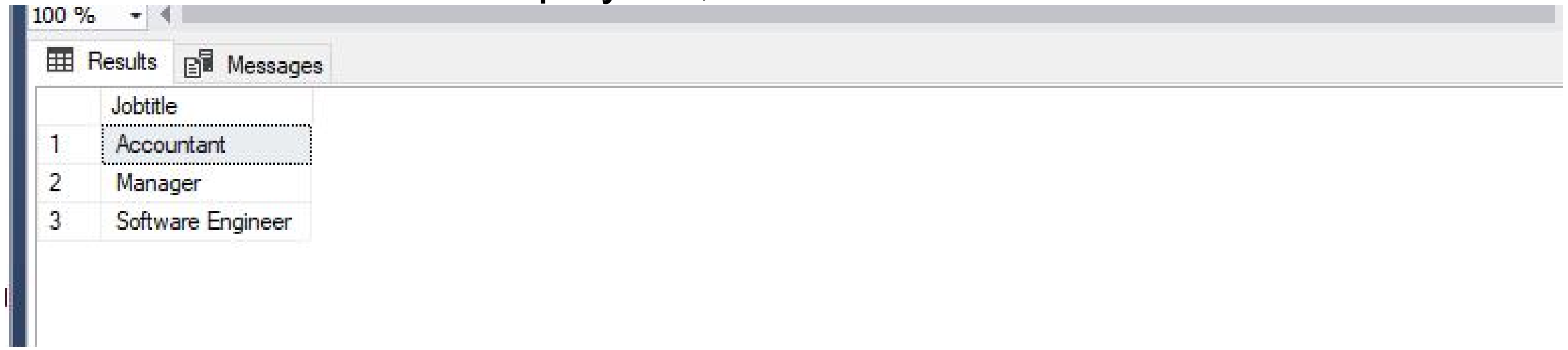
cont...



	EmployeeID	Employeename	DepartementID	Jobtitle	salary	Hiredate
1	113	Debebe	2	Software Engineer	34650.00	2020-01-06

3 select all distinict job role in company

select distinct Jobtitle from Employees;

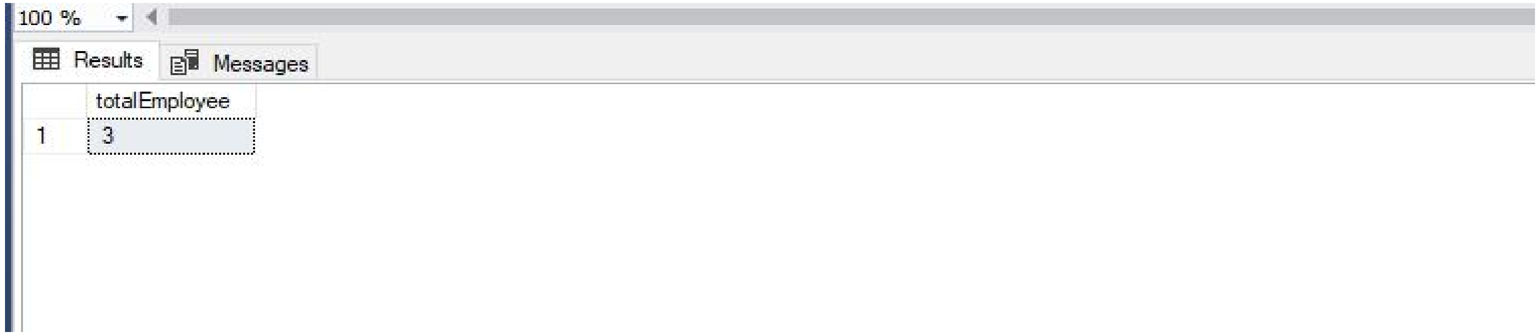


	Jobtitle
1	Accountant
2	Manager
3	Software Engineer

cont...

4 select the total numbers of employee in the company

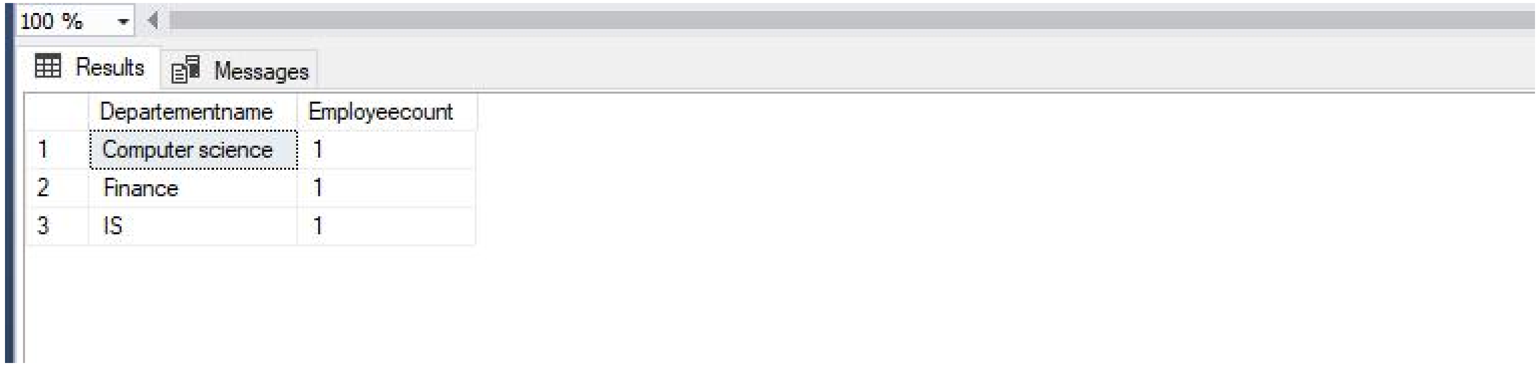
```
select count(*) as totalEmployee from Employees;
```



	totalEmployee
1	3

5 select the departement name and the total number of in each departement

```
select d.Departementname,count (e.EmployeeID) as Employeecount from Departement d
left join Employees e on d.DepartementID=e.DepartementID group by d.Departementname;
```

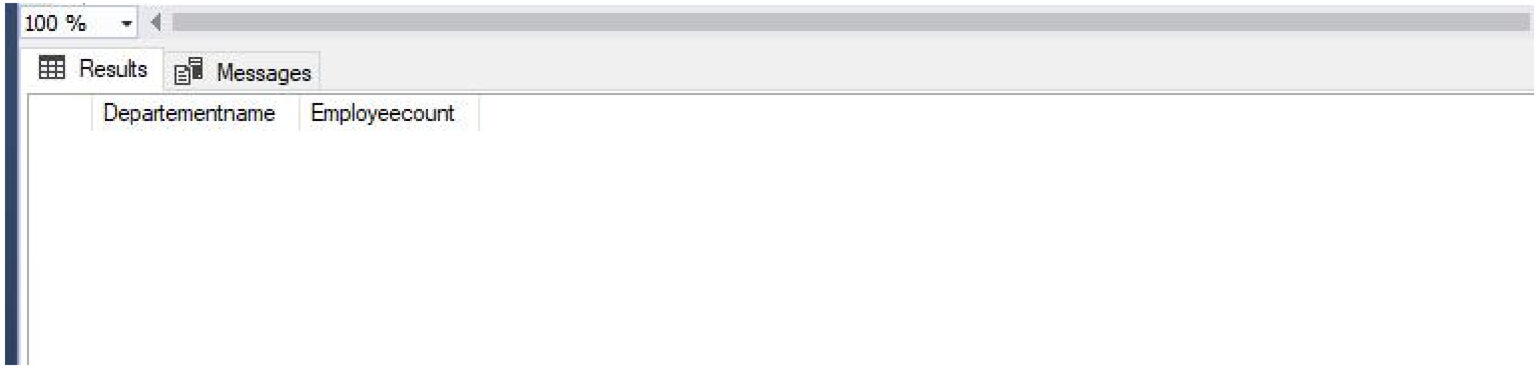


	Departementname	Employeecount
1	Computer science	1
2	Finance	1
3	IS	1

cont...

6 select only departement where the number of employee is greater than 50.

```
   select d.Departementname,count (e.EmployeeID) as Employeecount from Departement d
  left join Employees e on d.DepartementID=e.DepartementID group by d.Departementname
having count(e.EmployeeID) > 50;
```

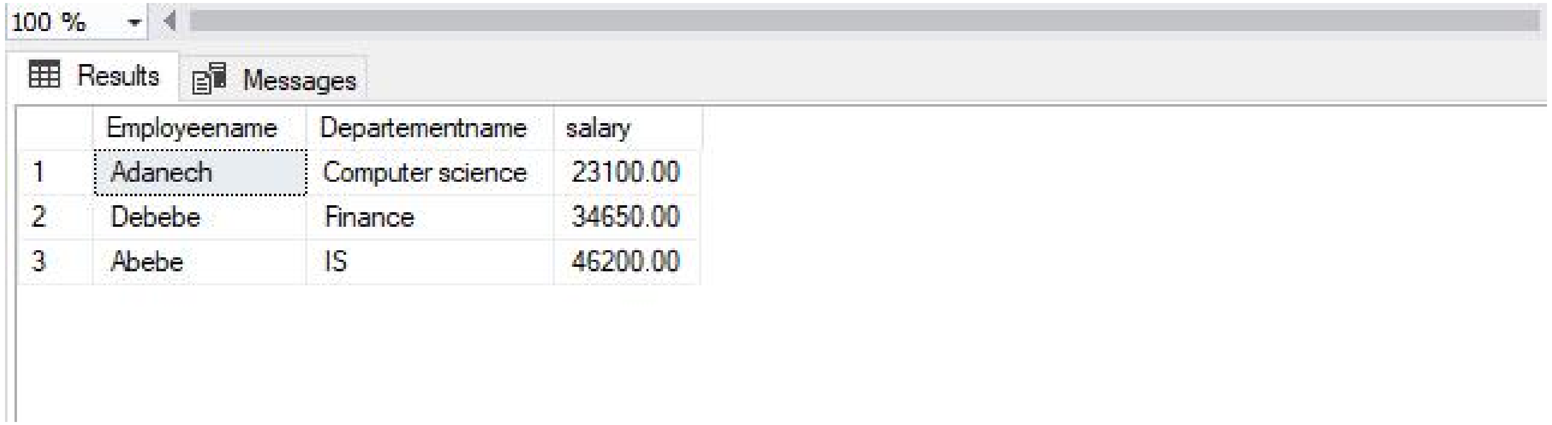


Departementname	Employeecount

7 select each employee’s name along with their departement and salary

```
select e.Employeename,d.Departementname,e.salary from Employees e join Departement
 d on e.DepartementID=d.DepartementID;
```

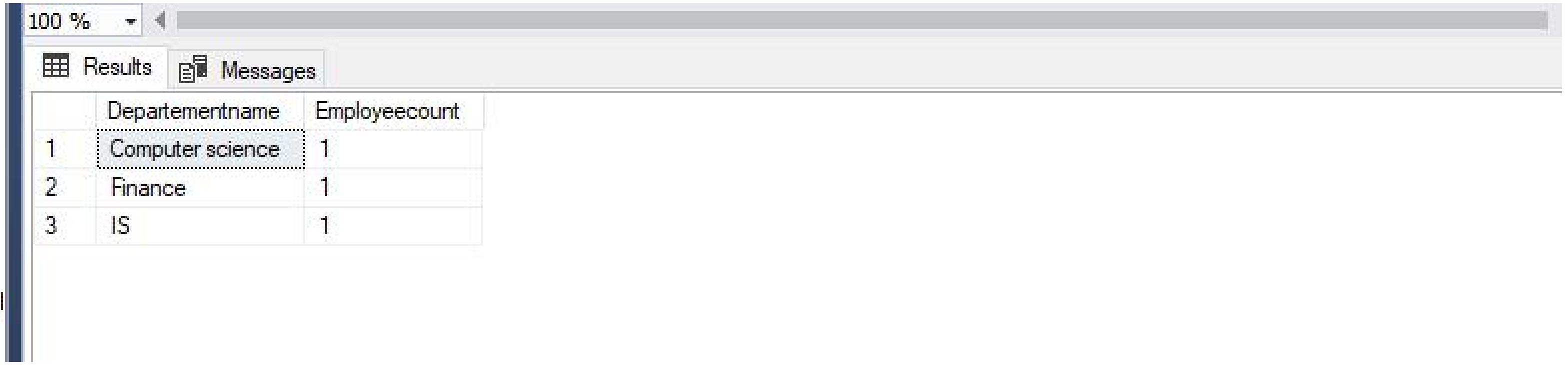
cont...



	Employeename	Departementname	salary
1	Adanech	Computer science	23100.00
2	Debebe	Finance	34650.00
3	Abebe	IS	46200.00

8 select all departement along with the number of employee (including empty departement)

select d.Departementname,count(e.EmployeeID) as Employeecount
 from Departement d left join Employee e on d.DepartementID=e.DEpartementID group
 by d.Departementname;



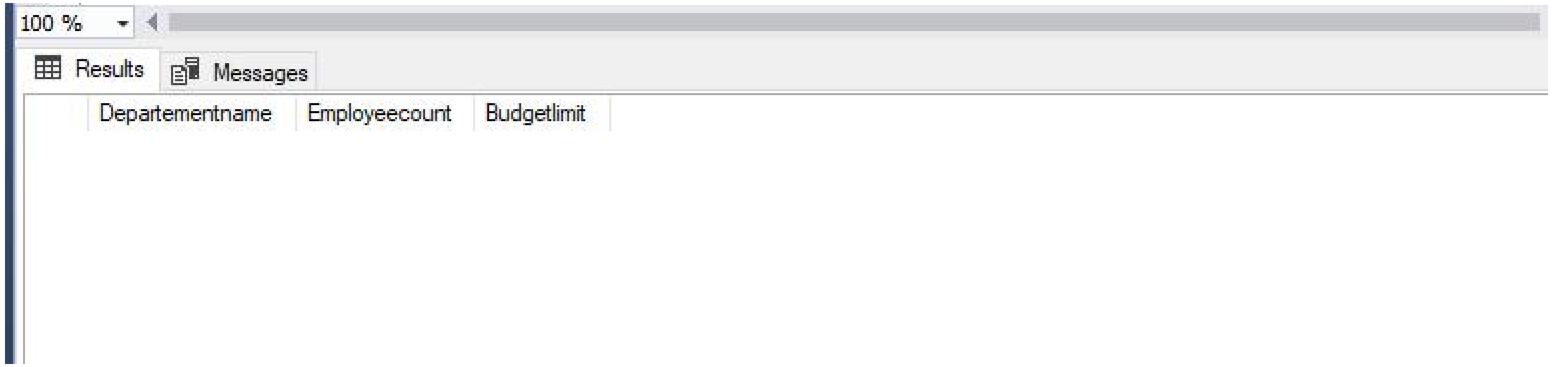
	Departementname	Employeecount
1	Computer science	1
2	Finance	1
3	IS	1

bl

cont..

9 select all departement where the number of employee exceeds the departement budgetd limit

```
 select d.Departementname,count(e.EmployeeID) as Employeecount,d.Budgetlimit
from Departement d  join Employee e on d.DepartementID=e.DEpartementID group
by d.Departementname,d.Budgetlimit having count(e.EmployeeID)>d.Budgetlimit;
```

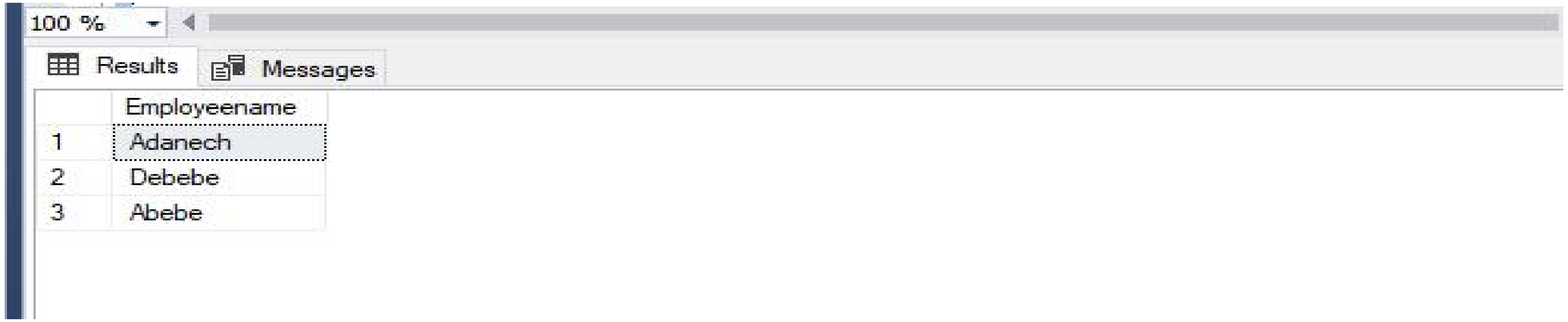


Departementname	Employeecount	Budgetlimit

10 select all employee who have not received a salary payment in last month

```
select e.Employeename from Employees e left join Payroll p on e.EmployeeID=p.EmployeeID
 and p.Paymentdate >= DATEADD(MONTH, -1,getdate()) where p.Paymentdate is null
```

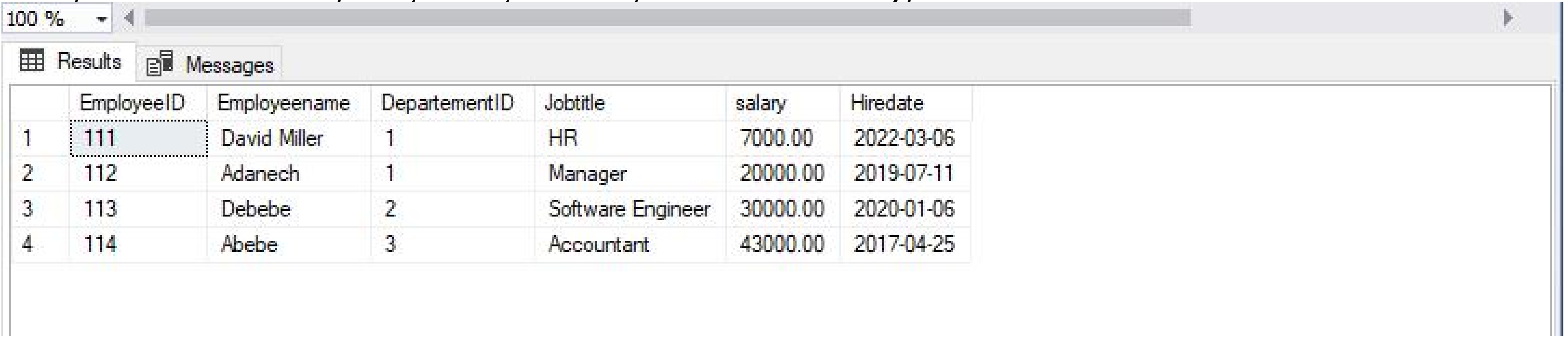
cont...



	Employeename
1	Adanech
2	Debebe
3	Abebe

11. Add a new employee named ”David Miller” to the “HR” departement

```
insert into Employeees(EmployeeID,Employeename,DepartementID,Jobtitle,salary, Hiredate )
values (111,'David Miller',01 ,'HR','7000','2022-03-06');
```

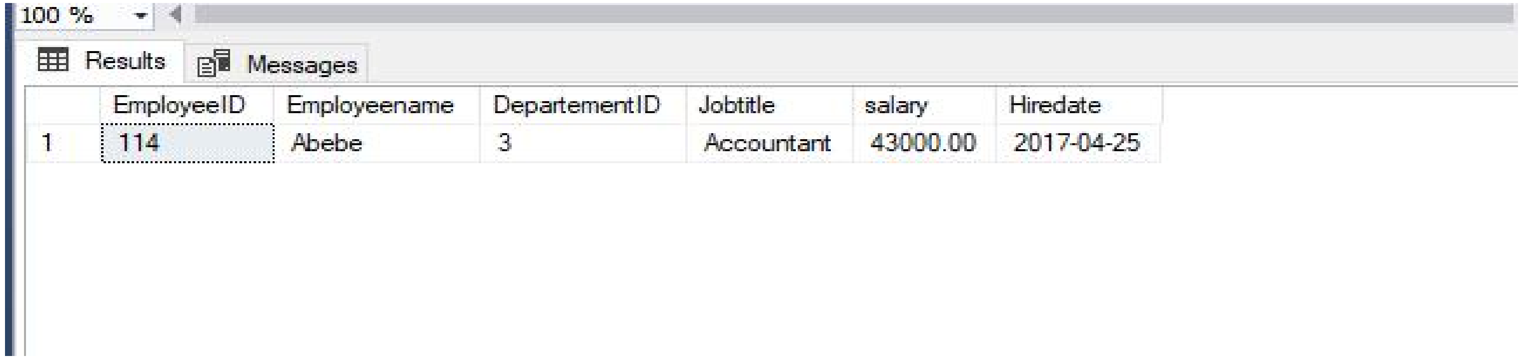


	EmployeeID	Employeename	DepartementID	Jobtitle	salary	Hiredate
1	111	David Miller	1	HR	7000.00	2022-03-06
2	112	Adanech	1	Manager	20000.00	2019-07-11
3	113	Debebe	2	Software Engineer	30000.00	2020-01-06
4	114	Abebe	3	Accountant	43000.00	2017-04-25

cont...

12 add a salary payment of $3000 for “Sarah Johson”

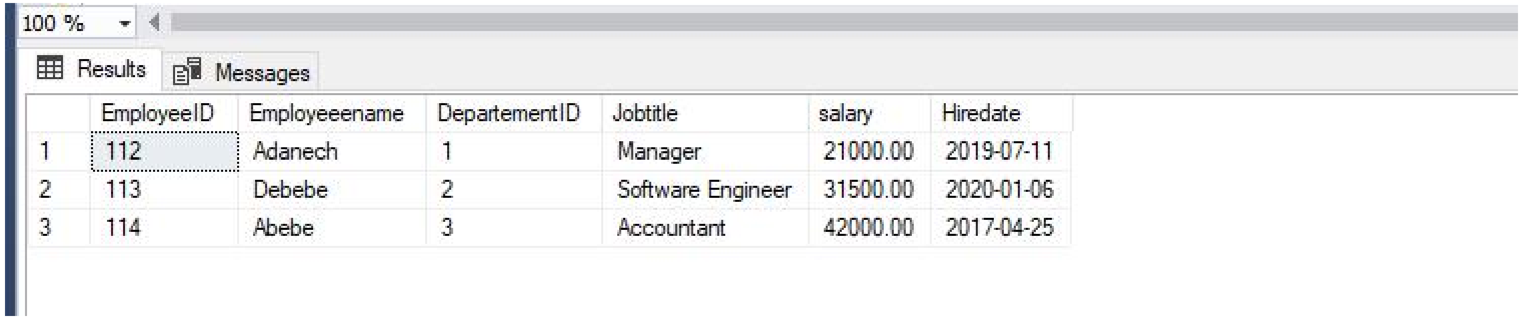
```
update Employeees set salary=salary + 3000
  where Employeename='Abebe';
```



	EmployeeID	Employeename	DepartementID	Jobtitle	salary	Hiredate
1	114	Abebe	3	Accountant	43000.00	2017-04-25

13 Increase the salary of all employeeby 5%.

```
Update Employee set salary=salary*1.05;
```

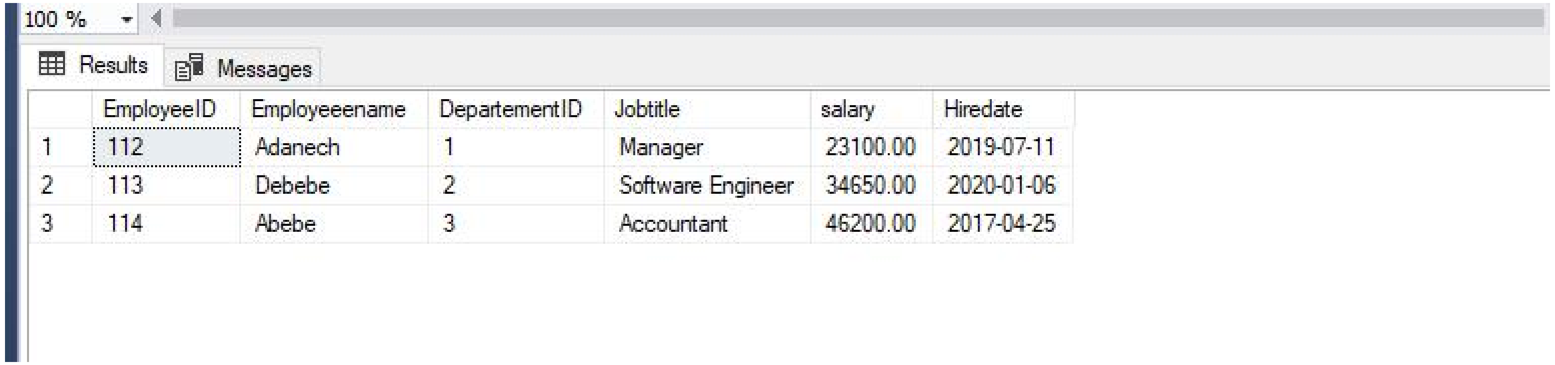


	EmployeeID	Employeeename	DepartementID	Jobtitle	salary	Hiredate
1	112	Adanech	1	Manager	21000.00	2019-07-11
2	113	Debebe	2	Software Engineer	31500.00	2020-01-06
3	114	Abebe	3	Accountant	42000.00	2017-04-25

cont...

14 Apply a 10% salary increase to employee who have worked for more than five years.

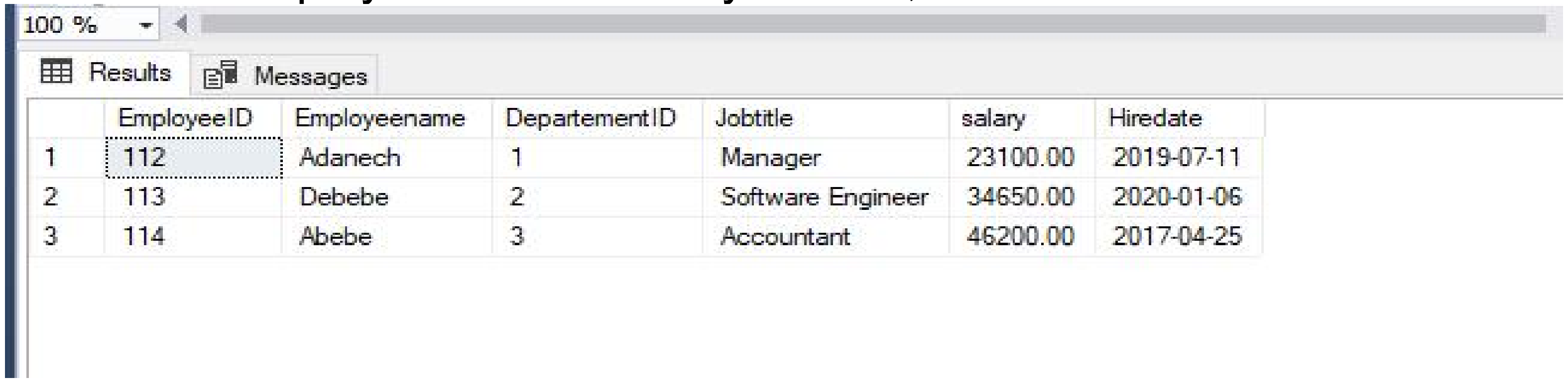
update Employee set salary=salary*1.10 where Hiredate < dateadd(year,-5,getdate())



	EmployeeID	Employeeename	DepartementID	Jobtitle	salary	Hiredate
1	112	Adanech	1	Manager	23100.00	2019-07-11
2	113	Debebe	2	Software Engineer	34650.00	2020-01-06
3	114	Abebe	3	Accountant	46200.00	2017-04-25

15 Remove all employee earning below $1500.

delete from Employees where salary < 1500;

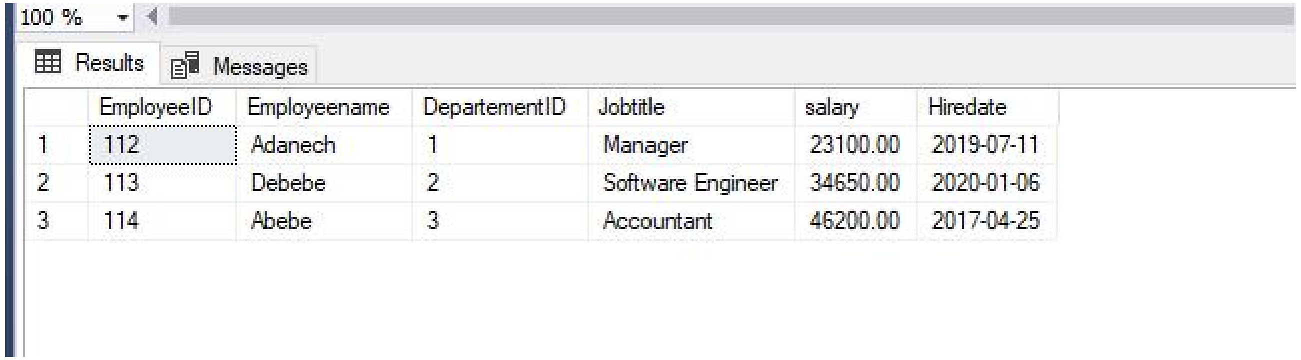


	EmployeeID	Employeename	DepartementID	Jobtitle	salary	Hiredate
1	112	Adanech	1	Manager	23100.00	2019-07-11
2	113	Debebe	2	Software Engineer	34650.00	2020-01-06
3	114	Abebe	3	Accountant	46200.00	2017-04-25

cont...

16 Remove all employee from departement that have exceed their budgeted employee limit.

```
delete from  Employees where DepartementID in ( select d.DepartementID from Departement
 d join Employees e on d.DepartementID = e.DepartementID
 group by d.DepartementID, d.Budgetlimit having count(e.EmployeeID) > d.Budgetlimit );
```



	EmployeeID	Employeename	DepartementID	Jobtitle	salary	Hiredate
1	112	Adanech	1	Manager	23100.00	2019-07-11
2	113	Debebe	2	Software Engineer	34650.00	2020-01-06
3	114	Abebe	3	Accountant	46200.00	2017-04-25

Relational Schema

- Relational Schema for Employee Payroll System
- A relational schema defines the structure of the database, including tables, primary keys (PK), and foreign keys (FK).

Departement table

DepartmentID → Primary Key (PK)

DepartmentName → Unique constraint

BudgetLimit → Budget allocation

Employee table

EmployeeID → Primary Key (PK)

DepartmentID → Foreign Key (FK) referencing Departments(DepartmentID)

Salary → Employee salary

HireDate → Date of hiring

cont...

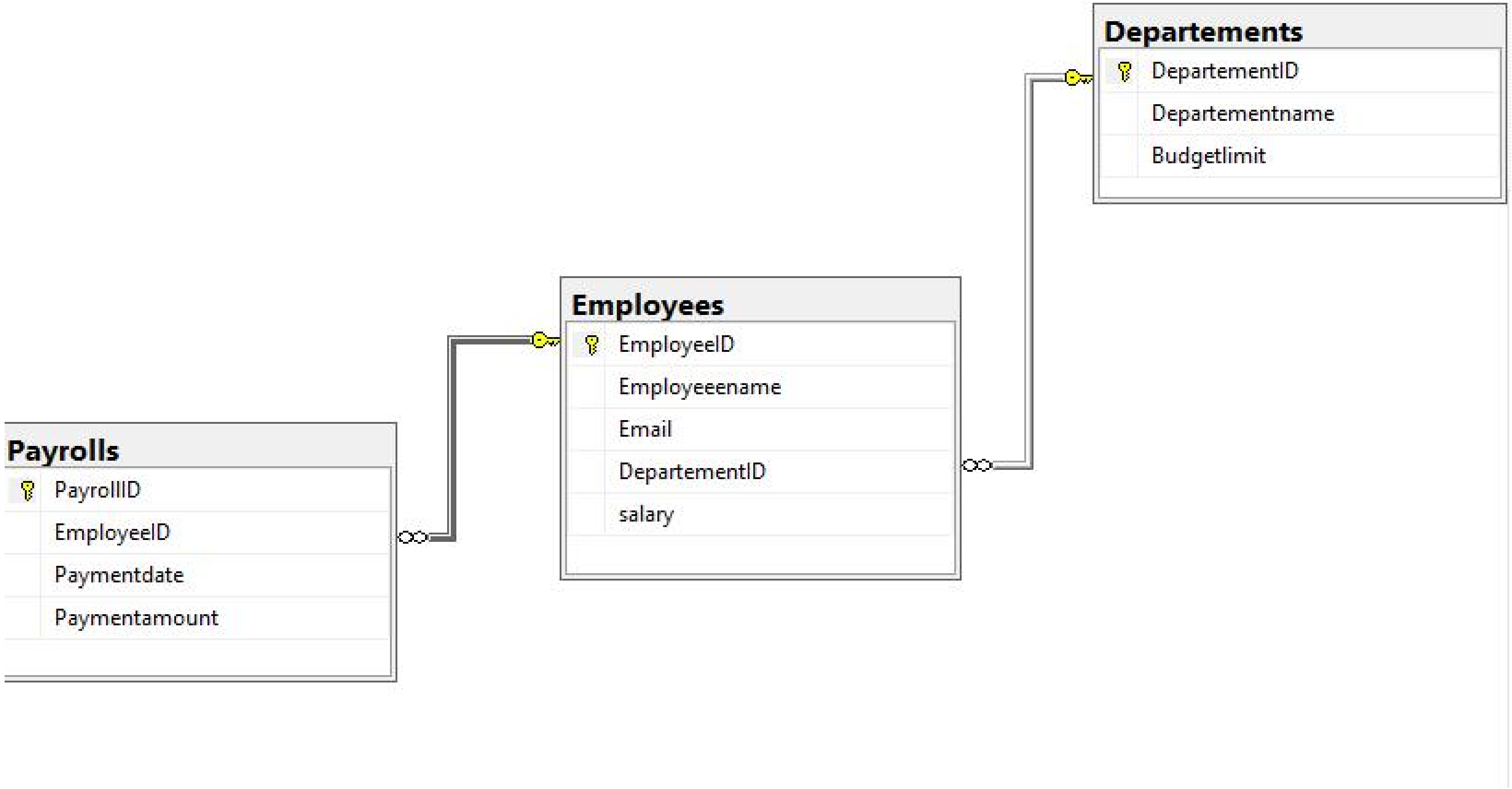
Payrolls Table

PayrollID → Primary Key (PK)

EmployeeID → Foreign Key (FK) referencing Employees(EmployeeID)

PaymentAmount → Salary payment

cont...



Payrolls
PayrollID
EmployeeID
Paymentdate
Paymentamount

Employees
EmployeeID
Employeeename
Email
DepartementID
salary

Departements
DepartementID
Departementname
Budgetlimit

Key Constraints

Primary Keys (PK):

- DepartmentID in Departments
- EmployeeID in Employees
- PayrollID in Payrolls

Foreign Keys (FK):

- Employees.DepartmentID → Departments.DepartmentID
- Payrolls.EmployeeID → Employees.EmployeeID