USHA MITTAL INSTITUTE OF TECHNOLOGY

REPORT -

PAYROLL DATABASE MANAGEMENT SYSTEM

GUIDE -

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Introduction

This report presents the design and implementation of a payroll database management system for civil contractors .The system is designed to automate the process of managing employee salaries, daily wages, and other payroll-related data.

This will ensure smooth functioning of payroll management in the company and also effective calculations and report of daily wage of workers in the company. The DBMS language used is PSQL ,which is an open source free language.

The report will consist of various tables for implementation of this project ,its queries , the ER Diagram and also objective and advantages.

Problem Statement

The current manual system of managing payroll data is inefficient and error-prone. It is also time-consuming to generate reports and track employee information.

The system must have an attendance table to put the attendance so that total payable can be calculated on the daily wages of workers.

Objective :-

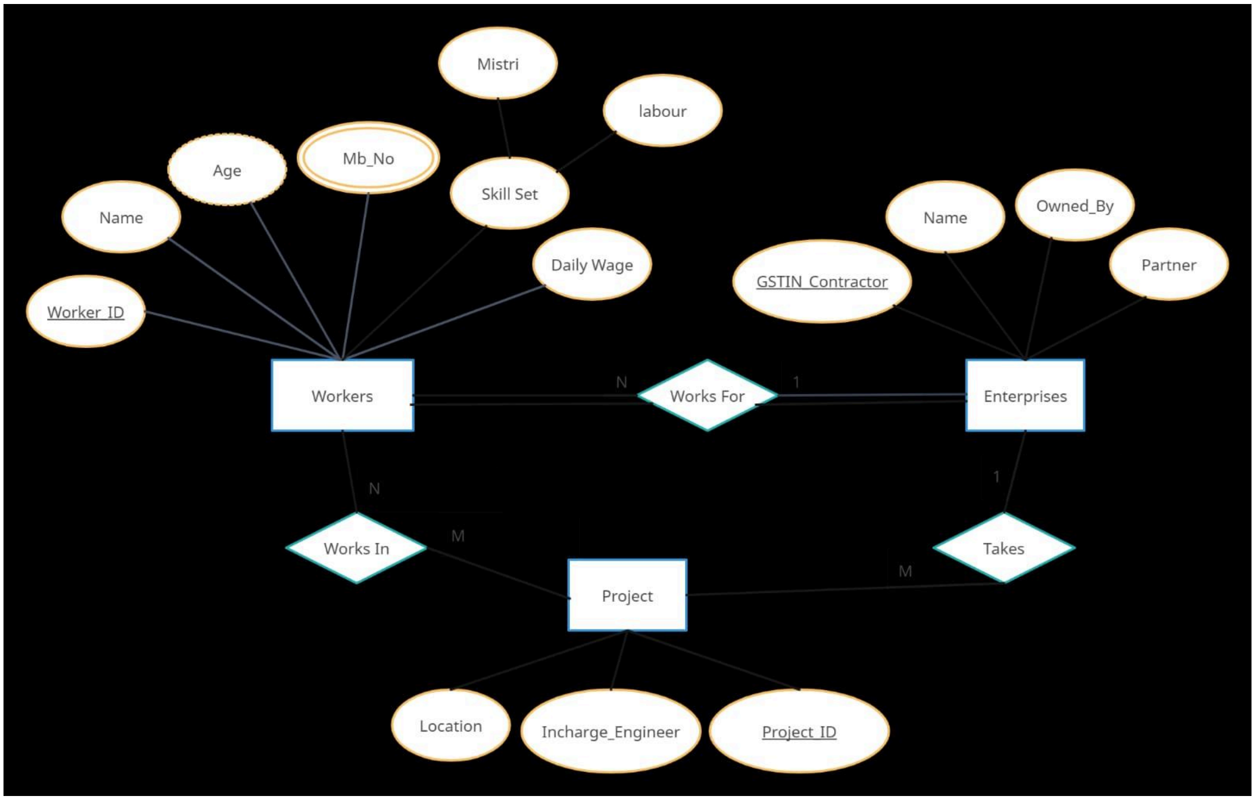
The objective of this project is to develop a database management system that will automate the process of managing payroll data. The system will be designed to be efficient, accurate, and easy to use.

Advantages :-

The proposed system will have the following advantages:

- It will automate the process of managing payroll data, which will save time and effort.
- It will be more accurate than the current manual system.
- It will be easier to use than the current manual system.
- It will be able to generate reports and track employee information more easily.

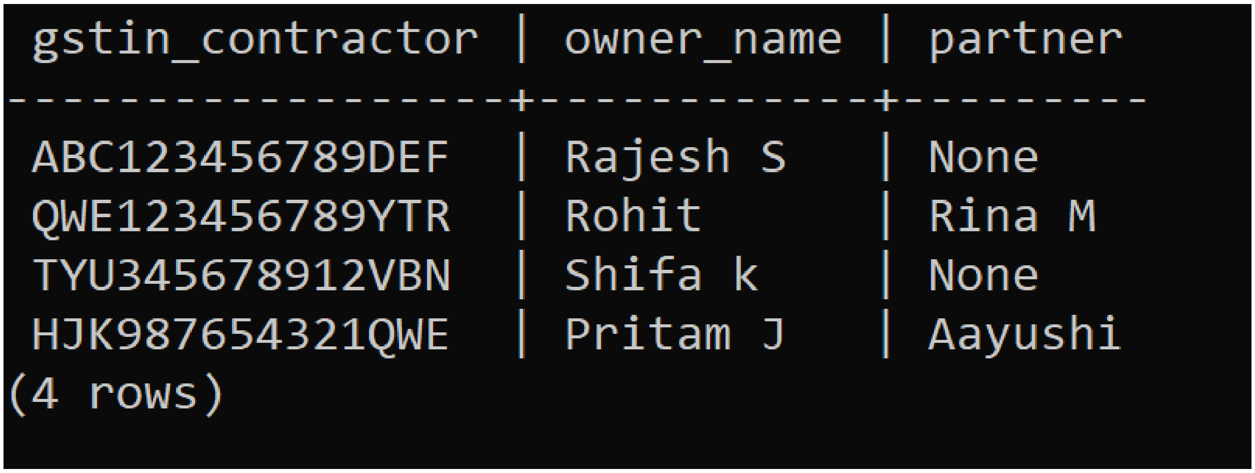
ER - Diagram



Mistri
labour
Age
Mb_No
Skill Set
Name
Daily Wage
Worker_ID
Name
Owned_By
Partner
GSTIN_Contractor
Workers
N
Works For
1
Enterprises
N
1
Works In
M
Takes
M
Project
Location
Incharge_Engineer
Project_ID

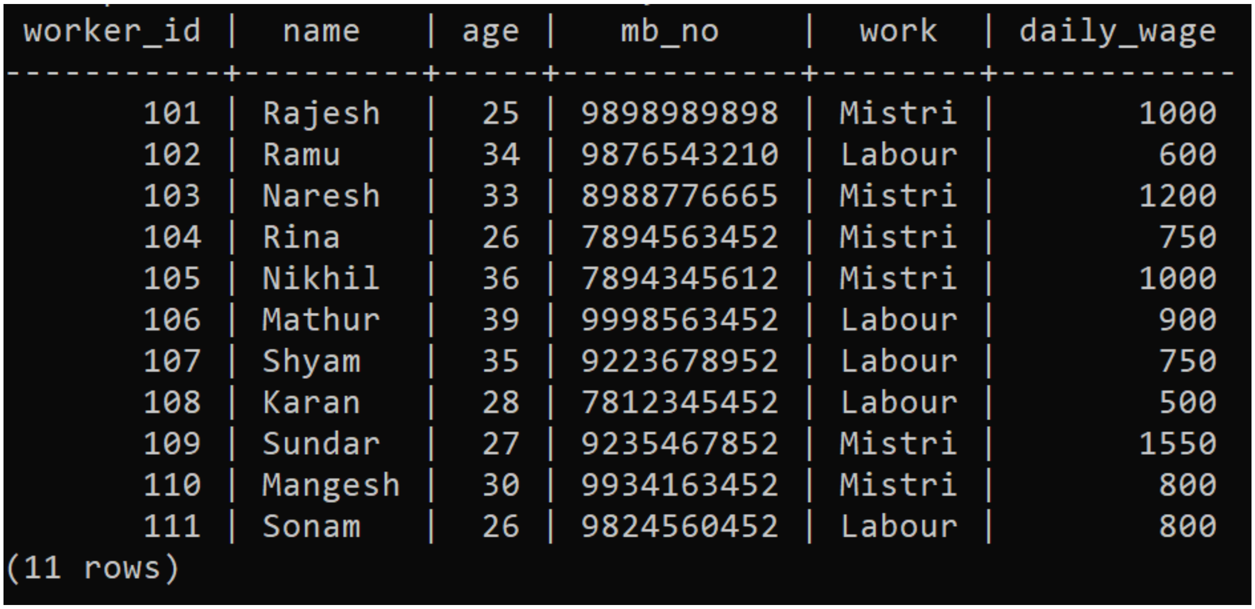
Tables

- Enterprise Detail table



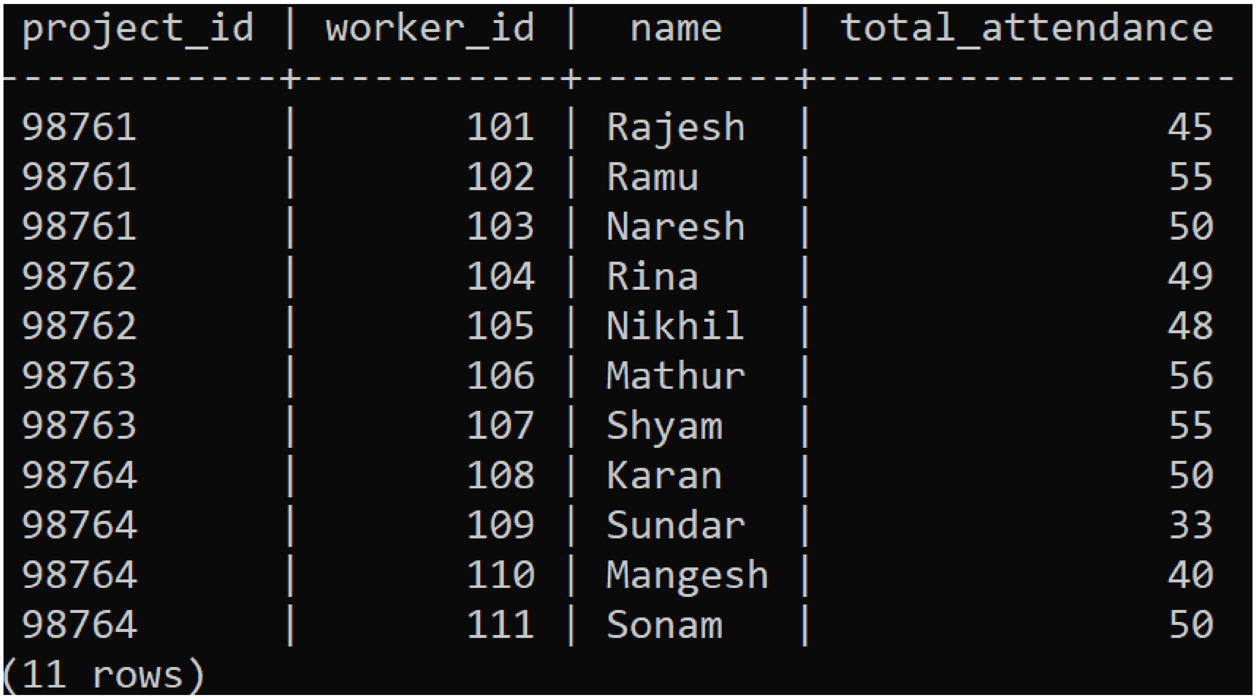
```
 gstin_contractor | owner_name | partner
------------------+------------+---------
 ABC123456789DEF  | Rajesh S   | None
 QWE123456789YTR  | Rohit      | Rina M
 TYU345678912VBN  | Shifa k    | None
 HJK987654321QWE  | Pritam J   | Aayushi
(4 rows)
```

- Worker Detail Table



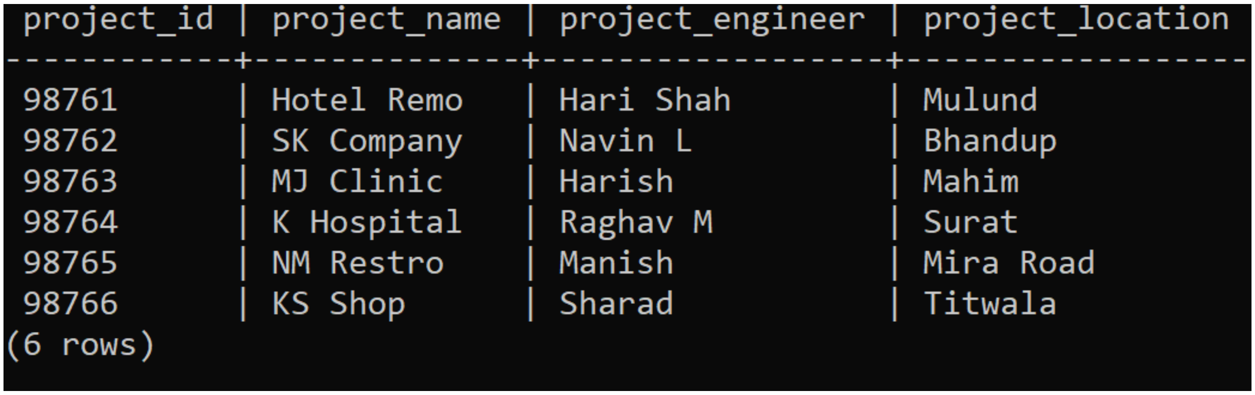
```
 worker_id |  name   | age |   mb_no    |  work  | daily_wage
-----------+---------+-----+------------+--------+------------
       101 | Rajesh  |  25 | 9898989898 | Mistri |       1000
       102 | Ramu    |  34 | 9876543210 | Labour |        600
       103 | Naresh  |  33 | 8988776665 | Mistri |       1200
       104 | Rina    |  26 | 7894563452 | Mistri |        750
       105 | Nikhil  |  36 | 7894345612 | Mistri |       1000
       106 | Mathur  |  39 | 9998563452 | Labour |        900
       107 | Shyam   |  35 | 9223678952 | Labour |        750
       108 | Karan   |  28 | 7812345452 | Labour |        500
       109 | Sundar  |  27 | 9235467852 | Mistri |       1550
       110 | Mangesh |  30 | 9934163452 | Mistri |        800
       111 | Sonam   |  26 | 9824560452 | Labour |        800
(11 rows)
```

- Worker Attendance Table



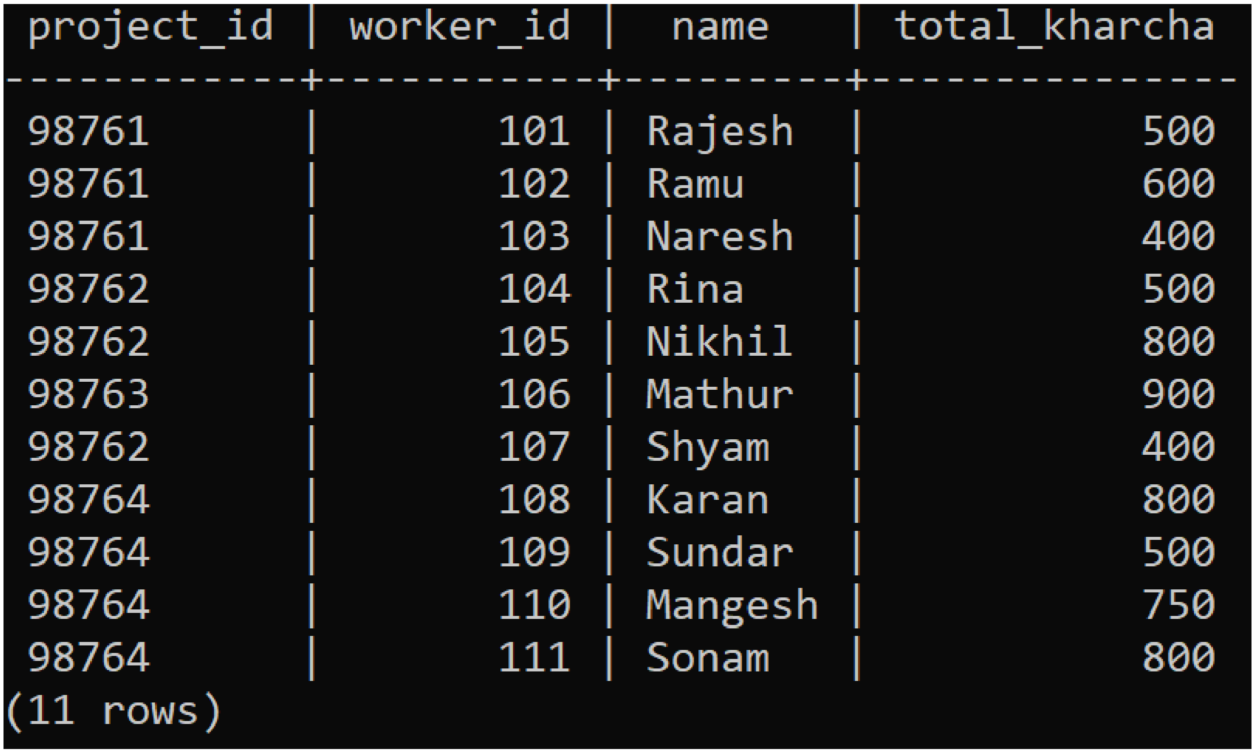
```
 project_id | worker_id |  name   | total_attendance
------------+-----------+---------+------------------
 98761      |       101 | Rajesh  |               45
 98761      |       102 | Ramu    |               55
 98761      |       103 | Naresh  |               50
 98762      |       104 | Rina    |               49
 98762      |       105 | Nikhil  |               48
 98763      |       106 | Mathur  |               56
 98763      |       107 | Shyam   |               55
 98764      |       108 | Karan   |               50
 98764      |       109 | Sundar  |               33
 98764      |       110 | Mangesh |               40
 98764      |       111 | Sonam   |               50
(11 rows)
```

- Project Detail Table



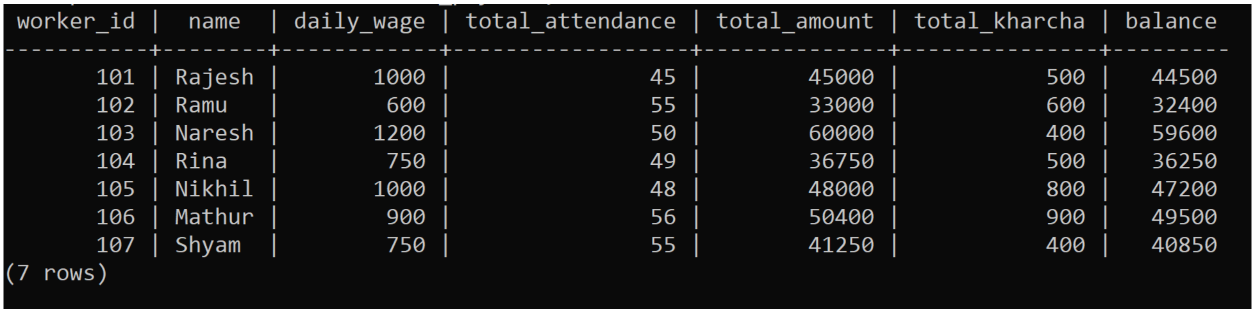
```
 project_id | project_name | project_engineer | project_location
------------+--------------+------------------+------------------
 98761      | Hotel Remo   | Hari Shah        | Mulund
 98762      | SK Company   | Navin L          | Bhandup
 98763      | MJ Clinic    | Harish           | Mahim
 98764      | K Hospital   | Raghav M         | Surat
 98765      | NM Restro    | Manish           | Mira Road
 98766      | KS Shop      | Sharad           | Titwala
(6 rows)
```

- Worker Expense



```
 project_id | worker_id |  name    | total_kharcha
------------+-----------+----------+---------------
 98761      |       101 | Rajesh   |           500
 98761      |       102 | Ramu     |           600
 98761      |       103 | Naresh   |           400
 98762      |       104 | Rina     |           500
 98762      |       105 | Nikhil   |           800
 98763      |       106 | Mathur   |           900
 98762      |       107 | Shyam    |           400
 98764      |       108 | Karan    |           800
 98764      |       109 | Sundar   |           500
 98764      |       110 | Mangesh  |           750
 98764      |       111 | Sonam    |           800
(11 rows)
```

- Balance Payment

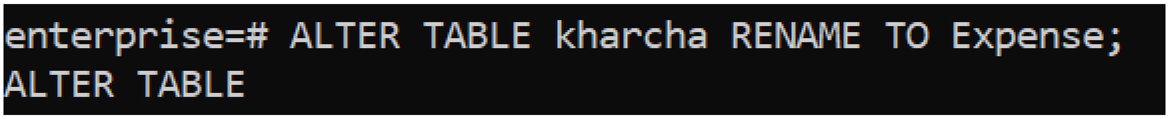


```
 worker_id |  name  | daily_wage | total_attendance | total_amount | total_kharcha | balance
-----------+--------+------------+------------------+--------------+---------------+---------
       101 | Rajesh |       1000 |               45 |        45000 |           500 |   44500
       102 | Ramu   |        600 |               55 |        33000 |           600 |   32400
       103 | Naresh |       1200 |               50 |        60000 |           400 |   59600
       104 | Rina   |        750 |               49 |        36750 |           500 |   36250
       105 | Nikhil |       1000 |               48 |        48000 |           800 |   47200
       106 | Mathur |        900 |               56 |        50400 |           900 |   49500
       107 | Shyam  |        750 |               55 |        41250 |           400 |   40850
(7 rows)
```

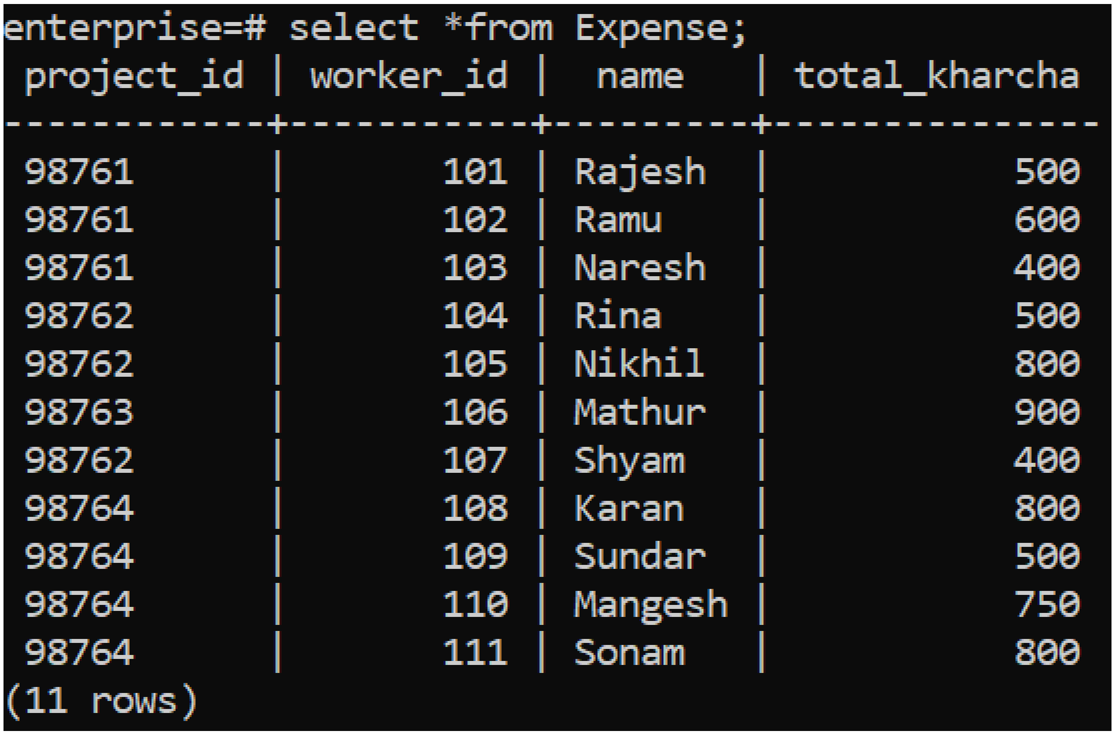
Queries

1.Query to ALTER the table name

Query - ALTER TABLE kharcha RENAME TO Expense;



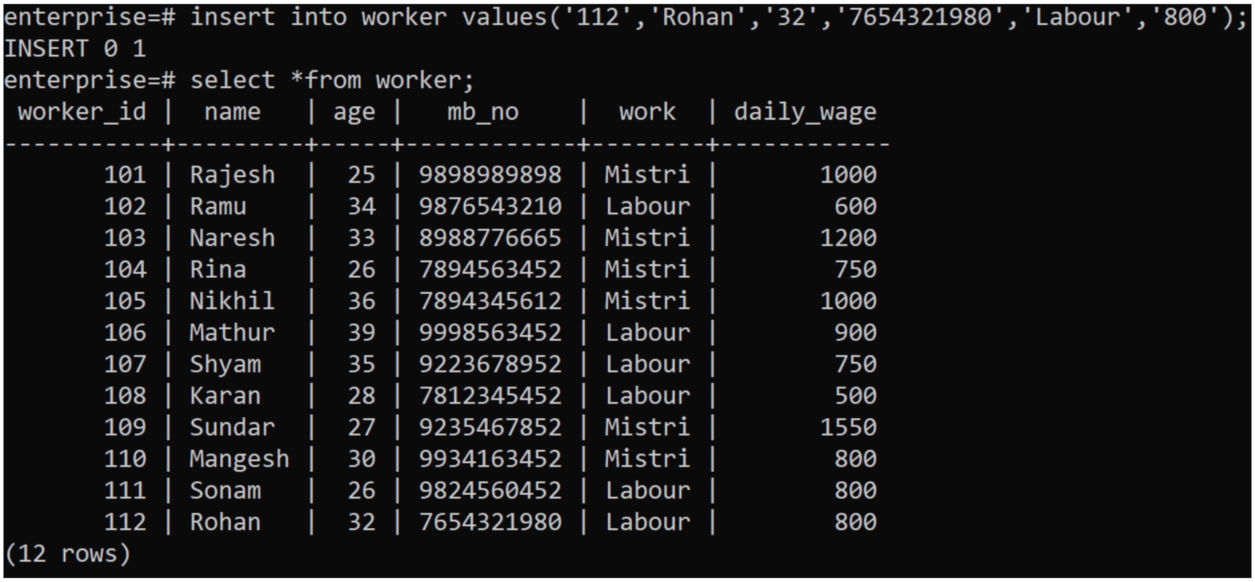
```
enterprise=# ALTER TABLE kharcha RENAME TO Expense;
ALTER TABLE
```



```
enterprise=# select *from Expense;
 project_id | worker_id |  name   | total_kharcha
------------+-----------+---------+---------------
 98761      |       101 | Rajesh  |           500
 98761      |       102 | Ramu    |           600
 98761      |       103 | Naresh  |           400
 98762      |       104 | Rina    |           500
 98762      |       105 | Nikhil  |           800
 98763      |       106 | Mathur  |           900
 98762      |       107 | Shyam   |           400
 98764      |       108 | Karan   |           800
 98764      |       109 | Sundar  |           500
 98764      |       110 | Mangesh |           750
 98764      |       111 | Sonam   |           800
(11 rows)
```

2.Query to Insert new worker in the worker table

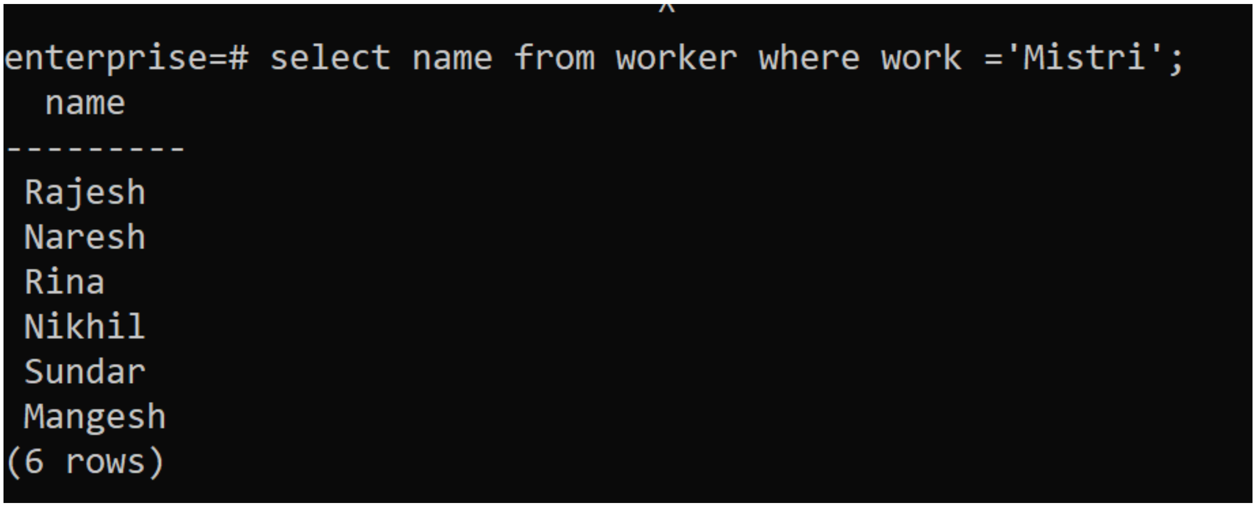
Query - insert into worker values(‘112’,’Rohan’,’32’,’7654321980’,’Labour’,’800’);



```
enterprise=# insert into worker values('112','Rohan','32','7654321980','Labour','800');
INSERT 0 1
enterprise=# select *from worker;
 worker_id |  name   | age |   mb_no    |  work  | daily_wage
-----------+---------+-----+------------+--------+------------
       101 | Rajesh  |  25 | 9898989898 | Mistri |       1000
       102 | Ramu    |  34 | 9876543210 | Labour |        600
       103 | Naresh  |  33 | 8988776665 | Mistri |       1200
       104 | Rina    |  26 | 7894563452 | Mistri |        750
       105 | Nikhil  |  36 | 7894345612 | Mistri |       1000
       106 | Mathur  |  39 | 9998563452 | Labour |        900
       107 | Shyam   |  35 | 9223678952 | Labour |        750
       108 | Karan   |  28 | 7812345452 | Labour |        500
       109 | Sundar  |  27 | 9235467852 | Mistri |       1550
       110 | Mangesh |  30 | 9934163452 | Mistri |        800
       111 | Sonam   |  26 | 9824560452 | Labour |        800
       112 | Rohan   |  32 | 7654321980 | Labour |        800
(12 rows)
```

3.To Select worker who are Mistri

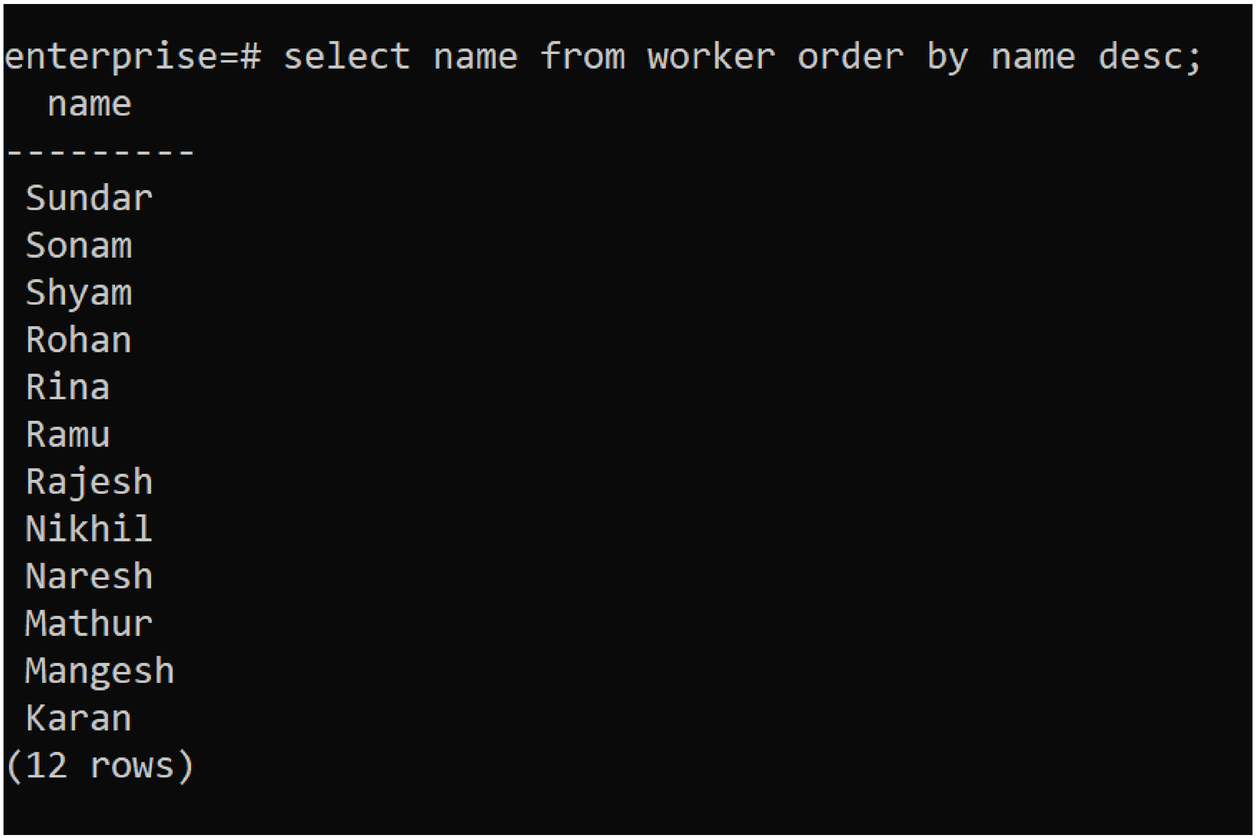
Query - select name from worker where work =’Mistri’;



```
enterprise=# select name from worker where work ='Mistri';
  name
---------
 Rajesh
 Naresh
 Rina
 Nikhil
 Sundar
 Mangesh
(6 rows)
```

4.To order name in descending fashion

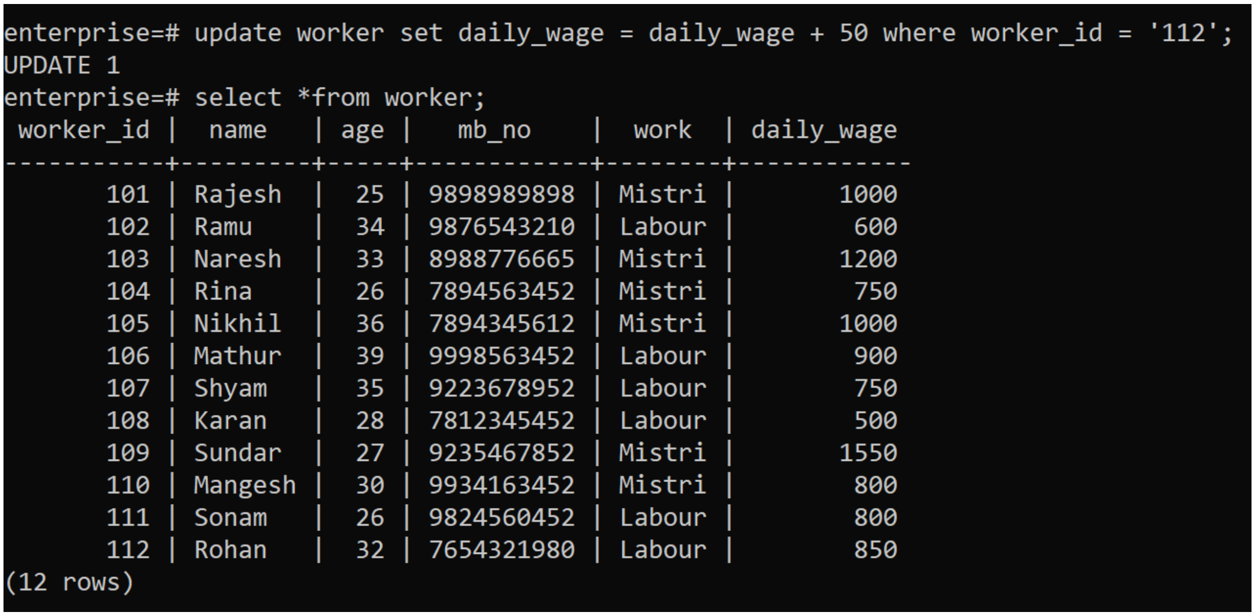
Query - select name from worker order by name desc;



```
enterprise=# select name from worker order by name desc;
  name
---------
 Sundar
 Sonam
 Shyam
 Rohan
 Rina
 Ramu
 Rajesh
 Nikhil
 Naresh
 Mathur
 Mangesh
 Karan
(12 rows)
```

5. Updating worker daily wage by 50 where id of worker is 112

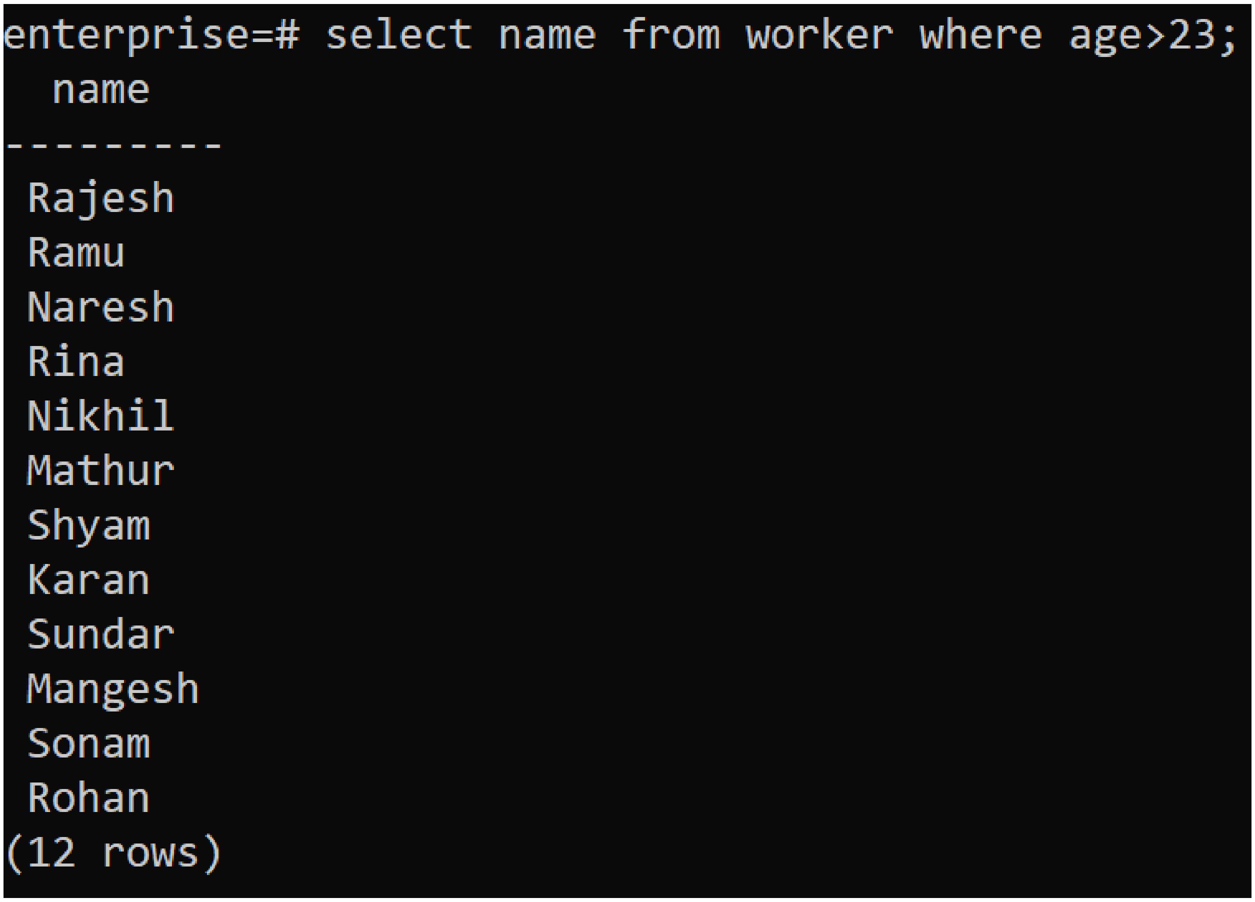
Query-update worker set daily_wage = daily_wage +50 where worker_id ='112';



```
enterprise=# update worker set daily_wage = daily_wage + 50 where worker_id = '112';
UPDATE 1
enterprise=# select *from worker;
 worker_id |  name   | age |   mb_no    |  work  | daily_wage
-----------+---------+-----+------------+--------+------------
       101 | Rajesh  |  25 | 9898989898 | Mistri |       1000
       102 | Ramu    |  34 | 9876543210 | Labour |        600
       103 | Naresh  |  33 | 8988776665 | Mistri |       1200
       104 | Rina    |  26 | 7894563452 | Mistri |        750
       105 | Nikhil  |  36 | 7894345612 | Mistri |       1000
       106 | Mathur  |  39 | 9998563452 | Labour |        900
       107 | Shyam   |  35 | 9223678952 | Labour |        750
       108 | Karan   |  28 | 7812345452 | Labour |        500
       109 | Sundar  |  27 | 9235467852 | Mistri |       1550
       110 | Mangesh |  30 | 9934163452 | Mistri |        800
       111 | Sonam   |  26 | 9824560452 | Labour |        800
       112 | Rohan   |  32 | 7654321980 | Labour |        850
(12 rows)
```

6.Selecting the name of worker where the worker age is greater than 23

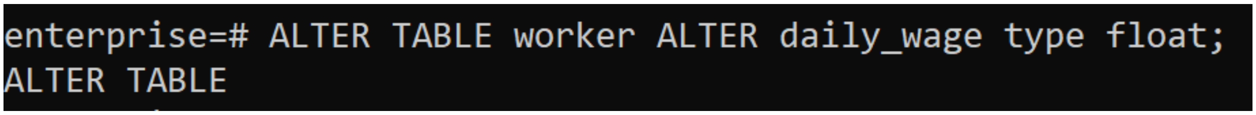
Query - select name form worker where age>23;



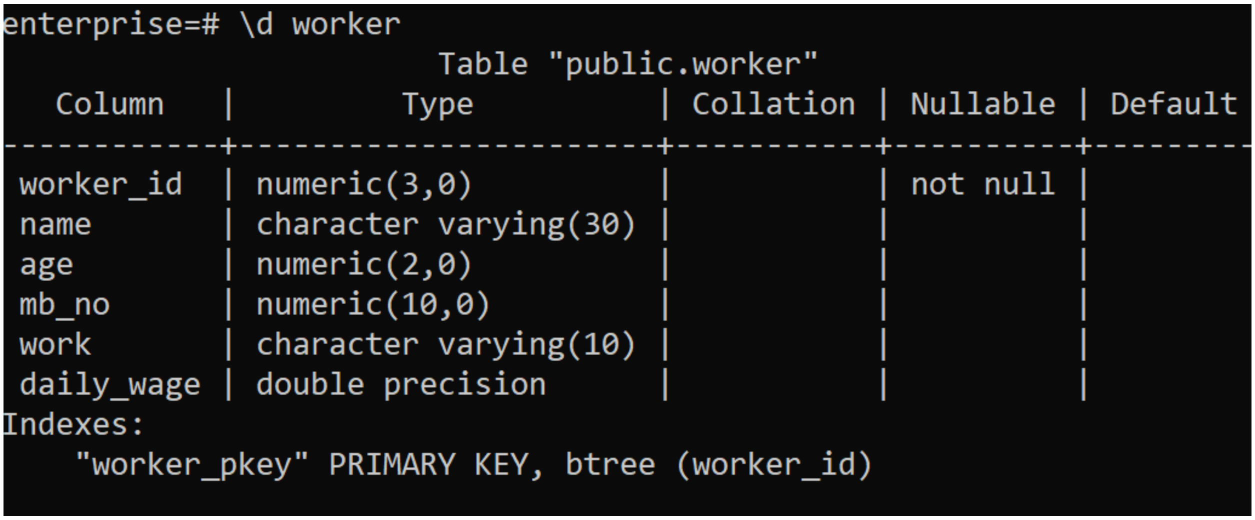
```
enterprise=# select name from worker where age>23;
  name
---------
 Rajesh
 Ramu
 Naresh
 Rina
 Nikhil
 Mathur
 Shyam
 Karan
 Sundar
 Mangesh
 Sonam
 Rohan
(12 rows)
```

7.Changing the datatype of the attribute of daily_wage of worker table

Query - ALTER TABLE worker ALTER daily_wage type float;



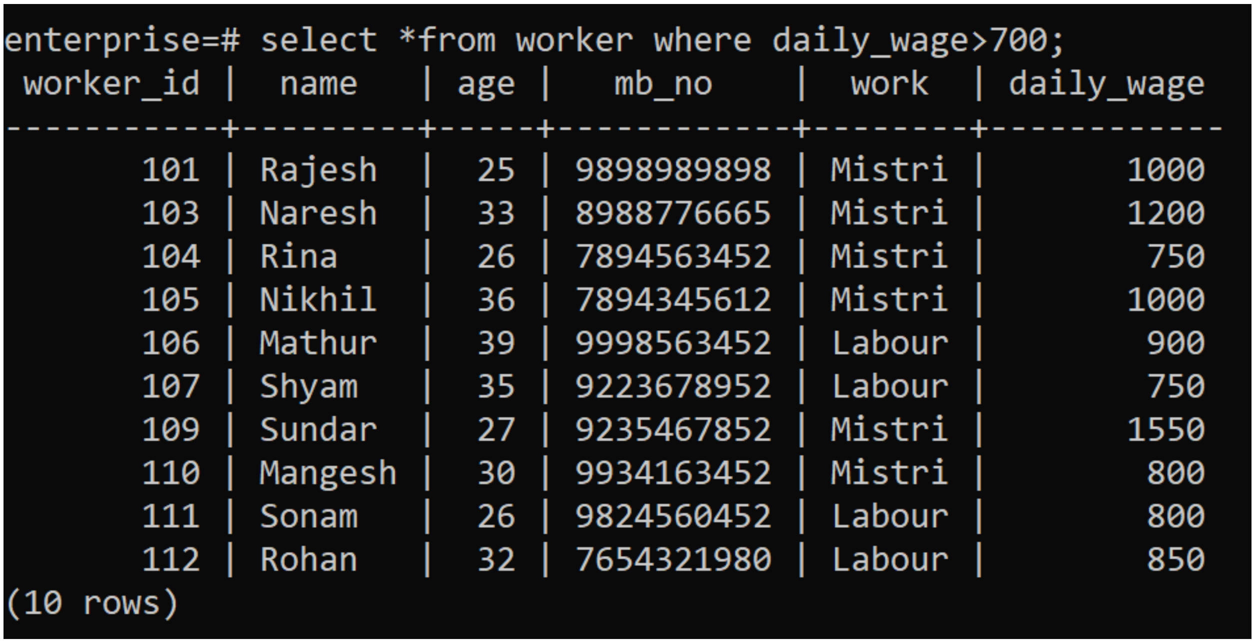
```
enterprise=# ALTER TABLE worker ALTER daily_wage type float;
ALTER TABLE
```



```
enterprise=# \d worker
                       Table "public.worker"
   Column   |         Type          | Collation | Nullable | Default
------------+-----------------------+-----------+----------+---------
 worker_id  | numeric(3,0)          |           | not null |
 name       | character varying(30) |           |          |
 age        | numeric(2,0)          |           |          |
 mb_no      | numeric(10,0)         |           |          |
 work       | character varying(10) |           |          |
 daily_wage | double precision      |           |          |
Indexes:
    "worker_pkey" PRIMARY KEY, btree (worker_id)
```

8.Getting name of all the worker whose daily_wage is greater than 700

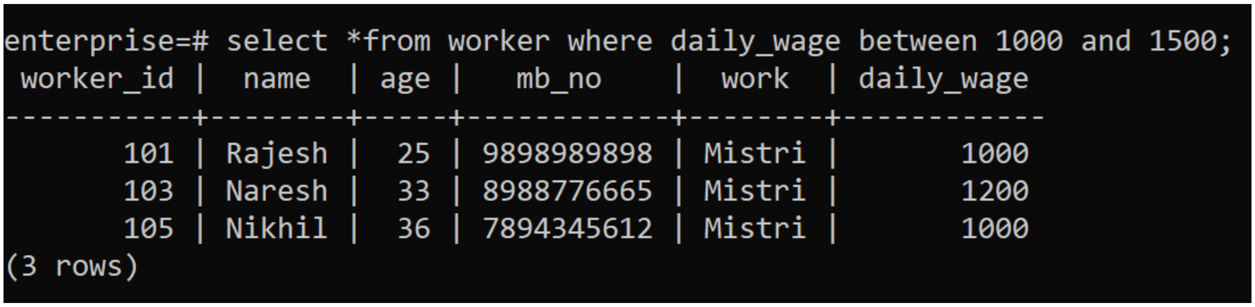
Query - select *from worker where daily_wage>700;



```
enterprise=# select *from worker where daily_wage>700;
 worker_id |  name   | age |   mb_no    |  work  | daily_wage
-----------+---------+-----+------------+--------+------------
       101 | Rajesh  |  25 | 9898989898 | Mistri |       1000
       103 | Naresh  |  33 | 8988776665 | Mistri |       1200
       104 | Rina    |  26 | 7894563452 | Mistri |        750
       105 | Nikhil  |  36 | 7894345612 | Mistri |       1000
       106 | Mathur  |  39 | 9998563452 | Labour |        900
       107 | Shyam   |  35 | 9223678952 | Labour |        750
       109 | Sundar  |  27 | 9235467852 | Mistri |       1550
       110 | Mangesh |  30 | 9934163452 | Mistri |        800
       111 | Sonam   |  26 | 9824560452 | Labour |        800
       112 | Rohan   |  32 | 7654321980 | Labour |        850
(10 rows)
```

9.Worker whose daily_wage is between 1000 and 1500

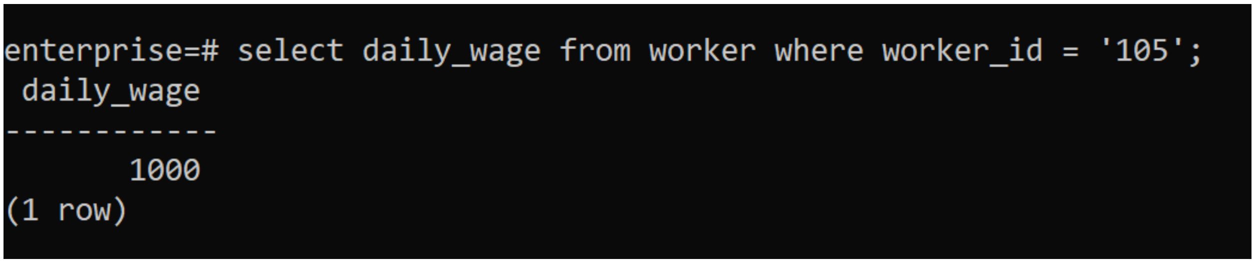
Query - select *from worker where daily_wage between 1000 and 1500



```
enterprise=# select *from worker where daily_wage between 1000 and 1500;
 worker_id |  name  | age |   mb_no    |  work  | daily_wage
-----------+--------+-----+------------+--------+------------
       101 | Rajesh |  25 | 9898989898 | Mistri |       1000
       103 | Naresh |  33 | 8988776665 | Mistri |       1200
       105 | Nikhil |  36 | 7894345612 | Mistri |       1000
(3 rows)
```

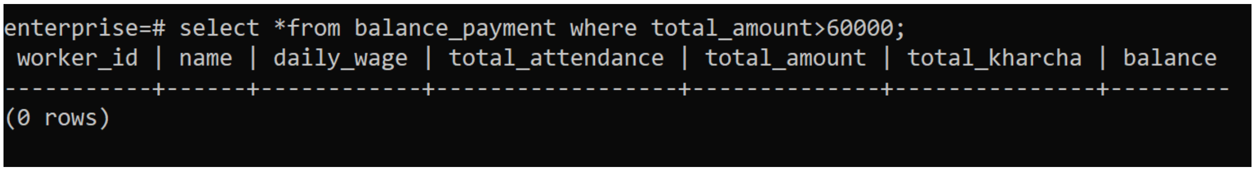
10. Selecting the worker whose worker id is 105

Query - select daily_wage from worker where worker_id ='105';



```
enterprise=# select daily_wage from worker where worker_id = '105';
 daily_wage
------------
       1000
(1 row)
```

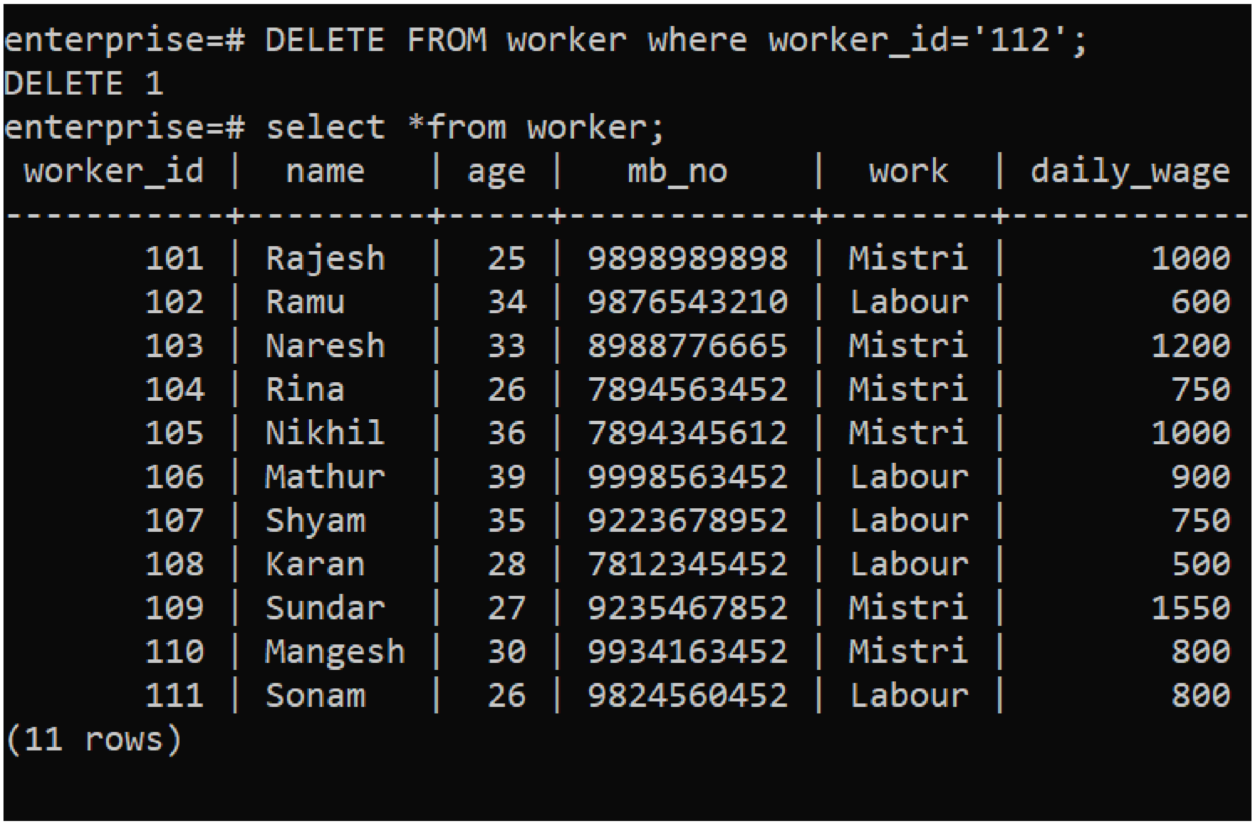
11.selecting the table values where the total amount is greater than 60000 in the balance_payment table;



```
enterprise=# select *from balance_payment where total_amount>60000;
 worker_id | name | daily_wage | total_attendance | total_amount | total_kharcha | balance
-----------+------+------------+------------------+--------------+---------------+---------
(0 rows)
```

12. Deleting a value from the table

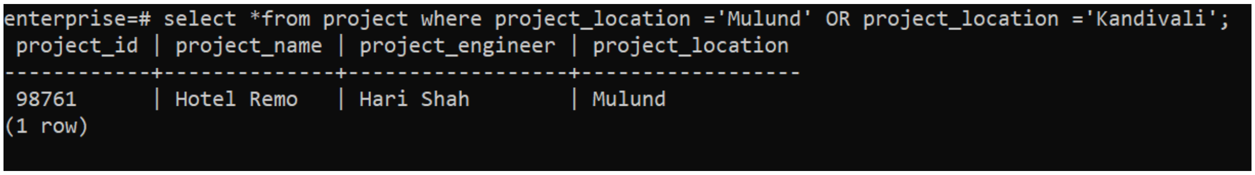
Query - DELETE FROM worker WHERE worke_id =’112’;



```
enterprise=# DELETE FROM worker where worker_id='112';
DELETE 1
enterprise=# select *from worker;
 worker_id |  name   | age |   mb_no    |  work  | daily_wage
-----------+---------+-----+------------+--------+------------
       101 | Rajesh  |  25 | 9898989898 | Mistri |       1000
       102 | Ramu    |  34 | 9876543210 | Labour |        600
       103 | Naresh  |  33 | 8988776665 | Mistri |       1200
       104 | Rina    |  26 | 7894563452 | Mistri |        750
       105 | Nikhil  |  36 | 7894345612 | Mistri |       1000
       106 | Mathur  |  39 | 9998563452 | Labour |        900
       107 | Shyam   |  35 | 9223678952 | Labour |        750
       108 | Karan   |  28 | 7812345452 | Labour |        500
       109 | Sundar  |  27 | 9235467852 | Mistri |       1550
       110 | Mangesh |  30 | 9934163452 | Mistri |        800
       111 | Sonam   |  26 | 9824560452 | Labour |        800
(11 rows)
```

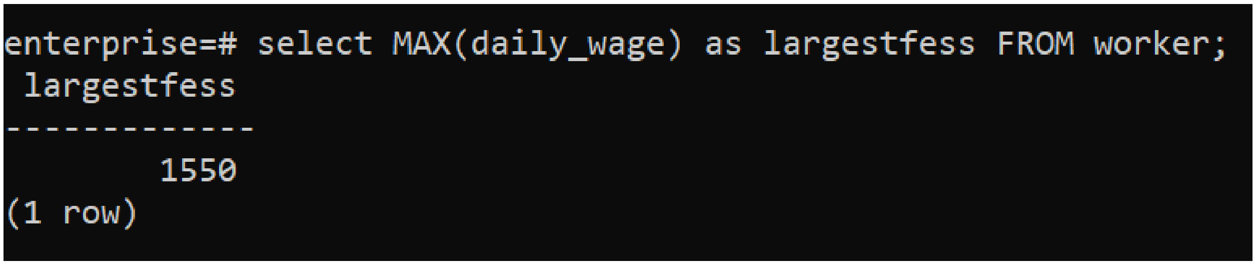
13.Selecting the project where either the location is Mulund or Kandivali

Query - select *from project where project_location=’Mulund’ OR project_location =’Kandivali’;



```
enterprise=# select *from project where project_location ='Mulund' OR project_location ='Kandivali';
 project_id | project_name | project_engineer | project_location
------------+--------------+------------------+------------------
 98761      | Hotel Remo   | Hari Shah        | Mulund
(1 row)
```

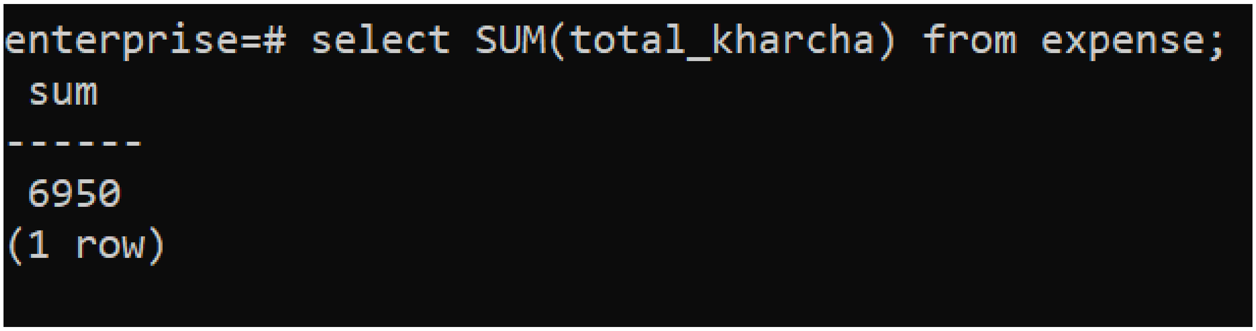
14. Returning the maximum salary of an worker from worker table as largest fees



```
enterprise=# select MAX(daily_wage) as largestfess FROM worker;
 largestfess
-------------
        1550
(1 row)
```

15. Getting the total sum of all the expense of worker form expense table

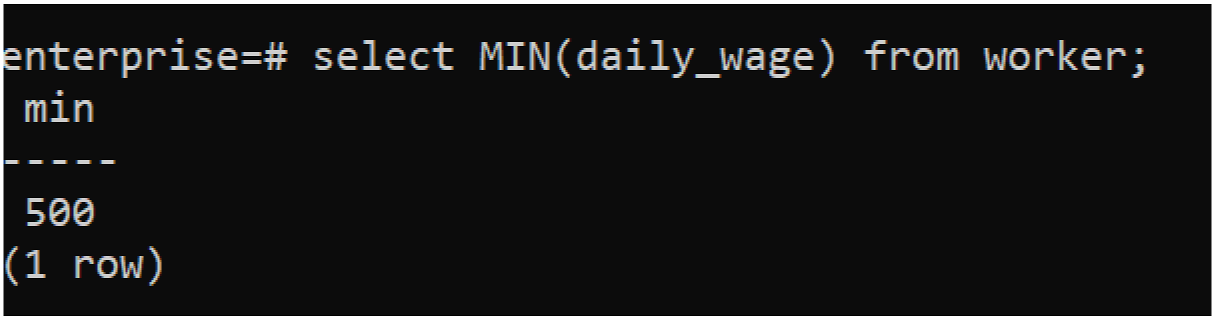
Query - select SUM(total_kharcha) from expense;



```
enterprise=# select SUM(total_kharcha) from expense;
 sum
------
 6950
(1 row)
```

16.Returning the minimum salary of an worker

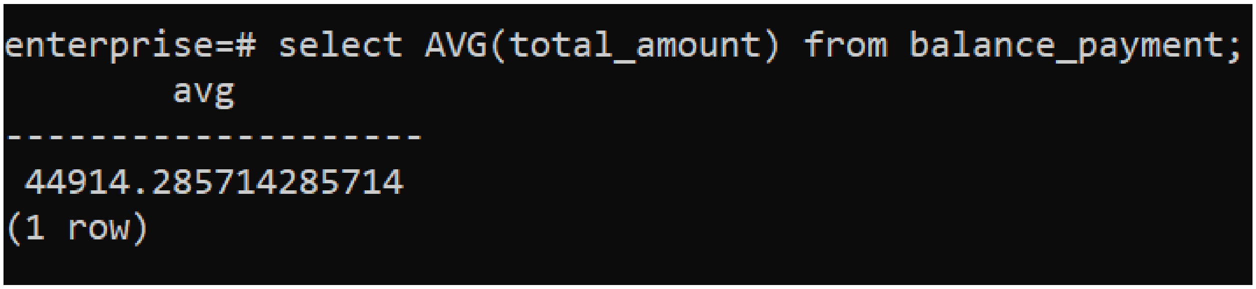
Query - select MIN(daily_wage) from worker;



```
enterprise=# select MIN(daily_wage) from worker;
 min
-----
 500
(1 row)
```

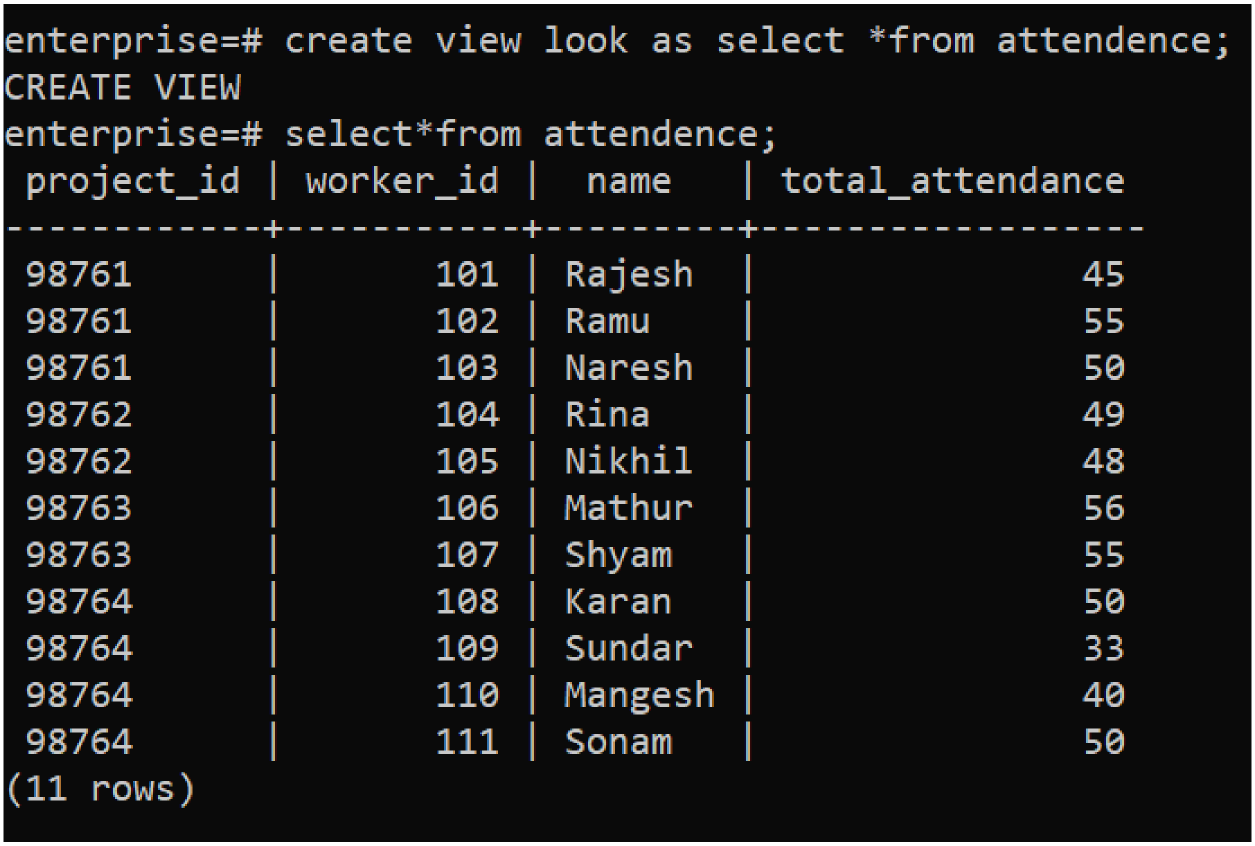
17.Getting the average of the total amount value from the table

Query - select AVG(total_amount) from balance_payment;



```
enterprise=# select AVG(total_amount) from balance_payment;
        avg
--------------------
 44914.285714285714
(1 row)
```

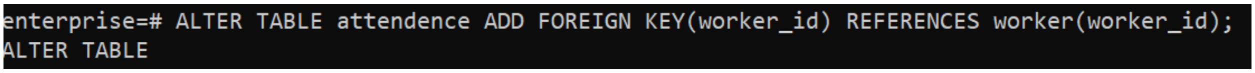
18.View command
Query - create view look as select *from attendence;



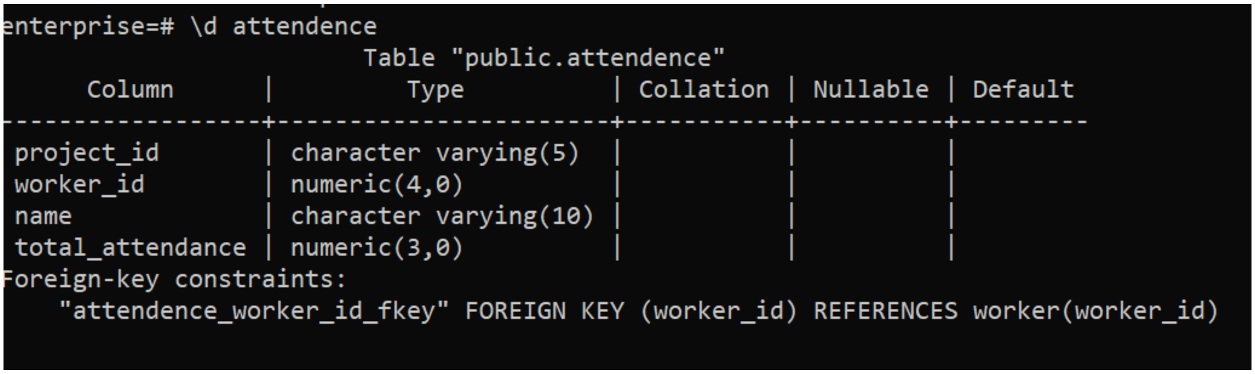
```
enterprise=# create view look as select *from attendence;
CREATE VIEW
enterprise=# select*from attendence;
 project_id | worker_id |  name   | total_attendance
------------+-----------+---------+------------------
 98761      |       101 | Rajesh  |               45
 98761      |       102 | Ramu    |               55
 98761      |       103 | Naresh  |               50
 98762      |       104 | Rina    |               49
 98762      |       105 | Nikhil  |               48
 98763      |       106 | Mathur  |               56
 98763      |       107 | Shyam   |               55
 98764      |       108 | Karan   |               50
 98764      |       109 | Sundar  |               33
 98764      |       110 | Mangesh |               40
 98764      |       111 | Sonam   |               50
(11 rows)
```

19. Making the worker id column of attendance the foreign key in attendance table with reference to worker table

Query -
ALTER TABLE attendance ADD FOREIGN KEY(worker_id) REFERENCES worker(worker_id);



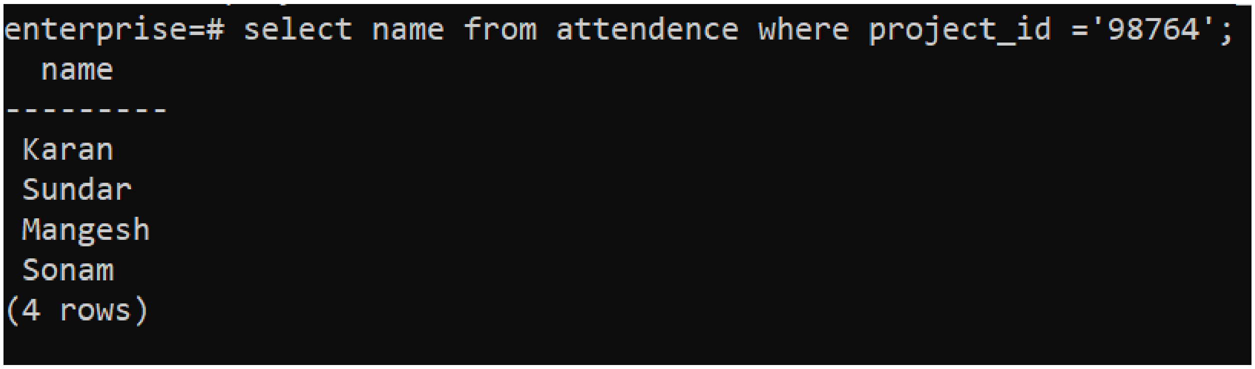
```
enterprise=# ALTER TABLE attendence ADD FOREIGN KEY(worker_id) REFERENCES worker(worker_id);
ALTER TABLE
```



```
enterprise=# \d attendence
                     Table "public.attendence"
     Column       |         Type          | Collation | Nullable | Default
------------------+-----------------------+-----------+----------+---------
 project_id       | character varying(5)  |           |          |
 worker_id        | numeric(4,0)          |           |          |
 name             | character varying(10) |           |          |
 total_attendance | numeric(3,0)          |           |          |
Foreign-key constraints:
    "attendence_worker_id_fkey" FOREIGN KEY (worker_id) REFERENCES worker(worker_id)
```

20.Returning the name of worker who are working for particular project id;

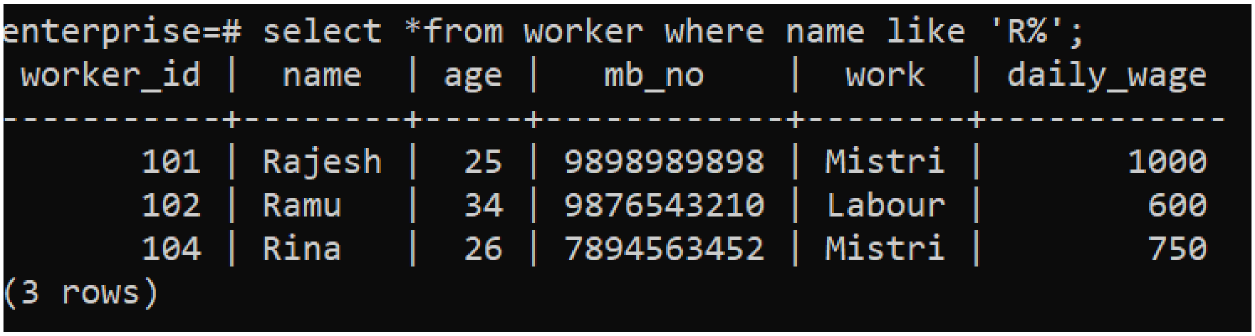
Query - select name from attendance where project_id ='98764';



```
enterprise=# select name from attendence where project_id ='98764';
  name
---------
 Karan
 Sundar
 Mangesh
 Sonam
(4 rows)
```

21.selecting the value if we look for pattern in the name as '%R';

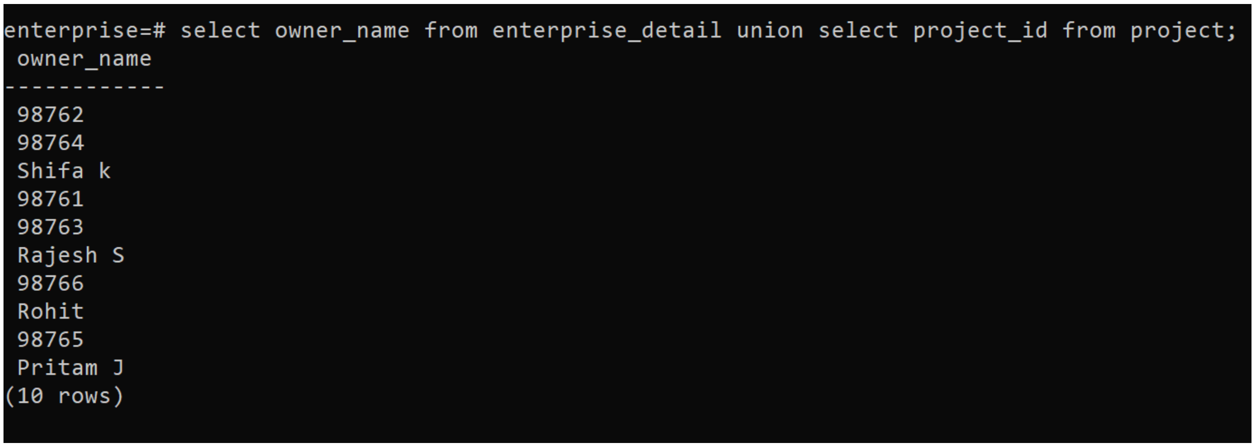
Query -select *from worker where name like 'R%';



```
enterprise=# select *from worker where name like 'R%';
 worker_id |  name  | age |   mb_no    |  work  | daily_wage
-----------+--------+-----+------------+--------+------------
       101 | Rajesh |  25 | 9898989898 | Mistri |       1000
       102 | Ramu   |  34 | 9876543210 | Labour |        600
       104 | Rina   |  26 | 7894563452 | Mistri |        750
(3 rows)
```

22. Returning the owner name and project id of owner by Union command

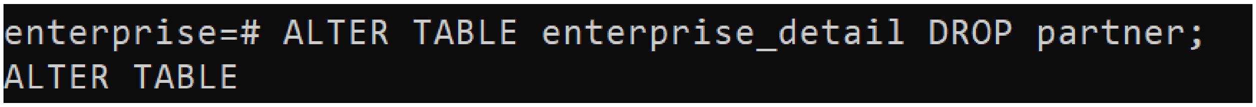
Query -select owner_name from enterprise_detail union select project_id from project;



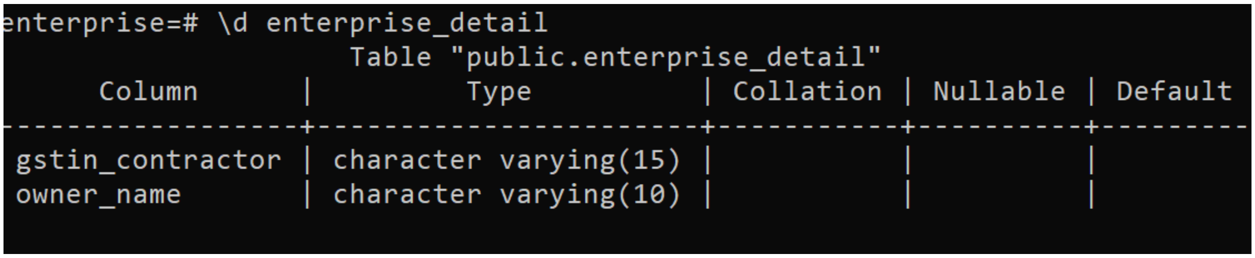
```
enterprise=# select owner_name from enterprise_detail union select project_id from project;
 owner_name
------------
 98762
 98764
 Shifa k
 98761
 98763
 Rajesh S
 98766
 Rohit
 98765
 Pritam J
(10 rows)
```

23. Deleting the column from table

Query - ALTER TABLE enterprise_detail DROP partner;



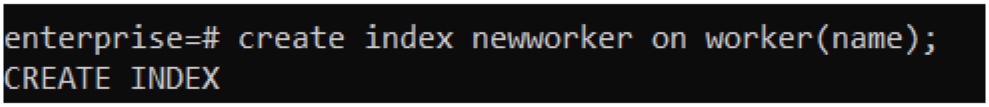
```
enterprise=# ALTER TABLE enterprise_detail DROP partner;
ALTER TABLE
```



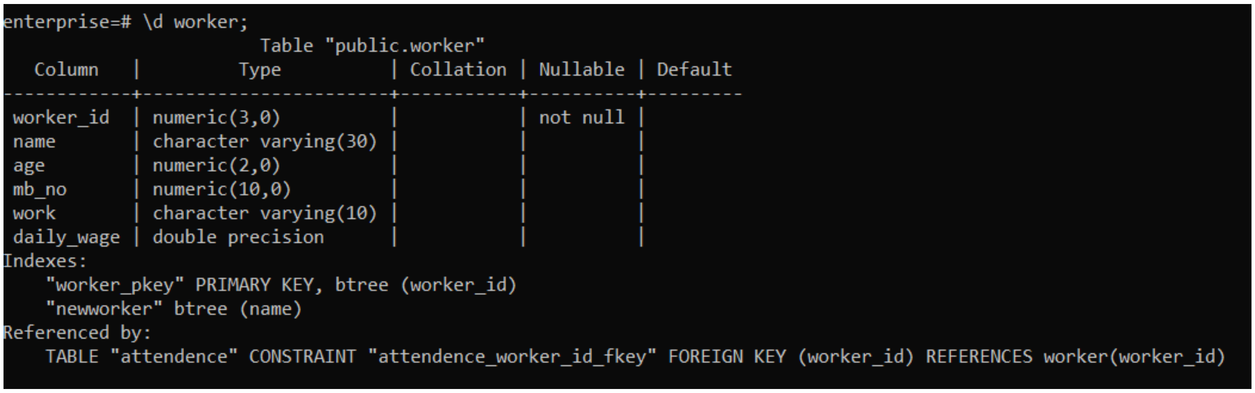
```
enterprise=# \d enterprise_detail
                     Table "public.enterprise_detail"
      Column      |         Type          | Collation | Nullable | Default
------------------+-----------------------+-----------+----------+---------
 gstin_contractor | character varying(15) |           |          |
 owner_name       | character varying(10) |           |          |
```

24. Create an index newworker on worker table

Query - create index newworker on worker(name);



```
enterprise=# create index newworker on worker(name);
CREATE INDEX
```



```
enterprise=# \d worker;
                       Table "public.worker"
   Column   |         Type          | Collation | Nullable | Default
------------+-----------------------+-----------+----------+---------
 worker_id  | numeric(3,0)          |           | not null |
 name       | character varying(30) |           |          |
 age        | numeric(2,0)          |           |          |
 mb_no      | numeric(10,0)         |           |          |
 work       | character varying(10) |           |          |
 daily_wage | double precision      |           |          |
Indexes:
    "worker_pkey" PRIMARY KEY, btree (worker_id)
    "newworker" btree (name)
Referenced by:
    TABLE "attendence" CONSTRAINT "attendence_worker_id_fkey" FOREIGN KEY (worker_id) REFERENCES worker(worker_id)
```

Conclusion

Hence , the report presents a way to manage the payroll details of the worker , it makes the task efficient and also error free.