

HUMAN RESOURCE AND PAYROLL MANAGEMENT SYSTEM

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CONTENTS

01 **Probelm Statement**

02 **Objectives**

03 **Relational database design**

04 **Requirement Analysis**

05 **ER Diagram**

06 **Schema Tables**

07 **SQL Queries**

08 **Conclusion**

09 **Software used**

PROBLEM STATEMENT

DBMS.2021

- Nowadays companies try to enhance their management and have a better control over their employees. In order to fulfill these requirements in a more efficient way they need software called Human Resource Management System.
- HR Management System is software which satisfies the needs of the Human Resources Department of a company to manage employees' personal data (citizen identity number, name, surname, birth-date, birthplace, educational information etc.), annual leaves, payroll, trainings, skills, performance evaluation and so on.



OBJECTIVES

The First Objective

Seamless experience for the staff and other people associated to management and organisational goals.

The Second Objective

Ensuring availability of resources, easy access to data, on-time payroll, ensuring compliances, etc.

The Third Objective

HRM objectives are basically influenced by organisational goals and vertical.

The Fourth Objective

Ensure a stable work environment with data at one place and efficient operations.

RELATIONAL DATABASES

DBMS. 2021



EMPLOYEE

Emp_id, name, contact,
Join_date, designation,
dept_id, Pay_id, ded_id,
att_id



DEPARTMENT

Dep_id, dep_name,
no_emp, dept_head



PAYMENT

Pay_id, ba, da, hra,
gross_pay, pay_date

RELATIONAL DATABASES

DBMS.2021



DEDUCTION

de_id, type, deduction_amount,
s_month



PROJECT

project_id, title, document,
start_date, end_date, projec
t_status



INTERVIEW

interview_id,
selection_round, interview_
date, venue

RELATIONAL DATABASES

DBMS. 2021



APPLICANT

app_id, name, candidate_no
, qualification, app_date,
app_status



ATTENDANCE

att_id, date, login_time,
logout_time, total_hour



VACANCIES

vac_id, criteria, qualification
, dept_id

REQUIREMENT ANALYSIS

EMPLOYEE

In the Employee table we have emp_id, name, contact, join_date, designation dept_id, pay_id and att_id. Out of them emp_id is taken as primary key because every employee will have a unique id with which we can identify a particular applicant. Here the information about employee's departments, payment, deduction and attendance will be saved.

DEPARTMENT

In the Departments table we have dept_id, dept_name, no_emp, dept_head. Out of them dept_id is taken as primary key because every department will have a unique id with which we can identify a particular applicant. In this table all the departments names with the number of employees working in them along with department head names will be saved.

PAYMENT

In the Payment table we have pay_id, ba, da, hra, gross_pay and pay_date. Out of them pay_id is taken as primary key because every payment will have a unique id with which we can identify a particular applicant. Here the information about employee's each payment with the breakdown of gross pay and payment date will be saved.

REQUIREMENT ANALYSIS

DEDUCTION

In the deductions table we have de_id, type, deduction_amount, s_month. Out of them de_id is taken as primary key because every employee will have a unique id with which we can identify a particular employee.

PROJECT

In the project table we have project_id, title, document, start_date, end_date, project_status. Out of them project_id is taken as primary key because every project will have a unique id with which we can identify a particular project.

INTERVIEW

In the interview table we have interview_id, selection_round, interview_date, venue. Out of them interview_id is taken as primary key because every applicant will have a unique id with which we can identify a particular applicant.

REQUIREMENT ANALYSIS

APPLICANT

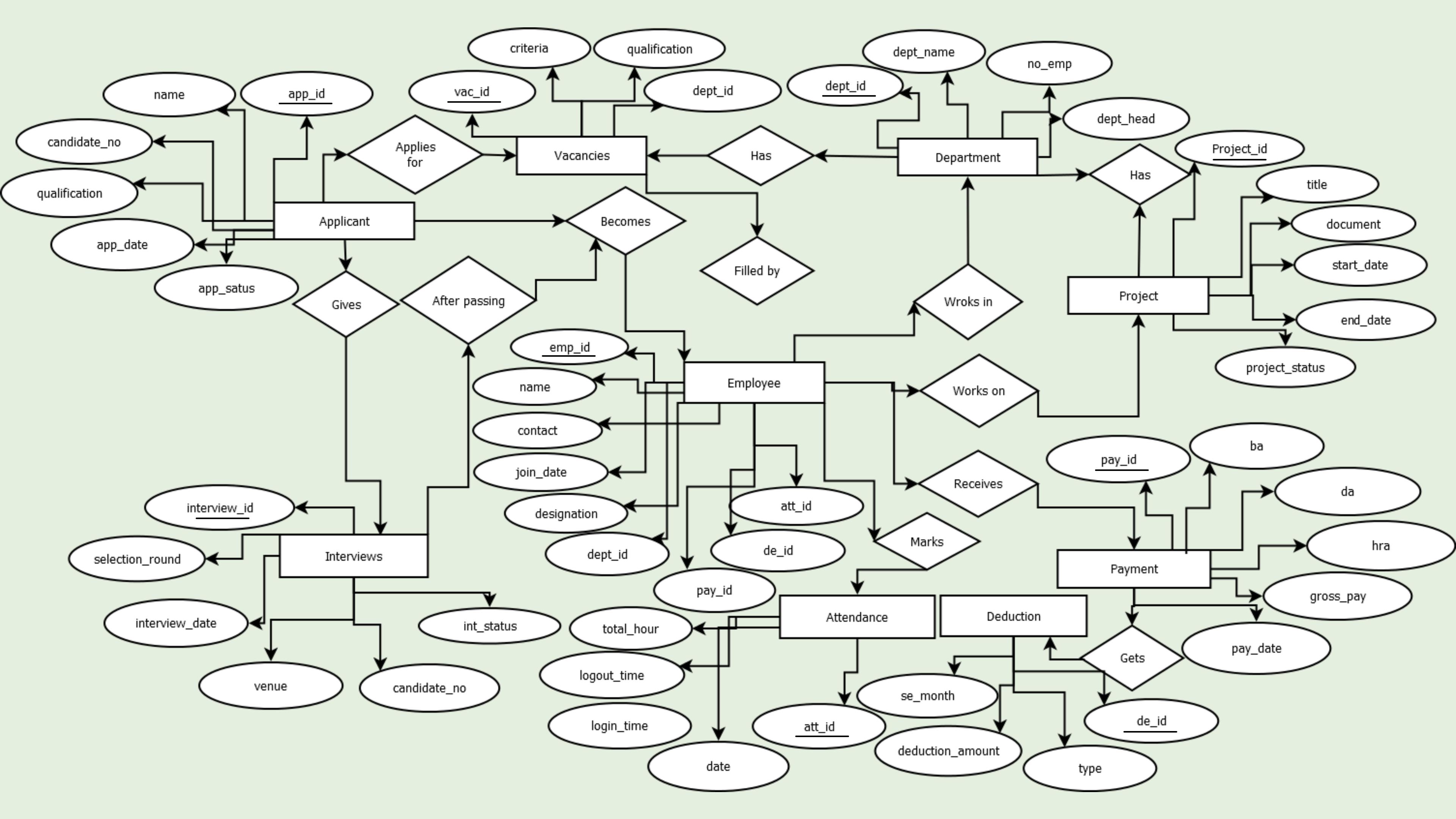
In the applicants table we have app_id, name, candidate_no, qualification, app_date, app_status. Out of them app_id is taken as primary key because every applicant will have a unique id with which we can identify a particular applicant.

ATTENDANCE

In the attendance table we have five attributes: att_id, date, login_time, logout_time, total_hour. Out of them att_id is taken as primary key because every employee will have a unique id with which we can identify the attendance.

VACANCIES

In the vacancies table we have four attributes: vac_id, criteria, qualification, dept_id. Out of them vac_id is taken as primary key because every department will have a unique id with which we can identify the vacancies in the department.



SCHEMA TABLES

EMPLOYEE

Primary key: emp_id

emp_id	name	join_date	contact	designation	dept_id	pay_id	de_id	att_id

DEPARTMENT

Primary key: dept_id

dept_id	dept_name	no_emp	dept_head

SCHEMA TABLES

PAYMENT

Primary key: pay_id

pay_id	ba	da	hra	gross_pay	pay_date

DEDUCTION

Primary key: de_id

de_id	type	deduction_amount	s_month

SCHEMA TABLES

PROJECT

Primary key: project_id

project_id	title	document	start_date	end_date	project_status

INTERVIEW

Primary key: interview_id

interview_id	selection_rund	interview_date	venue	candidate_no	int_status

SCHEMA TABLES

APPLICANTS

Primary key: app_id

app_id	name	candidate_no	qualification	app_date	app_status

ATTENDANCE

Primary key: att_id

att_id	date	login_time	logout_time	total_hour

SCHEMA TABLES

VACANCIES

Primary key: vac_id

<u>vac_id</u>	criteria	qualification	dept_id

SQL QUERIES

DBMS. 2021

A total of 31 SQL Queries have
been successfully performed on
the database.

1) Create a Database name 'hrms'

```
Server [localhost]:  
Database [postgres]:  
Port [5432]:  
Username [postgres]:  
Password for user postgres:  
psql (13.4)  
WARNING: Console code page (437) differs from Windows code page (1252)  
8-bit characters might not work correctly. See psql reference  
page "Notes for Windows users" for details.  
Type "help" for help.  
  
postgres=# create database hrms;  
CREATE DATABASE  
postgres=# \c hrms  
You are now connected to database "hrms" as user "postgres".
```

2) Create the tables named 'Employee', 'Department', 'Payment', 'Deductions', 'Project', 'Interview', 'Applicants', 'Attendance', 'Vacancies'.

```
hrms=# create table Employee (Emp_id integer, Name varchar(50), Contact integer, Join_date date,  
Designation varchar(50), Dept_id integer, Pay_id integer, DE_id integer, Att_id integer)  
hrms-#  
hrms-# ;  
CREATE TABLE  
hrms=# select*from Employee  
hrms-# ;  
emp_id | name | contact | join_date | designation | dept_id | pay_id | de_id | att_id  
-----+-----+-----+-----+-----+-----+-----+-----+-----  
(0 rows)
```

```
hrms=# create table Department (Dept_id integer, Dept_name varchar(50), no_emp integer,  
Dept_Head varchar(50));  
CREATE TABLE  
hrms=# select*from Department;  
 dept_id | dept_name | no_emp | dept_head  
-----+-----+-----+-----  
(0 rows)
```

```
hrms=# create table Payment (Pay_id integer, BA integer, DA integer, HRA integer, Gross_pay integer,  
Pay_date date);  
CREATE TABLE  
hrms=# select*from Payment;  
 pay_id | ba | da | hra | gross_pay | pay_date  
-----+----+----+----+-----+-----  
(0 rows)
```

```
hrms=# create table project(project_id integer primary key, title varchar(50), document varchar(50), start_date date, end_date date,project_status varchar(50));  
CREATE TABLE  
hrms=# select * from project;  
 project_id | title | document | start_date | end_date | project_status  
-----+-----+-----+-----+-----+-----  
(0 rows)
```

```
hrms=# create table interview(interview_id integer primary key, selection_round integer, interview_date date, venue varchar(50));
CREATE TABLE
hrms=# select * from interview;
 interview_id | selection_round | interview_date | venue
-----+-----+-----+-----
(0 rows)
```

```
hrms=# alter table deductions
hrms-# rename column decution_amount to deduction_amount;
ALTER TABLE
hrms=# select * from deductions;
 de_id | type | deduction_amount | s_month
-----+-----+-----+-----
(0 rows)
```

```
hrms=# create table applicants(app_id integer,name varchar(50), candidate_no integer,qualification varchar(50),app_date date,app_status varchar(50));
CREATE TABLE
hrms=# select*from applicants;
 app_id | name | candidate_no | qualification | app_date | app_status
-----+-----+-----+-----+-----+-----
(0 rows)

hrms=# insert into applicants
hrms-# values('12345','jonas','1001','btech','1/11/2021','active');
INSERT 0 1
hrms=# insert into applicants
hrms-# values('56789','scarlet','1002','mtech','5/11/2021','offer');
```

```
hrms=# create table attendance(att_id integer,date date,login_time time,logout_time time,total_hours time);
CREATE TABLE
hrms=# select*from attendance;
 att_id | date | login_time | logout_time | total_hours
-----+-----+-----+-----+-----
(0 rows)
```

```
hrms=# create table vacancies(vac_id integer,criteria varchar(50),qualification varchar(50),dept_id integer);
CREATE TABLE
hrms=# select*from vacancies;
 vac_id | criteria | qualification | dept_id
-----+-----+-----+-----
(0 rows)
```

3) Insert values into the tables:

```
hrms=# insert into Employee values ('1001','Santosh Joshi','9183849','21-01-2001','Accounting Head','101','20001','56987','12345'),('1002','Mitali Mishra','7291910','05-03-2011','Project Manager','102','20010','15976','56789'),('1010','Jay Mittal','8478930','28-05-2008','Graphic Designer','103','21001','84267','67890'),('1213','Rupali Kulkarni','958577','17-10-2003','Accountant','101','23450','79315','23456'),('2901','Ramesh Tripathi','7299390','26-09-2005','Programmer','104','21012','23789','12678'),('1345','Sonali Sikka','894949','06-02-2004','Marketing_Head','105','29108','35794','34567');  
INSERT 0 6  
hrms=# select*from Employee;  


| emp_id | name            | contact | join_date  | designation      | dept_id | pay_id | de_id | att_id |
|--------|-----------------|---------|------------|------------------|---------|--------|-------|--------|
| 1001   | Santosh Joshi   | 9183849 | 2001-01-21 | Accounting Head  | 101     | 20001  | 56987 | 12345  |
| 1002   | Mitali Mishra   | 7291910 | 2011-03-05 | Project Manager  | 102     | 20010  | 15976 | 56789  |
| 1010   | Jay Mittal      | 8478930 | 2008-05-28 | Graphic Designer | 103     | 21001  | 84267 | 67890  |
| 1213   | Rupali Kulkarni | 958577  | 2003-10-17 | Accountant       | 101     | 23450  | 79315 | 23456  |
| 2901   | Ramesh Tripathi | 7299390 | 2005-09-26 | Programmer       | 104     | 21012  | 23789 | 12678  |
| 1345   | Sonali Sikka    | 894949  | 2004-02-06 | Marketing_Head   | 105     | 29108  | 35794 | 34567  |



(6 rows)


```

4) View all the contents of all tables:

```
hrms=# select*from Department;  


| dept_id | dept_name        | no_emp | dept_head     |
|---------|------------------|--------|---------------|
| 101     | Accounting       | 20     | Santosh Joshi |
| 102     | Management       | 30     | Rutuja Sathe  |
| 103     | Designing        | 30     | Samir Agrawal |
| 104     | Programming      | 50     | Seema Mishra  |
| 105     | Marketing        | 40     | Sonali Sikka  |
| 106     | Customer Service | 10     | Mehram Jha    |



(6 rows)


```

```
hrms=# select * from Payment;
+-----+-----+-----+-----+-----+-----+
| pay_id | ba   | da   | hra  | gross_pay | pay_date |
+-----+-----+-----+-----+-----+-----+
| 20001  | 50000 | 10000 | 15000 | 75000    | 2021-12-10 |
| 20010  | 65000 | 12000 | 15000 | 92000    | 2021-12-10 |
| 21001  | 40000 | 10000 | 10000 | 60000    | 2021-12-10 |
| 23450  | 30000 | 10000 | 10000 | 50000    | 2021-12-10 |
| 21012  | 70000 | 15000 | 15000 | 100000   | 2021-12-10 |
| 29108  | 50000 | 10000 | 10000 | 70000    | 2021-12-10 |
+-----+-----+-----+-----+-----+-----+
(6 rows)
```

```
hrms=# select * from project;
+-----+-----+-----+-----+-----+-----+
| project_id | title           | document        | start_date | end_date | project_status |
+-----+-----+-----+-----+-----+-----+
| 1234       | Cloud Database   | Datasheet       | 2021-01-15 | 2021-05-25 | Completed     |
| 5678       | Payment Gateway  | Accounts         | 2021-08-10 | 2021-10-11 | Approved      |
| 9101       | Website Design Templates | Scripts | 2021-10-15 | 2022-01-30 | Working       |
| 1121       | Data Import Export Plugin | Plugin Data | 2021-01-10 | 2021-10-20 | Pending        |
| 3141       | Research & Development | Thesis/Reports | 2021-06-15 | 2021-09-25 | Finalised     |
| 5161       | E-Learning Integration | SRS             | 2021-12-02 | 2022-05-25 | Started        |
| 7181       | Portal System     | Research         | 2021-03-20 | 2021-08-30 | Completed     |
| 9202       | User Interface Design | Design          | 2021-01-10 | 2021-04-20 | Completed     |
| 1222       | Wellness App      | Android Study Material | 2021-04-15 | 2021-07-25 | Approved      |
| 3242       | Unit Testing      | Test Tools       | 2021-02-12 | 2021-07-10 | Approved      |
+-----+-----+-----+-----+-----+-----+
(10 rows)
```

```
hrms=# select * from interview;
   interview_id | selection_round | interview_date |      venue
-----+-----+-----+-----+
        248 |          1 | 2021-05-12 | Pune Office
        481 |          2 | 2021-06-12 | Mumbai Office
        396 |          1 | 2021-10-10 | Pune Office
        567 |          3 | 2021-02-12 | Kolkata Office
       124 |          2 | 2021-08-20 | Chennai Office
       677 |          2 | 2021-11-25 | Pune Office
       794 |          3 | 2021-12-12 | Mumbai Office
       841 |          2 | 2021-10-15 | Pune Office
       955 |          3 | 2021-04-14 | Chennai Office
       623 |          1 | 2021-08-15 | Chennai Office
(10 rows)
```

```
hrms=# select * from deductions;
    de_id |           type | deduction_amount | s_month
-----+-----+-----+-----+
     56987 | Health Insurance Premiums |      25000 | August
     15976 | Retirement Plans |      30000 | June
     84267 | Life Insurance Premiums |      10000 | July
     79315 | Job-Related Expenses |       5000 | June
     23789 | Health Insurance Premiums |      15000 | May
     35794 | Job-Related Expenses |       7000 | August
     45589 | Retirement Plans |      35000 | June
     57423 | Life Insurance Premiums |      12000 | July
     92275 | Health Insurance Premiums |      24000 | June
     18379 | Life Insurance Premiums |      15000 | May
(10 rows)
```

```
hrms=# select*from applicants;
   app_id |    name    | candidate_no | qualification |    app_date    |    app_status
-----+-----+-----+-----+-----+-----+
      12345 |   jonas    |        1001 |     btech     | 2021-11-01 | active
      56789 | scarlet    |        1002 |     mtech     | 2021-11-05 | offer
      67890 |   frank    |        1003 |      mba      | 2021-11-07 | first interview
      23456 | marker    |        1004 |     btech     | 2021-11-04 | second interview
      12678 |   blaze    |        1005 |     mtech     | 2021-11-02 | accepted
      34567 |   clare    |        1006 |     btech     | 2021-11-06 | active
(6 rows)
```

```
hrms=# select*from attendance;
   att_id |      date      | login_time | logout_time | total_hours
-----+-----+-----+-----+-----+
      12345 | 2021-11-01 | 09:30:00 | 10:30:00 | 01:00:00
      56789 | 2021-11-05 | 02:40:00 | 02:50:00 | 00:10:00
      67890 | 2021-11-07 | 11:30:00 | 11:50:00 | 00:20:00
      23456 | 2021-11-04 | 12:30:00 | 01:30:00 | 01:00:00
      12678 | 2021-11-02 | 03:40:00 | 04:10:00 | 00:30:00
      34567 | 2021-11-06 | 02:00:00 | 03:00:00 | 01:00:00
(6 rows)
```

```
hrms=# select*from vacancies;
   vac_id |      criteria      | qualification | dept_id
-----+-----+-----+-----+
    3333 | Work experience | btech        | 11111
    4444 | leadership     | btech        | 11112
    5555 | communication skills | btech        | 11113
    6666 | gpa            | btech        | 11114
    7777 | training experience | btech        | 11114
    8888 | risk evaluation ability | btech        | 11115
(6 rows)
```

5) Delete table ‘Department’ from the database

```
hrms=# select*from Department;
 dept_id | dept_name | no_emp | pro_id | dept_head
-----+-----+-----+-----+
(0 rows)

hrms=# drop table Department;
DROP TABLE
hrms=# select*from Department;
ERROR:  relation "department" does not exist
LINE 1: select*from Department;
^
```

6) Find name of all employees who work in Accounting department

```
hrms=# SELECT*FROM Employee;
 emp_id |      name       | contact | join_date | designation | dept_id | pay_id | de_id | att_id
-----+-----+-----+-----+-----+-----+-----+-----+-----+
 1001 | Santosh Joshi | 9183849 | 2001-01-21 | Accounting Head | 101 | 20001 | 56987 | 12345
 1002 | Mitali Mishra | 7291910 | 2011-03-05 | Project Manager | 102 | 20010 | 15976 | 56789
 1010 | Jay Mittal    | 8478930 | 2008-05-28 | Graphic Designer | 103 | 21001 | 84267 | 67890
 1213 | Rupali Kulkarni | 958577 | 2003-10-17 | Accountant | 101 | 23450 | 79315 | 23456
 2901 | Ramesh Tripathi | 7299390 | 2005-09-26 | Programmer | 104 | 21012 | 23789 | 12678
 1345 | Sonali Sikka | 894949 | 2004-02-06 | Marketing_Head | 105 | 29108 | 35794 | 34567
(6 rows)

hrms=# SELECT name FROM Employee WHERE dept_id='101';
      name
-----
 Santosh Joshi
 Rupali Kulkarni
(2 rows)
```

7) Increase Gross pay of all employees by ‘Rs. 5000’; where dearness allowance is ‘Rs. 10000’

```
hrms=# UPDATE Payment SET gross_pay=gross_pay+5000 WHERE da='10000';
UPDATE 4
hrms=# SELECT*FROM Payment;
  pay_id |   ba   |   da   |   hra  |   gross_pay |   pay_date
-----+-----+-----+-----+-----+-----+
  20010 | 65000 | 12000 | 15000 |      92000 | 2021-12-10
  21012 | 70000 | 15000 | 15000 |     100000 | 2021-12-10
  20001 | 50000 | 10000 | 15000 |      80000 | 2021-12-10
  21001 | 40000 | 10000 | 10000 |      65000 | 2021-12-10
  23450 | 30000 | 10000 | 10000 |      55000 | 2021-12-10
  29108 | 50000 | 10000 | 10000 |      75000 | 2021-12-10
(6 rows)
```

8) Add column deduction id into Payment table

```
hrms=# ALTER TABLE Payment ADD COLUMN de_id integer;
ALTER TABLE
hrms=# select*from Payment;
  pay_id |   ba   |   da   |   hra  |   gross_pay |   pay_date |   de_id
-----+-----+-----+-----+-----+-----+-----+
  20010 | 65000 | 12000 | 15000 |      92000 | 2021-12-10 |
  21012 | 70000 | 15000 | 15000 |     100000 | 2021-12-10 |
  20001 | 50000 | 10000 | 15000 |      80000 | 2021-12-10 |
  21001 | 40000 | 10000 | 10000 |      65000 | 2021-12-10 |
  23450 | 30000 | 10000 | 10000 |      55000 | 2021-12-10 |
  29108 | 50000 | 10000 | 10000 |      75000 | 2021-12-10 |
(6 rows)
```

9) Delete ‘Customer Service’ department from ‘Department’ table

```
hrms=# DELETE FROM Department WHERE dept_name='Customer Service';
DELETE 1
hrms=# select*from Department;
  dept_id |  dept_name  | no_emp |  dept_head
-----+-----+-----+-----+
      101 | Accounting |    20 | Santosh Joshi
      102 | Management |    30 | Rutuja Sathe
      103 | Designing  |    30 | Samir Agrawal
      104 | Programming |   50 | Seema Mishra
      105 | Marketing   |   40 | Sonali Sikka
(5 rows)
```

10) Find name of the employee who is from ‘Programming’ department and has salary ‘Rs.1,00,000’

```
hrms=# select*from Employee;
  emp_id |      name       | contact | join_date | designation | dept_id | pay_id | att_id
-----+-----+-----+-----+-----+-----+-----+-----+
     1001 | Santosh Joshi | 9183849 | 2001-01-21 | Accounting Head | 101 | 20001 | 12345
     1002 | Mitali Mishra | 7291910 | 2011-03-05 | Project Manager | 102 | 20010 | 56789
     1010 | Jay Mittal    | 8478930 | 2008-05-28 | Graphic Designer | 103 | 21001 | 67890
     1213 | Rupali Kulkarni | 958577 | 2003-10-17 | Accountant | 101 | 23450 | 23456
     2901 | Ramesh Tripathi | 7299390 | 2005-09-26 | Programmer | 104 | 21012 | 12678
     1345 | Sonali Sikka | 894949 | 2004-02-06 | Marketing_Head | 105 | 29108 | 34567
(6 rows)

hrms=# SELECT name FROM Employee WHERE dept_id='104' AND pay_id='21012';
      name
-----
      Ramesh Tripathi
(1 row)
```

11) Find the name of the departments where number of employees is either 30 or 50

```
hrms=# select*from department;
dept_id | dept_name | no_emp | dept_head
-----+-----+-----+
 101 | Accounting |    20 | Santosh Joshi
 102 | Management |   30 | Rutuja Sathe
 103 | Designing |   30 | Samir Agrawal
 104 | Programming |  50 | Seema Mishra
 105 | Marketing |   40 | Sonali Sikka
(5 rows)

hrms=# SELECT dept_name FROM Department WHERE no_emp='30' OR no_emp='50';
dept_name
-----
Management
Designing
Programming
(3 rows)
```

12) Find name of all employees working in accounting, management and designing department

```
hrms=# select*from Employee;
emp_id |      name      | contact | join_date | designation | dept_id | pay_id | att_id
-----+-----+-----+-----+-----+-----+-----+-----+
 1001 | Santosh Joshi | 9183849 | 2001-01-21 | Accounting Head | 101 | 20001 | 12345
 1002 | Mitali Mishra | 7291910 | 2011-03-05 | Project Manager | 102 | 20010 | 56789
 1010 | Jay Mittal     | 8478930 | 2008-05-28 | Graphic Designer | 103 | 21001 | 67890
 1213 | Rupali Kulkarni | 958577 | 2003-10-17 | Accountant | 101 | 23450 | 23456
 2901 | Ramesh Tripathi | 7299390 | 2005-09-26 | Programmer | 104 | 21012 | 12678
 1345 | Sonali Sikka   | 894949 | 2004-02-06 | Marketing_Head | 105 | 29108 | 34567
(6 rows)

hrms=# SELECT name FROM Employee WHERE dept_id IN (101, 102, 103)
hrms-# ;
      name
-----
Santosh Joshi
Mitali Mishra
Rupali Kulkarni
(3 rows)
```

13) Find the name of the departments Which Does not have 20,40 and 50 employees

```
hrms=# select*from Department;
dept_id | dept_name | no_emp | dept_head
-----+-----+-----+
 101 | Accounting |    20 | Santosh Joshi
 102 | Management |   30 | Rutuja Sathe
 103 | Designing |   30 | Samir Agrawal
 104 | Programming |  50 | Seema Mishra
 105 | Marketing |   40 | Sonali Sikka
(5 rows)

hrms=# SELECT dept_name FROM Department WHERE no_emp NOT IN (20, 40, 50);
dept_name
-----
Management
Designing
(2 rows)
```

14) Find the Projects which have been Completed in the First Half of the Year 2021.

```
hrms=# SELECT project_id, title, project_status FROM project WHERE end_date BETWEEN '2021-01-01' AND '2021-06-30'
AND project_status='Completed';
project_id | title | project_status
-----+-----+-----+
 1234 | Cloud Database | Completed
 9202 | User Interface Design | Completed
(2 rows)
```

15) Find the Deductions not in the range of 5000 to 15000.

```
hrms=# SELECT de_id, deduction_amount FROM deductions WHERE deduction_amount NOT BETWEEN 5000 AND 15000;
 de_id | deduction_amount
-----+-----
 56987 |      25000
 15976 |      30000
 45589 |      35000
 92275 |      24000
(4 rows)
```

16) Find the Interview details of which took place in the Pune Office.

```
hrms=# SELECT interview_id, interview_date FROM interview WHERE venue LIKE 'Pune%';
 interview_id | interview_date
-----+-----
    248 | 2021-05-12
    396 | 2021-10-10
    677 | 2021-11-25
    841 | 2021-10-15
(4 rows)
```

17) Find the Projects which have not yet been Completed.

```
hrms=# SELECT title, project_status FROM project WHERE project_status NOT LIKE 'C%';
      title          | project_status
-----+-----
Payment Gateway    | Approved
Website Design Templates | Working
Data Import Export Plugin | Pending
Research & Development | Finalised
E-Learning Integration | Started
Wellness App        | Approved
Unit Testing         | Approved
(7 rows)
```

18) Find the Total Deductions of all employees.

```
hrms=# SELECT SUM(deduction_amount) AS Total_Deduction FROM deductions;
      total_deduction
-----
178000
(1 row)
```

19) Find the number of employees who have the Deduction Type as Life Insurance Premium.

```
hrms=# SELECT COUNT(*) FROM deductions WHERE type LIKE 'Life%';
      count
-----
      3
(1 row)
```

20) Find the Project with the longest duration of work.

```
hrms=# SELECT MAX(end_date - start_date) FROM project;
      max
-----
     283
(1 row)
```

```
hrms=# SELECT project_id, title, AGE(end_date, start_date) AS maximum_duration FROM project ORDER BY
maximum_duration DESC LIMIT 1;
   project_id |          title          | maximum_duration
-----+-----+-----+
        1121 | Data Import Export Plugin | 9 mons 10 days
(1 row)
```

21) Find the Least Deduction Amount.

```
hrms=# SELECT MIN(deduction_amount) FROM deductions;
      min
-----
  5000
(1 row)
```

22) Find the Average Deductions Amount.

```
hrms=# SELECT AVG(deduction_amount) FROM deductions;
      avg
-----
 17800.00000000000
(1 row)
```

23) Find the total logout time from table attendance

```
hrms=# select date,sum(logout_time) from attendance group by date;
      date   |    sum
-----+-----
 2021-11-05 | 02:50:00
 2021-11-02 | 04:10:00
 2021-11-07 | 11:50:00
 2021-11-01 | 10:30:00
 2021-11-06 | 03:00:00
 2021-11-04 | 01:30:00
(6 rows)
```

24) List the name of all applicants in descending order.

```
hrms=# select*from applicants order by name DESC;
 app_id |   name    | candidate_no | qualification |   app_date   |   app_status
-----+-----+-----+-----+-----+-----+
 56789 | scarlet  |     1002 | mtech        | 2021-11-05 | offer
 23456 | marker   |     1004 | btech        | 2021-11-04 | second interview
 12345 | jonas    |     1001 | btech        | 2021-11-01 | active
 67890 | frank    |     1003 | mba          | 2021-11-07 | first interview
 34567 | clare   |     1006 | btech        | 2021-11-06 | active
 12678 | blaze   |     1005 | mtech        | 2021-11-02 | accepted
(6 rows)
```

25) To obtain all the paired combinations from the applicants and attendance table.

app_id	name	candidate_no	qualification	app_date	app_status	att_id	date	login_time	logout_time	total_hours
12345	jonas	1001	btech	2021-11-01	active	12345	2021-11-01	09:30:00	10:30:00	01:00:00
56789	scarlet	1002	mtech	2021-11-05	offer	12345	2021-11-01	09:30:00	10:30:00	01:00:00
67890	frank	1003	mba	2021-11-07	first interview	12345	2021-11-01	09:30:00	10:30:00	01:00:00
23456	marker	1004	btech	2021-11-04	second interview	12345	2021-11-01	09:30:00	10:30:00	01:00:00
12678	blaze	1005	mtech	2021-11-02	accepted	12345	2021-11-01	09:30:00	10:30:00	01:00:00
34567	clare	1006	btech	2021-11-06	active	12345	2021-11-01	09:30:00	10:30:00	01:00:00
12345	jonas	1001	btech	2021-11-01	active	56789	2021-11-05	02:40:00	02:50:00	00:10:00
56789	scarlet	1002	mtech	2021-11-05	offer	56789	2021-11-05	02:40:00	02:50:00	00:10:00
67890	frank	1003	mba	2021-11-07	first interview	56789	2021-11-05	02:40:00	02:50:00	00:10:00
23456	marker	1004	btech	2021-11-04	second interview	56789	2021-11-05	02:40:00	02:50:00	00:10:00
12678	blaze	1005	mtech	2021-11-02	accepted	56789	2021-11-05	02:40:00	02:50:00	00:10:00
34567	clare	1006	btech	2021-11-06	active	56789	2021-11-05	02:40:00	02:50:00	00:10:00
12345	jonas	1001	btech	2021-11-01	active	67890	2021-11-07	11:30:00	11:50:00	00:20:00
56789	scarlet	1002	mtech	2021-11-05	offer	67890	2021-11-07	11:30:00	11:50:00	00:20:00
67890	frank	1003	mba	2021-11-07	first interview	67890	2021-11-07	11:30:00	11:50:00	00:20:00
23456	marker	1004	btech	2021-11-04	second interview	67890	2021-11-07	11:30:00	11:50:00	00:20:00
12678	blaze	1005	mtech	2021-11-02	accepted	67890	2021-11-07	11:30:00	11:50:00	00:20:00
34567	clare	1006	btech	2021-11-06	active	67890	2021-11-07	11:30:00	11:50:00	00:20:00
12345	jonas	1001	btech	2021-11-01	active	23456	2021-11-04	12:30:00	01:30:00	01:00:00
56789	scarlet	1002	mtech	2021-11-05	offer	23456	2021-11-04	12:30:00	01:30:00	01:00:00
67890	frank	1003	mba	2021-11-07	first interview	23456	2021-11-04	12:30:00	01:30:00	01:00:00
23456	marker	1004	btech	2021-11-04	second interview	23456	2021-11-04	12:30:00	01:30:00	01:00:00
12678	blaze	1005	mtech	2021-11-02	accepted	23456	2021-11-04	12:30:00	01:30:00	01:00:00
34567	clare	1006	btech	2021-11-06	active	23456	2021-11-04	12:30:00	01:30:00	01:00:00
12345	jonas	1001	btech	2021-11-01	active	12678	2021-11-02	03:40:00	04:10:00	00:30:00
56789	scarlet	1002	mtech	2021-11-05	offer	12678	2021-11-02	03:40:00	04:10:00	00:30:00
67890	frank	1003	mba	2021-11-07	first interview	12678	2021-11-02	03:40:00	04:10:00	00:30:00
23456	marker	1004	btech	2021-11-04	second interview	12678	2021-11-02	03:40:00	04:10:00	00:30:00
12678	blaze	1005	mtech	2021-11-02	accepted	12678	2021-11-02	03:40:00	04:10:00	00:30:00
34567	clare	1006	btech	2021-11-06	active	12678	2021-11-02	03:40:00	04:10:00	00:30:00
12345	jonas	1001	btech	2021-11-01	active	34567	2021-11-06	02:00:00	03:00:00	01:00:00
56789	scarlet	1002	mtech	2021-11-05	offer	34567	2021-11-06	02:00:00	03:00:00	01:00:00
67890	frank	1003	mba	2021-11-07	first interview	34567	2021-11-06	02:00:00	03:00:00	01:00:00
23456	marker	1004	btech	2021-11-04	second interview	34567	2021-11-06	02:00:00	03:00:00	01:00:00
12678	blaze	1005	mtech	2021-11-02	accepted	34567	2021-11-06	02:00:00	03:00:00	01:00:00
34567	clare	1006	btech	2021-11-06	active	34567	2021-11-06	02:00:00	03:00:00	01:00:00

26) Combine the data from applicants table and attendance table and retrieve the records from both the tables.

```
hrms=# select applicants.name,applicants.candidate_no,attendance.date FROM applicants INNER JOIN attendance ON applicants.app_id=attendance.att_id ;
   name | candidate_no |      date
-----+-----+-----
  jonas |       1001 | 2021-11-01
scarlet |       1002 | 2021-11-05
 frank |       1003 | 2021-11-07
marker |       1004 | 2021-11-04
blaze  |       1005 | 2021-11-02
 clare |       1006 | 2021-11-06
(6 rows)
```

27) Perform a full outer join on tables applicants and attendance which returns the output that matches the id of applicants with the attendance id.

```
hrms=# select applicants.name,attendance.date FROM applicants FULL OUTER JOIN attendance ON applicants.app_id=attendance.att_id ORDER BY applicants.name;
   name |      date
-----+-----
blaze | 2021-11-02
clare | 2021-11-06
 frank | 2021-11-07
 jonas | 2021-11-01
marker | 2021-11-04
scarlet | 2021-11-05
(6 rows)
```

28) Fetch app_status from applicants table using status as alias name

```
hrms=# select app_status AS STATUS FROM applicants;
          ^

      status
-----
active
offer
first interview
second interview
accepted
active
(6 rows)
```

29) Create a view for the applicants whose qualification is btech

```
hrms=# create view detailsview AS select name,qualification from applicants where qualification='btech';
CREATE VIEW
hrms=# select*from detailsview;
      ^

   name | qualification
-----+-----
  jonas | btech
marker | btech
  clare | btech
(3 rows)
```

30) Create an index with attributes applicants number on a table vacancies.

```
hrms=# create index applicantsnumber on vacancies(dept_id);
CREATE INDEX
hrms=# \ci+ applicantsnumber;
invalid command \ci+
Try \? for help.
hrms=# \di+ applicantsnumber;
          List of relations
 Schema |      Name       | Type  | Owner   | Table | Persistence | Size | Description
-----+-----+-----+-----+-----+-----+-----+-----+
 public | applicantsnumber | index | postgres | vacancies | permanent | 16 kB |
(1 row)
```

31)Drop an index with attributes applicants number on a table vacancies.

```
hrms=# drop index applicantsnumber;
DROP INDEX
hrms=# \di+ applicantsnumber;
Did not find any relation named "applicantsnumber".
```

CONCLUSION

DBMS. 2021



- HRMS-Human Resource Management System is undoubtedly a great shield to make your way through the fierce competition in the market. It allows the employees and the admin to explore more possibilities in a user-friendly manner.
- We have successfully implemented various functionalities and created the fully functional database management system for human resources .

SOFTWARE USED

PostgreSQL

THANK YOU!

