

## DATABASE MANAGEMENT PROJECT PROPOSAL

The key to success in any organization is attracting and retaining top talent. However, the ongoing trend of employee attrition i.e the gradual reduction in employee numbers. Employee attrition happens when the size of your workforce diminishes over time. This means that employees are leaving faster than they are hired.

The employee Retention System is designed to make it easier for the company to enhance employee retention rate. This will be done by designing a system with both Employee data and HR data that will bring up aore insight in the way that employee information can be used. We will be creating the database using MySQL for this.

### Project Aim :

The Aim of this project is to develop a system that enhances a company's employee retention rate.

### Projective Objective :

The Objective of this project is to create a system that helps to understand the reasoning behind employee attrition and plan better retention plans.

SL. No	Topics	Deadline	Contributor
1	Database Design	10/07/2022	Gayathri Shanmuga Sundaram, Manoj Arasada, Sumanth Jinka, Vinaya Rajaram Nayak
2	ER Diagram	10/07/2022	Gayathri Shanmuga Sundaram, Vinaya Rajaram Nayak
3	Table Creation <ul style="list-style-type: none"><li>Employee Details</li><li>Employee Profile</li><li>Department Details</li><li>Job Details</li><li>Employee Satisfaction Rating</li><li>Employee Absenteeism Factors</li><li>Payroll Data</li></ul>	10/14/2022	Manoj Arasada, Sumanth Jinka Manoj Arasada, Sumanth Jinka Gayathri Shanmuga Sundaram Vinaya Rajaram Nayak Gayathri Shanmuga Sundaram Vinaya Rajaram Nayak Manoj Arasada, Sumanth Jinka
4	Data Generation	10/21/2022	Gayathri Shanmuga Sundaram, Manoj Arasada, Sumanth Jinka, Vinaya Rajaram Nayak
5	Normalization	10/28/2022	Gayathri Shanmuga Sundaram, Manoj Arasada, Sumanth Jinka, Vinaya Rajaram Nayak
6	Finding Insights (Query)	11/04/2022	Gayathri Shanmuga Sundaram, Manoj Arasada, Sumanth Jinka, Vinaya Rajaram Nayak
7	Documentation	11/11/2022	Gayathri Shanmuga Sundaram, Manoj Arasada, Sumanth Jinka, Vinaya Rajaram Nayak

## SUMMARY

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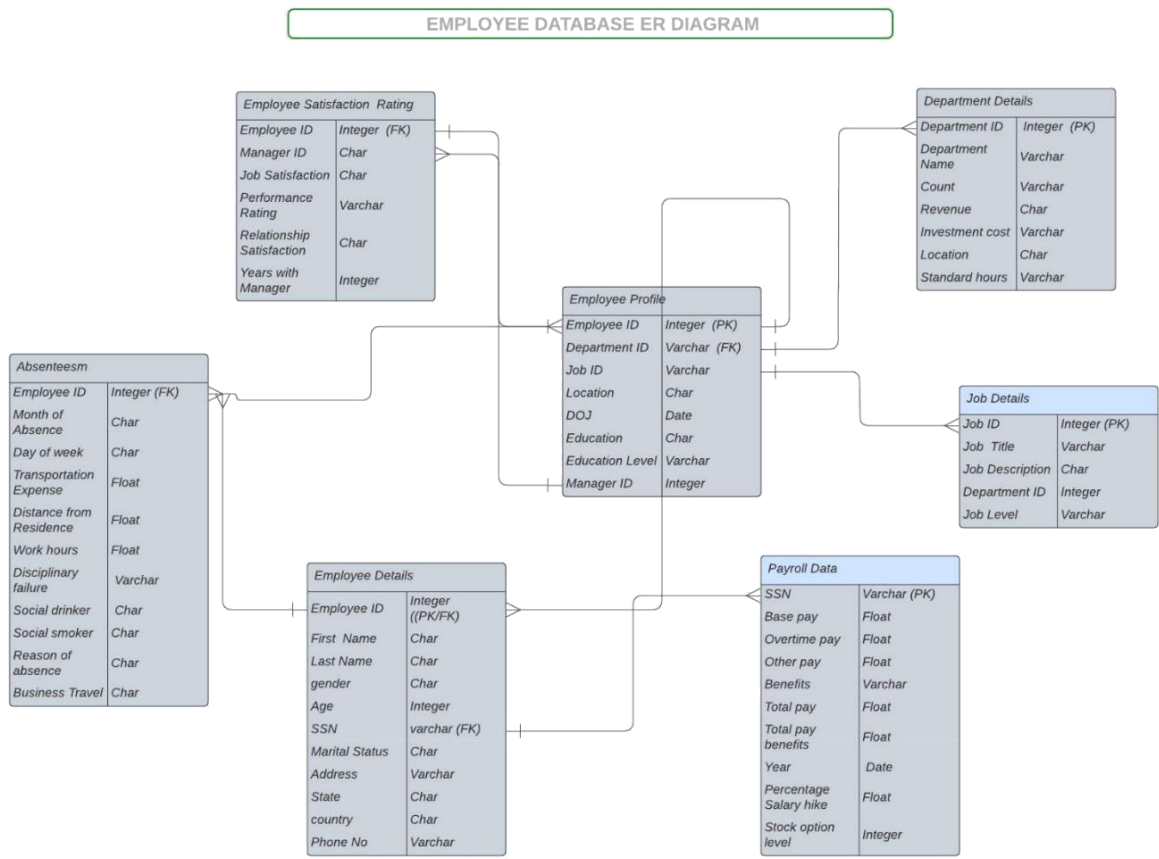
**Purpose:**

This document's goal is to provide a thorough explanation of the design procedure used to create and construct a database for the Employee Retention System. The properties and entities included in the database are all described on this page. The ultimate objective is to create a database for a Company that allows for seamless access to any type of data that is needed for a specific Employee profile, job satisfaction, Payroll data, Employee satisfaction rating, or business use case, regardless of how complex the use case may be. This will ensure the quickest data retrieval time and instant insights from the available data by utilizing preloaded intelligent analytics and data visualization.

**Business Rules:**

- One employee should have only one Job ID, Job title.
- One Employee can be in different Departments.
- One Employee should be assigned under one manager only.
- Manager Can have multiple Employees assigned under one manager.

ENTITY RELATIONSHIP DIAGRAM REPRESENTING DATABASE DESIGN :



## Table Views:

**Absenteesm:** This table has information about an Employee ID, Month of absence, Reasons for absence, Social Drinker, Social Smoker

The screenshot displays the Oracle SQL Developer interface. On the left, the 'Connections' pane shows the 'group\_manoj' connection. Below it, the 'Tables (Filtered)' pane lists the 'ABSENTEESM' table with its columns: EMPLOYEE\_ID, MONTH\_OF\_ABSENCE, DAY\_OF\_THE\_WEEK, TRANSPORTATION\_EXPENSE, DISTANCE\_RECIDENCE, WORK\_HOURS, DISCIPLINARY\_FAILURE, SOCIAL\_DRINKER, SOCIAL\_SMOKER, and BUSINESSTRAVEL. The 'Reports' pane shows various report types. The main window is the 'Query Builder' with a query: `select * from sql102.absenteesm;`. The 'Query Result' pane shows 50 rows of data, with the first 23 rows visible in the screenshot.

	EMPLOYEE_ID	MONTH_OF_ABSENCE	DAY_OF_THE_WEEK	TRANSPORTATION_EXPENSE	DISTANCE_RECIDENCE	WORK_HOURS	DISCIPLINARY_FAILURE	SOCIAL_DRINKER	SOCIAL_SMOKER	BUSINESSTRAVEL
1	2121112	5	2	235	20	13	0	1	0	Travel_Rarely
2	2121207	5	4	248	25	14	0	0	0	Non-Travel
3	2121527	5	2	369	17	12	0	1	0	Travel_Frequer
4	2122391	5	4	179	26	9	0	0	0	Travel_Rarely
5	2122623	5	4	179	51	18	0	1	0	Travel_Rarely
6	2122706	5	5	361	52	3	0	1	0	Travel_Rarely
7	2123227	5	6	260	50	11	0	1	0	Travel_Rarely
8	2123270	5	2	179	22	17	0	0	0	Travel_Rarely
9	2123719	5	2	179	22	17	0	0	0	Travel_Rarely
10	2123913	5	4	228	14	16	0	0	0	Travel_Rarely
11	2124670	5	4	225	26	9	0	0	0	Travel_Rarely
12	2124683	5	6	330	16	4	0	0	0	Travel_Rarely
13	2125000	5	2	179	26	9	0	0	0	Travel_Rarely
14	2125046	5	2	118	10	10	0	0	0	Travel_Rarely
15	2125244	5	2	235	11	14	0	0	0	Travel_Frequer
16	2125838	5	4	179	26	9	0	0	0	Travel_Frequer
17	2126303	6	2	118	10	10	0	0	0	Travel_Frequer
18	2126389	6	2	179	51	18	0	1	0	Non-Travel
19	2126878	6	3	118	10	10	0	0	0	Travel_Frequer
20	2127041	6	5	225	26	9	0	0	0	Travel_Rarely
21	2127782	6	6	260	50	11	0	1	0	Travel_Rarely
22	2128251	6	6	179	51	18	1	1	0	Non-Travel
23	2128352	6	2	291	31	12	0	1	0	Travel_Rarely

## Employee Profile:

This table has Information about an employee ID, Job Id, Department ID, Location, Date of Joining and level of Education

File Edit View Navigate Run Source Team Tools Window Help

Connections

Oracle Connections

group\_manoj

Tables (Filtered)

ARSENTEISM

EMPLOYEE\_ID

MONTH\_OF\_ABSENCE

DAY\_OF\_THE\_WEEK

TRANSPORTATION\_EXPENSE

DISTANCE\_RECEDENCE

WORK\_HOURS

DISCIPLINARY\_FAILURE

SOCIAL\_DRINKER

SOCIAL\_SMOKER

BUSINESSTRAVEL

COMBINED1

DEPARTMENT\_DETAILS

EMPLOYEE\_DETAILS

EMPLOYEE\_RECEIVE\_DATA

Reports

All Reports

Analytic View Reports

Data Dictionary Reports

Data Modeler Reports

OLAP Reports

TimesTen Reports

User Defined Reports

Worksheet

Query Builder

select \* from sql102.employee\_profile\_data;

Query Result

SQL

Fetches 50 rows in 0.032 seconds

	EMPLOYEE_ID	DEPARTMENT_ID	JOB_ID	DOJ	EDUCATION	EDUCATION_LEVEL	MANAGER_ID
1	2143770	1.03	15-FEB-19	Post Graduation		4	3453719
2	2144272	1.04	21-MAR-18	Diploma		1	3453720
3	2144343	1.05	09-MAY-19	Bachelors		2	3453721
4	2144825	1.06	27-JUN-22	Masters		3	3453722
5	2145173	1.07	11-JUL-21	Post Graduation		4	3453723
6	2145517	1.08	14-OCT-21	Diploma		1	3453724
7	2145771	1.09	01-NOV-22	Bachelors		2	3453725
8	2146026	1.010	22-NOV-18	Masters		3	3453726
9	2146469	1.011	02-NOV-18	Post Graduation		4	3453727
10	2146807	1.01	26-MAY-22	Diploma		1	3453728
11	2146927	1.02	24-JUL-21	Bachelors		2	3453729
12	2147122	1.03	05-AUG-20	Masters		3	3453730
13	2147297	1.04	15-NOV-20	Post Graduation		4	3453731
14	2147302	1.05	27-JUL-18	Diploma		1	3453732
15	2147577	1.06	18-SEP-20	Bachelors		2	3453733
16	2147590	1.07	02-DEC-19	Masters		3	3453734
17	2147859	1.08	26-NOV-19	Post Graduation		4	3453735
18	2147964	1.09	15-JAN-21	Diploma		1	3453736
19	2148210	1.010	14-JUN-20	Bachelors		2	3453737
20	2148332	1.011	06-AUG-20	Masters		3	3453738
21	2148336	1.01	10-SEP-22	Post Graduation		4	3453739
22	2148378	1.02	09-JUL-22	Diploma		1	3453740
23	2148538	1.03	07-JUN-20	Bachelors		2	3453741
24	2148558	1.04	06-JUL-21	Masters		3	3453742
25	2148752	1.05	28-OCT-21	Post Graduation		4	3453743

Click on an identifier with the Control key down to perform "Go to Declaration"

Line 11 Column 17 | Insert | Modified | Windows: C

## Employee Details:

This table has information about an Employee ID, First name, Last name, Age, SSN, Martial status.

File Edit View Navigate Run Source Team Tools Window Help

Connections

Oracle Connections

group\_manoj

Tables (Filtered)

ARSENTEISM

EMPLOYEE\_ID

MONTH\_OF\_ABSENCE

DAY\_OF\_THE\_WEEK

TRANSPORTATION\_EXPENSE

DISTANCE\_RECEDENCE

WORK\_HOURS

DISCIPLINARY\_FAILURE

SOCIAL\_DRINKER

SOCIAL\_SMOKER

BUSINESSTRAVEL

COMBINED1

DEPARTMENT\_DETAILS

EMPLOYEE\_DETAILS

EMPLOYEE\_RECEIVE\_DATA

Reports

All Reports

Analytic View Reports

Data Dictionary Reports

Data Modeler Reports

OLAP Reports

TimesTen Reports

User Defined Reports

Worksheet

Query Builder

select \* from sql102.employee\_details;

Query Result

SQL

Fetches 50 rows in 0.03 seconds

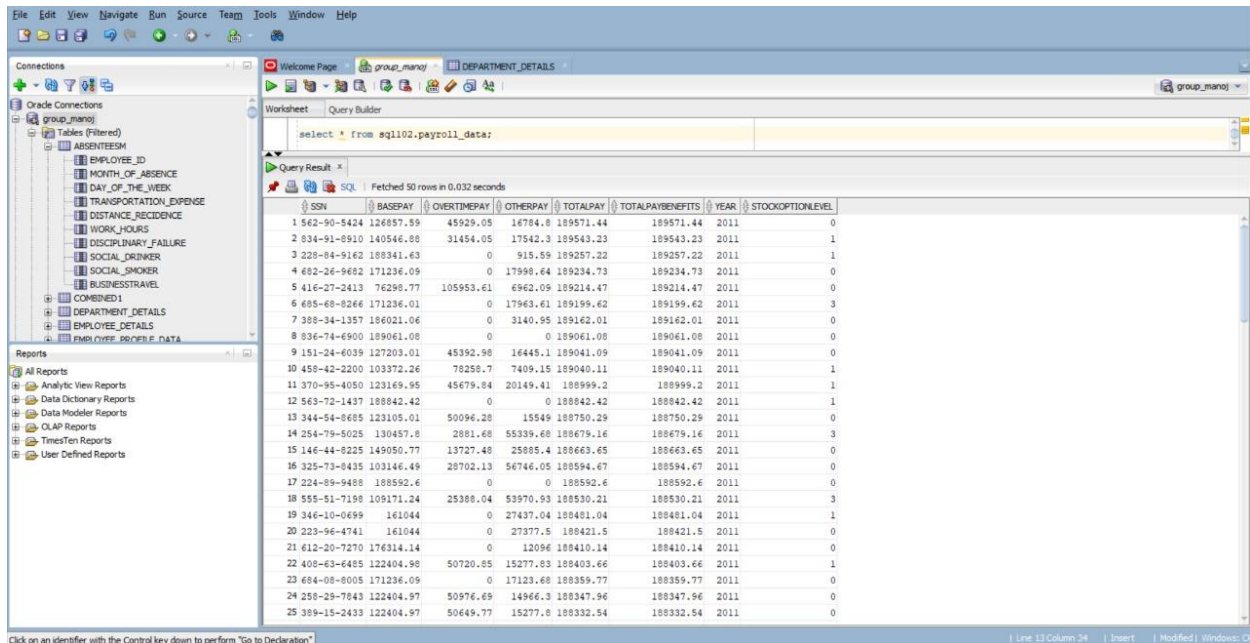
	EMPLOYEE_ID	EMPLOYEE_NAME	GENDER	AGE	SSN	MARITAL_STATUS	STATE	ZIP	PHONE_NUMBER
1	3347826	Wilkes, Annie	F	28	790-97-6578	Divorced	MA	1876	648-566-6595
2	3348191	Williams, Jacquelyn	F	31	373-70-1677	Single	MA	2109	690-553-4381
3	3351261	Winthrop, Jordan	M	39	843-32-3392	Single	MA	2045	198-960-8040
4	3351640	Wolk, Rang T	F	36	306-92-2725	Single	MA	2302	916-883-8856
5	3351807	Woodson, Jason	M	32	128-67-4404	Single	MA	1810	941-375-2653
6	3351848	Ybarra, Catherine	F	38	186-63-5257	Single	MA	2458	121-298-2708
7	3352340	Zamora, Jennifer	F	58	146-68-1768	Single	MA	2067	475-602-9463
8	3355564	Zhou, Julia	F	31	503-18-9136	Single	MA	2148	992-584-1573
9	3355597	Zima, Colleen	F	31	201-60-9520	Widowed	MA	1730	962-786-4230
10	3356490	Morgan, Tracey D	(null)	45	866-79-3308	Single	CT	6050	159-522-1147
11	3356959	MacMillan, Antony I	M	31	535-76-4628	Married	CT	6040	427-550-5438
12	3374169	Green, Phyllis Q	M	33	472-35-8877	Married	CT	6030	752-143-1697
13	3374257	Woolley, Leslie H	F	39	213-67-2463	Married	CT	6020	543-312-1705
14	3377182	Primrose, Syed S	F	43	807-43-2957	Divorced	CT	6010	438-202-2105
15	3377286	Gilroy, Syed F	F	49	506-32-3429	Single	CT	6000	309-123-7037
16	3377474	Murray, Angela E	F	52	346-40-4832	Single	CT	5990	897-316-7534
17	3379707	Henry, Robert Z	F	27	638-89-9453	Widowed	CT	5980	197-726-1401
18	3379943	Deering, Robert B	M	32	721-40-5283	Single	CT	5980	405-411-6313
19	3382002	Lamb, Jean S	F	27	726-41-4659	Divorced	CT	5980	774-665-4769
20	3382722	Rasul, Carol O	M	31	756-91-3198	Married	CT	5980	182-967-1190
21	3418495	Coombs, Phyllis W	F	32	450-29-1662	Married	CT	5980	827-662-9966
22	3423895	Swart, Frank G	M	28	707-53-2100	Divorced	CT	5980	217-601-7291
23	3423964	Barrett, Hannah B	M	30	810-98-9388	Single	CT	5980	631-398-0954
24	3424007	Mills, Grace X	M	31	419-60-8865	Divorced	CT	5980	457-596-9352
25	3424549	Field, Elizabeth E	M	39	864-28-4721	Single	CT	5980	317-292-7598

Click on an identifier with the Control key down to perform "Go to Declaration"

Line 13 Column 38 | Insert | Modified | Windows: C

## Payroll Data:

This table has information about SSN, Base pay, Overtime Pay, Total Pay, Year and Benefits.

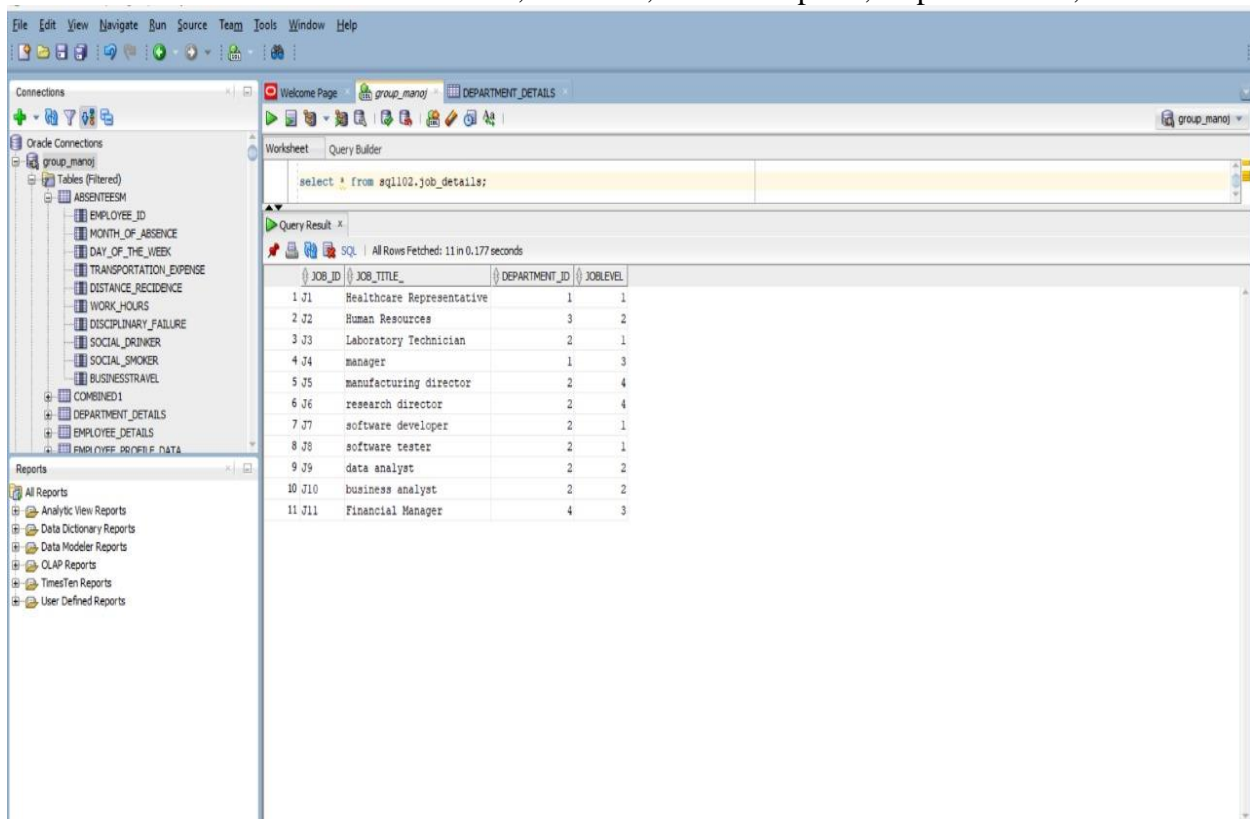


The screenshot shows the Oracle SQL Developer interface. The 'Connections' pane on the left lists the 'group\_manoj' connection and a tree of tables including 'EMPLOYEE\_ID', 'MONTH\_OF\_ABSENCE', 'DAY\_OF\_THE\_WEEK', 'TRANSPORTATION\_EXPENSE', 'DISTANCE\_RESIDENCE', 'WORK\_HOURS', 'DISCIPLINARY\_FAILURE', 'SOCIAL\_DRINKER', 'SOCIAL\_SMOKER', 'BUSINESSTRAVEL', 'COMBINED1', 'DEPARTMENT\_DETAILS', 'EMPLOYEE\_DETAILS', and 'EMPLOYEE\_RESUME\_DATA'. The 'Query Builder' pane shows a query: `select * from sql102.payroll_data;`. The 'Query Result' pane displays 50 rows of data with the following columns: SSN, BASEPAY, OVERTIMEPAY, OTHERPAY, TOTALPAY, TOTALPAYBENEFITS, YEAR, and STOCKOPTIONLEVEL.

SSN	BASEPAY	OVERTIMEPAY	OTHERPAY	TOTALPAY	TOTALPAYBENEFITS	YEAR	STOCKOPTIONLEVEL
1 562-90-5424	126857.59	45929.05	16784.8	189571.44	189571.44	2011	0
2 834-91-8910	140546.88	31454.05	17542.3	189543.23	189543.23	2011	1
3 228-84-9162	188341.63	0	915.59	189257.22	189257.22	2011	1
4 682-26-9682	171236.09	0	17998.64	189234.73	189234.73	2011	0
5 416-27-2413	76298.77	105953.61	6962.09	189214.47	189214.47	2011	0
6 685-68-0266	171236.01	0	17963.61	189199.62	189199.62	2011	3
7 388-34-1357	186021.06	0	3140.95	189162.01	189162.01	2011	0
8 836-74-6900	189061.08	0	0	189061.08	189061.08	2011	0
9 151-24-6039	127203.01	45392.98	16445.1	189041.09	189041.09	2011	0
10 458-42-2200	103372.26	78258.7	7409.15	189040.11	189040.11	2011	1
11 370-95-4050	123169.95	45679.84	20149.41	188999.2	188999.2	2011	1
12 563-72-1437	188842.42	0	0	188842.42	188842.42	2011	1
13 344-54-6685	123105.01	50096.28	15549	188750.29	188750.29	2011	0
14 254-79-5025	130457.8	2881.68	55339.68	188679.16	188679.16	2011	3
15 146-44-8225	149050.77	13727.48	25885.4	188663.65	188663.65	2011	0
16 325-73-8435	103146.49	28702.13	56746.05	188594.67	188594.67	2011	0
17 224-89-9488	188592.6	0	0	188592.6	188592.6	2011	0
18 555-81-7198	109171.24	25388.04	53970.93	188530.21	188530.21	2011	3
19 346-10-0699	161044	0	27437.04	188481.04	188481.04	2011	1
20 223-96-4741	161044	0	27377.5	188421.5	188421.5	2011	0
21 612-20-7270	176314.14	0	12096	188410.14	188410.14	2011	0
22 408-63-6485	122404.98	50720.85	15277.83	188403.66	188403.66	2011	1
23 684-08-8005	171236.09	0	17123.68	188359.77	188359.77	2011	0
24 258-29-7843	122404.97	50976.69	14966.3	188347.96	188347.96	2011	0
25 389-15-2433	122404.97	50649.77	15277.8	188332.54	188332.54	2011	0

## Job Details:

This table has information about Job ID, Job Title, Job Description, Department ID, Job Level.



The screenshot shows the Oracle SQL Developer interface. The 'Connections' pane on the left lists the 'group\_manoj' connection and a tree of tables including 'EMPLOYEE\_ID', 'MONTH\_OF\_ABSENCE', 'DAY\_OF\_THE\_WEEK', 'TRANSPORTATION\_EXPENSE', 'DISTANCE\_RESIDENCE', 'WORK\_HOURS', 'DISCIPLINARY\_FAILURE', 'SOCIAL\_DRINKER', 'SOCIAL\_SMOKER', 'BUSINESSTRAVEL', 'COMBINED1', 'DEPARTMENT\_DETAILS', 'EMPLOYEE\_DETAILS', and 'EMPLOYEE\_RESUME\_DATA'. The 'Query Builder' pane shows a query: `select * from sql102.job_details;`. The 'Query Result' pane displays 11 rows of data with the following columns: JOB\_ID, JOB\_TITLE, DEPARTMENT\_ID, and JOBLEVEL.

JOB_ID	JOB_TITLE	DEPARTMENT_ID	JOBLEVEL
1 J1	Healthcare Representative	1	1
2 J2	Human Resources	3	2
3 J3	Laboratory Technician	2	1
4 J4	manager	1	3
5 J5	manufacturing director	2	4
6 J6	research director	2	4
7 J7	software developer	2	1
8 J8	software tester	2	1
9 J9	data analyst	2	2
10 J10	business analyst	2	2
11 J11	Financial Manager	4	3



## Department Details:

This table has information about the Department ID, Department name, Count, Revenue, Investment cost, Location, Standard Hours.

The screenshot displays the Oracle SQL Developer interface. On the left, the 'Connections' pane shows the 'group\_manoj' connection. The 'Tables (Filtered)' pane lists various tables, including 'DEPARTMENT\_DETAILS'. The main window shows the 'Query Result' for the query 'select \* from sql102.department\_details;'. The result is a table with 5 columns: DEPARTMENT\_NAME, DEPARTMENT\_ID, INVESTMENT\_COST, STANDARD\_HOURS, and REVENUE. The data is as follows:

DEPARTMENT_NAME	DEPARTMENT_ID	INVESTMENT_COST	STANDARD_HOURS	REVENUE
1 Sales	1	20000000	8	3000000
2 Research and Development	2	60000000	9	8000000000
3 Human Resource	3	30000000	7	3000000000
4 Finance	4	150000000	8	4000000000

## DATA SYNTHESIS:

The tabulation below provides a summary of the data housed in the tables,

The tabulation below provides a summary of the data housed in the tables, <b>Table Name</b>	<b>Columns</b>	<b>Number of constraints</b>	<b>Number of Records</b>
Employee Profile	7	2	1000
Employee Details	9	2	1000
Absenteesm	10	1	1000
Department Details	5	1	4
Job Details	4	1	11
Payroll data	8	1	1000



## DATA INTEGRITY:

Data Integrity refers to the consistency and maintenance of the data through the life cycle of the database. In a database, data integrity can be ensured through the implementation of Integrity Constraints in a table. Integrity constraints help apply business rules to the database tables. The constraints can either be at a column level or a table level. Some of the most common constraints are,

- NOT NULL – Prevents a column from having a NULL value.
- PRIMARY KEY – Uniquely identifies each row or record in table.
- FOREIGN KEY – Uniquely identifies a column that references a PRIMARY KEY in another table.
- UNIQUE – Prevents a column from having duplicate values.
- CHECK – Checks for values that satisfy a specific condition as defined by the user.

## CREATE TABLE,ALTER TABLE,INDEX :

Listed below are the constraints that were created for our database development project along with their purpose-

```
CREATE TABLE employee_profile (  
  employee_id NUMBER(25) NOT NULL,  
  department_id NUMBER(25) NOT NULL,  
  job_id NUMBER(25) NOT NULL,  
  location VARCHAR2(50 BYTE) NOT NULL,  
  doj DATE NOT NULL,  
  education VARCHAR2(50 BYTE) NOT NULL,  
  education_level VARCHAR2(50 BYTE) NOT NULL,  
  manager_id NUMBER(25) NOT NULL  
)
```

## CREATE UNIQUE INDEX sql102. employee\_profile\_pk ON

```
sql102. employee_profile (  
  Employee id  
  ASC )  
TABLESPACE students PCTFREE 10  
STORAGE ( INITIAL 65536 NEXT 1048576 PCTINCREASE 0 MINEXTENTS 1 MAXEXTENTS  
2147483645 FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL  
DEFAULT )  
LOGGING;
```

## ALTER TABLE sql102. employee\_profile

```
ADD CONSTRAINT employee_profile_pk PRIMARY
```

```
CREATE TABLE employee_satisfaction_rating (  
  employee_id NUMBER(25) NOT NULL,  
  manager_id NUMBER(25) NOT NULL,  
  job_satisfaction VARCHAR2(50 BYTE) NOT NULL,
```

```
performance_rating VARCHAR2(50 BYTE) NOT NULL,  
relationship_satisfaction VARCHAR2(50 BYTE) NOT NULL,  
years_with_manager NUMBER(25) NOT NULL,  
)
```

```
CREATE UNIQUE INDEX sql102. employee_satisfactio_rating_pk ON  
sql102. employee_satisfactio_rating (  
Employee id  
ASC )  
TABLESPACE students PCTFREE 10  
STORAGE ( INITIAL 65536 NEXT 1048576 PCTINCREASE 0 MINEXTENTS 1 MAXEXTENTS  
2147483645 FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL  
DEFAULT )  
LOGGING;  
ALTER TABLE sql102. employee_satisfactio_rating  
ADD CONSTRAINT employee_satisfactio_rating_pk PRIMARY
```

```
CREATE TABLE absenteesm (  
employee_id NUMBER(25) NOT NULL,  
month_of_absence VARCHAR2(50 BYTE) NOT NULL,  
day_of_week VARCHAR2(50 BYTE) NOT NULL,  
transportation_expense NUMBER(25),  
distance_from_residence NUMBER(25),  
work_hours NUMBER(25),  
disciplinary_failure VARCHAR2(50 BYTE) NOT NULL,  
social_drinker VARCHAR2(50 BYTE) NOT NULL,  
social_smoker VARCHAR2(50 BYTE) NOT NULL,  
reason_of_absence VARCHAR2(50 BYTE) NOT NULL,  
business_travel VARCHAR2(50 BYTE) NOT NULL  
)
```

```
CREATE UNIQUE INDEX sql102. absenteesm_pk ON  
sql102. absenteesm (  
Employee id  
ASC )  
TABLESPACE students PCTFREE 10  
STORAGE ( INITIAL 65536 NEXT 1048576 PCTINCREASE 0 MINEXTENTS 1 MAXEXTENTS  
2147483645 FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL  
DEFAULT )  
LOGGING;  
ALTER TABLE sql102. absenteesm  
ADD CONSTRAINT absenteesm_pk PRIMARY
```

```
CREATE TABLE employee_details (  
employee_id NUMBER(25) NOT NULL,  
first_name VARCHAR2(50 BYTE) NOT NULL,
```

```
last_name VARCHAR2(50 BYTE) NOT NULL,  
gender VARCHAR2(50 BYTE) NOT NULL,  
age NUMBER(25) NOT NULL,  
SSN VARCHAR2(50 BYTE) NOT NULL,  
marital_status VARCHAR2(50 BYTE) NOT NULL,  
address VARCHAR2(50 BYTE) NOT NULL,  
state VARCHAR2(50 BYTE) NOT NULL,  
country VARCHAR2(50 BYTE) NOT NULL,  
phone_number VARCHAR2(50 BYTE) NOT NULL  
)
```

**CREATE UNIQUE INDEX sql102. employee\_details \_pk ON**

```
sql102. employee_details (  
Employee id  
ASC )
```

TABSPACE students PCTFREE 10

```
STORAGE ( INITIAL 65536 NEXT 1048576 PCTINCREASE 0 MINEXTENTS 1 MAXEXTENTS  
2147483645 FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL  
DEFAULT )
```

LOGGING;

**ALTER TABLE sql102. employee\_details**

ADD CONSTRAINT employee\_details\_pk PRIMARY

```
CREATE TABLE payroll (  
SSN VARCHAR2(50 BYTE) NOT NULL,  
base_pay NUMBER(25) NOT NULL ,  
overtime_pay NUMBER(25) NOT NULL,  
other_pay NUMBER(25) NOT NULL,  
benefits VARCHAR2(50 BYTE) NOT NULL,  
total_pay NUMBER(25) NOT NULL,  
total_pay_benefits NUMBER(25) NOT NULL,  
year DATE NOT NULL,  
percentage_salary_hike NUMBER(25) NOT NULL,  
stock_option_level NUMBER(25) NOT NULL  
)
```

**CREATE UNIQUE INDEX sql102. payroll \_pk ON**

```
sql102. payroll (  
ssn  
ASC )
```

TABSPACE students PCTFREE 10

```
STORAGE ( INITIAL 65536 NEXT 1048576 PCTINCREASE 0 MINEXTENTS 1 MAXEXTENTS  
2147483645 FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL  
DEFAULT )
```

LOGGING;

**ALTER TABLE sql102. payroll**

ADD CONSTRAINT payroll\_pk PRIMARY

```
CREATE TABLE job_details(  
  job_id NUMBER(25) NOT NULL,  
  job_title VARCHAR2(50 BYTE) NOT NULL,  
  job_description VARCHAR2(50 BYTE) NOT NULL,  
  department_id NUMBER(25) NOT NULL,  
  job_level VARCHAR2(50 BYTE) NOT NULL  
)
```

```
CREATE UNIQUE INDEX sql102. job_details _pk ON  
sql102. job_details (  
  Job id  
  ASC )  
TABLESPACE students PCTFREE 10  
STORAGE ( INITIAL 65536 NEXT 1048576 PCTINCREASE 0 MINEXTENTS 1 MAXEXTENTS  
2147483645 FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL  
DEFAULT )  
LOGGING;  
ALTER TABLE sql102. job_details  
ADD CONSTRAINT job_details _pk PRIMARY
```

```
CREATE TABLE department_details(  
  department_id NUMBER(25) NOT NULL,  
  dept_name VARCHAR2(50 BYTE) NOT NULL,  
  count VARCHAR2(50 BYTE) NOT NULL,  
  revenue VARCHAR2(50 BYTE) NOT NULL,  
  investment_cost VARCHAR2(50 BYTE) NOT NULL,  
  location VARCHAR2(50 BYTE) NOT NULL,  
  standard_hours VARCHAR2(50 BYTE) NOT NULL  
)
```

```
CREATE UNIQUE INDEX sql102. department_details_pk ON  
sql102. department_details (  
  department_id ASC )  
TABLESPACE students PCTFREE 10  
STORAGE ( INITIAL 65536 NEXT 1048576 PCTINCREASE 0 MINEXTENTS 1 MAXEXTENTS  
2147483645 FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL  
DEFAULT )  
LOGGING;  
ALTER TABLE sql102. department_details  
ADD CONSTRAINT department_details_pk PRIMARY
```

### Summary Report:

-- Oracle SQL Developer Data Modeler Summary Report:

--	
-- CREATE TABLE	6
-- CREATE INDEX	6
-- ALTER TABLE	6
-- CREATE VIEW	0
-- ALTER VIEW	0
-- CREATE PACKAGE	0
-- CREATE PACKAGE BODY	0
-- CREATE PROCEDURE	0
-- CREATE FUNCTION	0
-- CREATE TRIGGER	0
-- ALTER TRIGGER	0
-- CREATE COLLECTION TYPE	0
-- CREATE STRUCTURED TYPE	0
-- CREATE STRUCTURED TYPE BODY	0
-- CREATE CLUSTER	0
-- CREATE CONTEXT	0
-- CREATE DATABASE	0
-- CREATE DIMENSION	0
-- CREATE DIRECTORY	0
-- CREATE DISK GROUP	0
-- CREATE ROLE	0
-- CREATE ROLLBACK SEGMENT	0
-- CREATE SEQUENCE	0
-- CREATE MATERIALIZED VIEW	0
-- CREATE MATERIALIZED VIEW LOG	0
-- CREATE SYNONYM	0
-- CREATE TABLESPACE	1
-- CREATE USER	1
--	
-- DROP TABLESPACE	0
-- DROP DATABASE	0
--	
-- REDACTION POLICY	0
-- TSDP POLICY	0
--	
-- ORDS DROP SCHEMA	0
-- ORDS ENABLE SCHEMA	0
-- ORDS ENABLE OBJECT	0
--	
-- ERRORS	0
-- WARNINGS	1

## Query Writing:

1. Fetch the list of Job ID's present and count of Employees in it.

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane shows a connection to 'group\_manor'. Below it, the 'Tables (Filtered)' pane lists various tables, including 'ABSENTEESM', 'EMPLOYEE\_ID', 'MONTH\_OF\_ABSENCE', 'DAY\_OF\_THE\_WEEK', 'TRANSPORTATION\_EXPENSE', 'DISTANCE\_RESIDENCE', 'WORK\_HOURS', 'DISCIPLINARY\_FAILURE', 'SOCIAL\_DRINKER', 'SOCIAL\_SMOKER', 'BUSINESS TRAVEL', 'COMBINED1', 'DEPARTMENT\_DETAILS', 'EMPLOYEE\_DETAILS', and 'EMPLOYEE\_PROFILE\_DATA'. The 'Query Builder' pane shows a query:

```
inner join sql102.job_details
using(job_id)
group by job_title_1;

select joblevel, count(employee_id) from sql102.employee_profile_data
inner join sql102.job_details
using(job_id)
group by joblevel;
```

The 'Query Result' pane shows the following data:

JOBLEVEL	COUNT(EMPLOYEE_ID)
1	364
2	273
3	182
4	181

2. Fetch the Number of Employees absent that month.

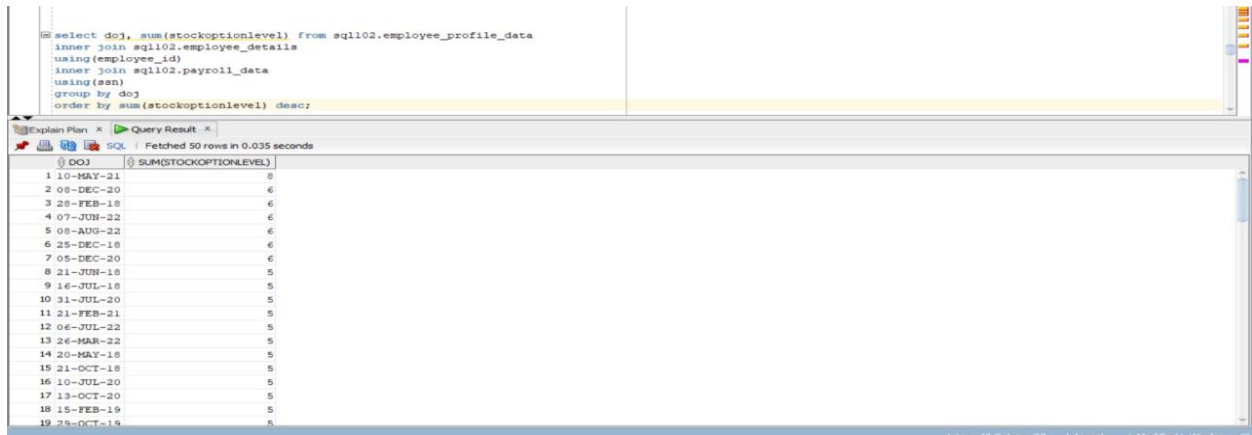
The screenshot shows the Oracle SQL Developer interface. The 'Query Builder' pane shows a query:

```
select month_of_absence, count(employee_id) from sql102.absenteesmgroup by month_of_absence
order by month_of_absence;
```

The 'Query Result' pane shows the following data:

MONTH_OF_ABSENCE	COUNT(EMPLOYEE_ID)
0	6
1	74
2	123
3	186
4	73
5	96
6	73
7	79
8	54
9	53
10	70
11	63
12	49
(null)	1

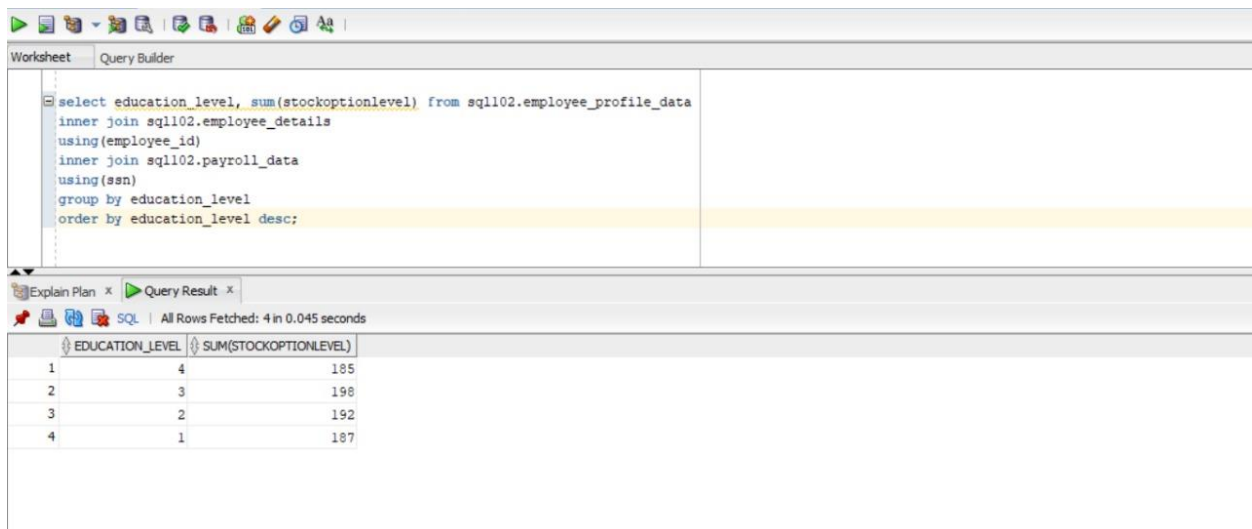
3.Fetch the list of doj to the Stockoptionlevel.



The screenshot shows a SQL query in a query builder interface. The query is: `select doj, sum(stockoptionlevel) from sql102.employee_profile_data inner join sql102.employee_details using(employee_id) inner join sql102.payroll_data using(ssn) group by doj order by sum(stockoptionlevel) desc;` The results are displayed in a table with two columns: DOJ and SUM(STOCKOPTIONLEVEL). The data is sorted by the sum of stock option levels in descending order.

DOJ	SUM(STOCKOPTIONLEVEL)
1 10-MAY-21	8
2 08-DEC-20	6
3 28-FEB-18	6
4 07-JUN-22	6
5 08-AUG-22	6
6 25-DEC-18	6
7 05-DEC-20	6
8 21-JUN-18	5
9 14-JUL-18	5
10 31-JUL-20	5
11 21-FEB-21	5
12 06-JUL-22	5
13 26-MAR-22	5
14 20-MAY-18	5
15 21-OCT-18	5
16 10-JUL-20	5
17 13-OCT-20	5
18 15-FEB-19	5
19 29-OCT-19	5

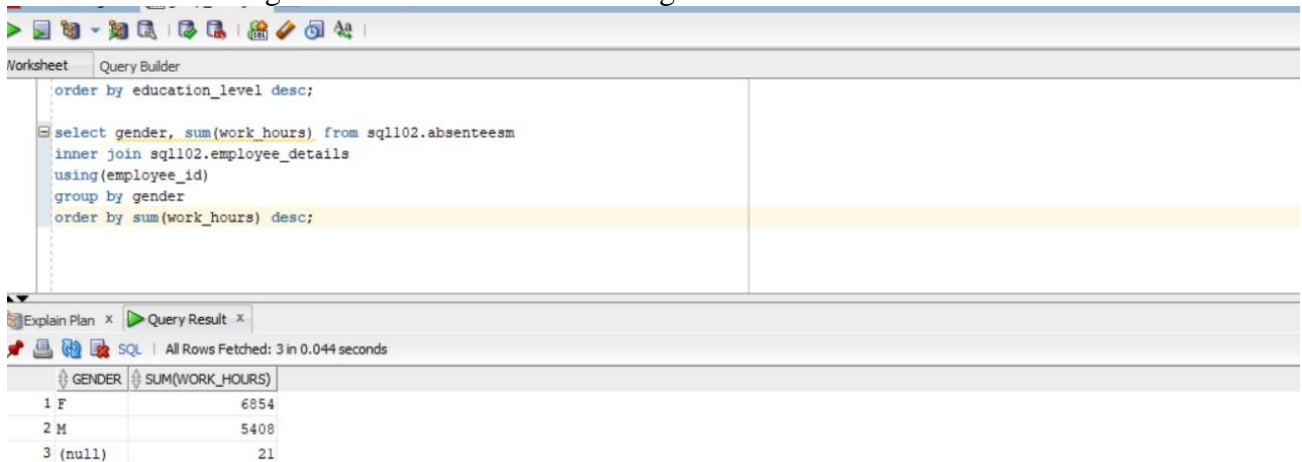
4.Fetch the List of Education level to the stockoptionlevel.



The screenshot shows a SQL query in a query builder interface. The query is: `select education_level, sum(stockoptionlevel) from sql102.employee_profile_data inner join sql102.employee_details using(employee_id) inner join sql102.payroll_data using(ssn) group by education_level order by education_level desc;` The results are displayed in a table with two columns: EDUCATION\_LEVEL and SUM(STOCKOPTIONLEVEL). The data is sorted by education level in descending order.

EDUCATION_LEVEL	SUM(STOCKOPTIONLEVEL)
1	4
2	3
3	2
4	1

5. Fetch the List of genders and their no of working hours.




The screenshot shows a SQL query in a query builder interface. The query is: `select gender, sum(work hours) from sql102.absenteesm inner join sql102.employee_details using(employee_id) group by gender order by sum(work_hours) desc;` The results are displayed in a table with two columns: GENDER and SUM(WORK\_HOURS). The data is sorted by the sum of work hours in descending order.

GENDER	SUM(WORK_HOURS)
1 F	6854
2 M	5408
3 (null)	21



6. Fetch the List of records of disciplinary failure to the gender wise.



The screenshot shows a SQL query editor with the following query:

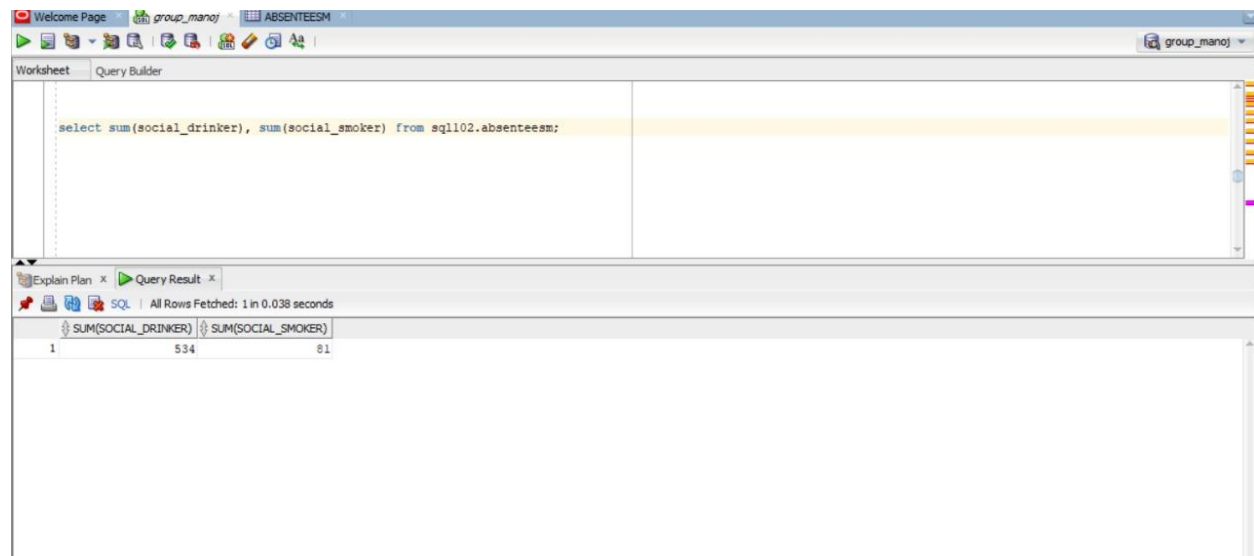
```
order by sum(work_hours) desc;

select gender, sum(disciplinary_failure) from sql102.absenteesm
inner join sql102.employee_details
using(employee_id)
group by gender
order by sum(disciplinary_failure) desc;
```

The query result is displayed below the editor:

GENDER	SUM(DISCIPLINARY_FAILURE)
1 F	23
2 M	19
3 (null)	1

7. Fetch the list of sum of Social drinker, Social Smoker.



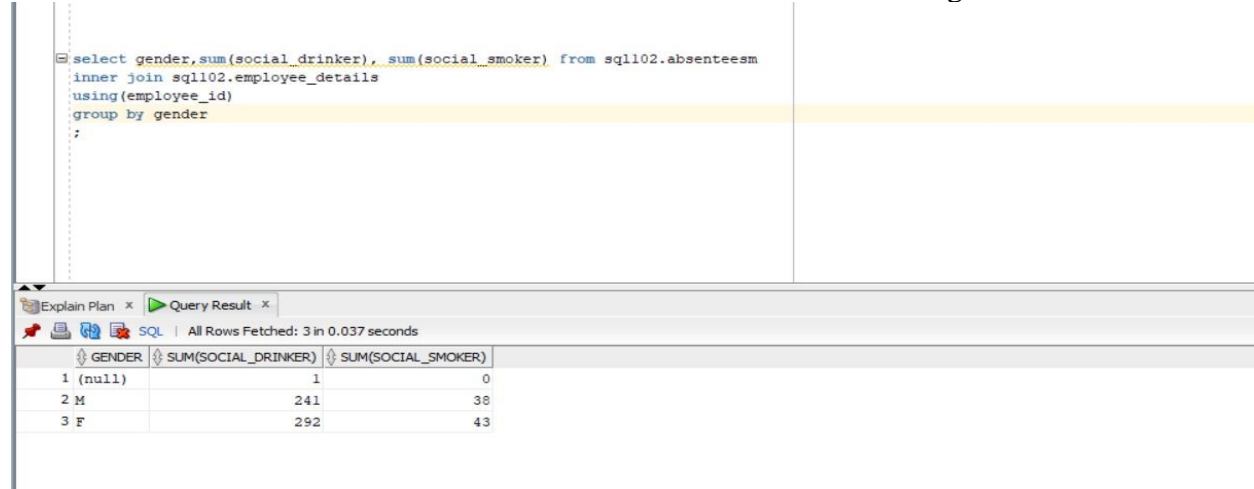
The screenshot shows a SQL query editor with the following query:

```
select sum(social_drinker), sum(social_smoker) from sql102.absenteesm;
```

The query result is displayed below the editor:

SUM(SOCIAL_DRINKER)	SUM(SOCIAL_SMOKER)
534	81

8. Fetch the list of records of social smokers and social drinkers based on gender.



The screenshot shows a SQL query editor with the following query:

```
select gender, sum(social_drinker), sum(social_smoker) from sql102.absenteesm
inner join sql102.employee_details
using(employee_id)
group by gender
;
```

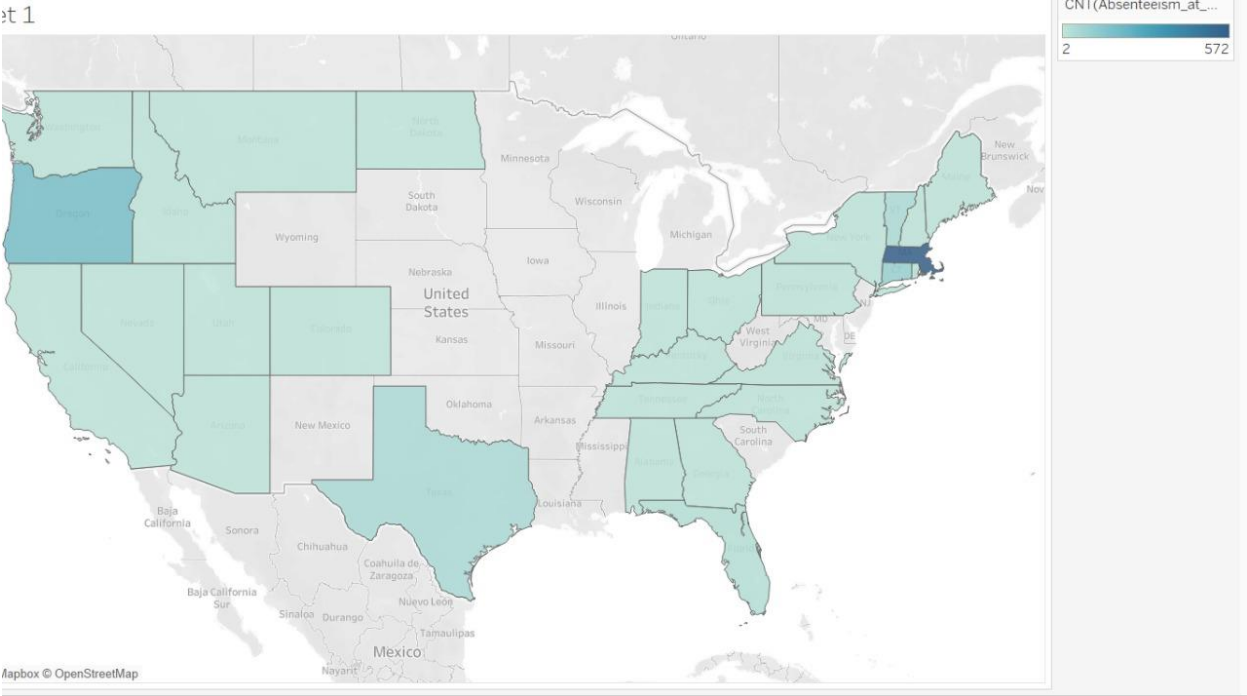
The query result is displayed below the editor:

GENDER	SUM(SOCIAL_DRINKER)	SUM(SOCIAL_SMOKER)
1 (null)	1	0
2 M	241	38
3 F	292	43

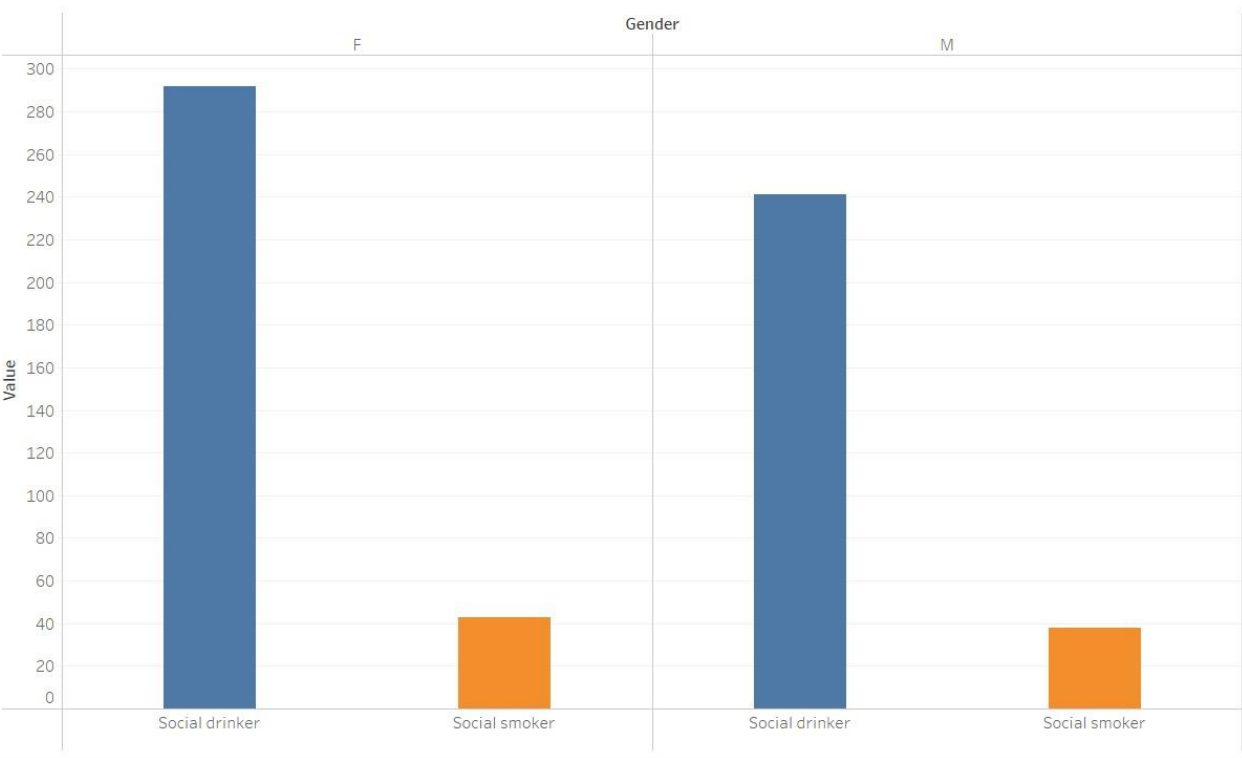
DATA VISUALIZATION

Using Tableau, we have created the following insightful Data Visualizations for our Employee database in order to show the metrics and numbers in a beautiful and clear way.

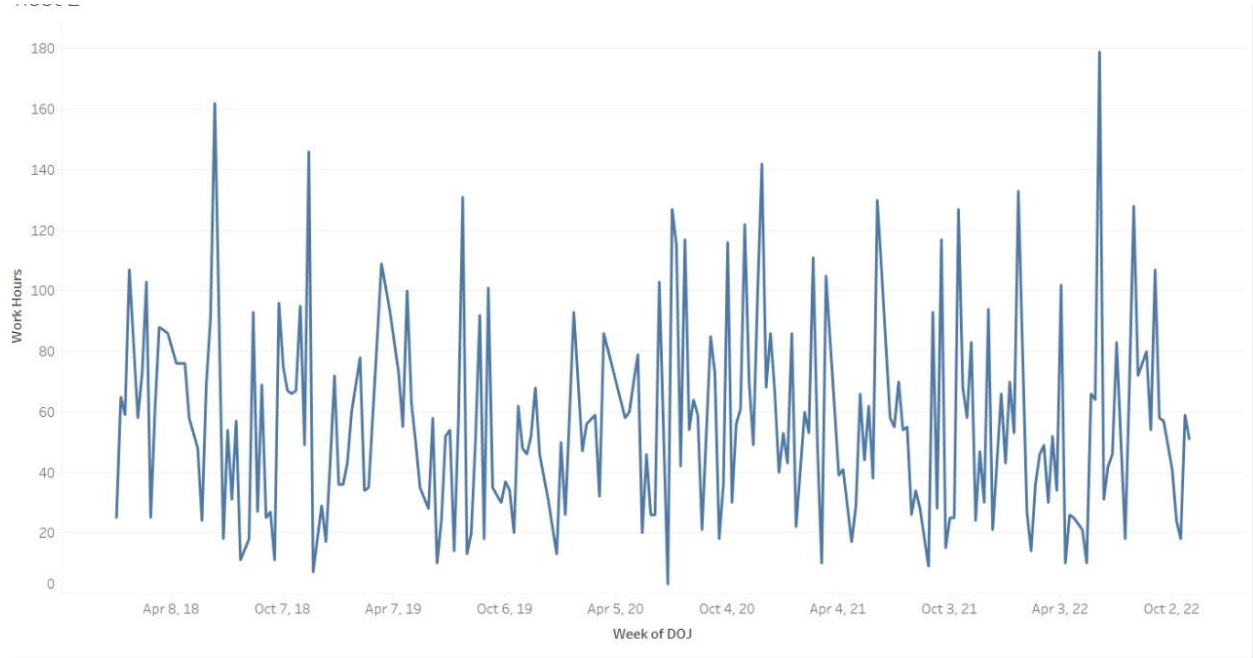
- We can clearly see that most number of absentees are present in MA, Oracle.



- We can Interpret that Female social drinkers and social smokers are high compared Males.



- We can see there is a fluctuation in the trend of workers vs Week of DOJ.

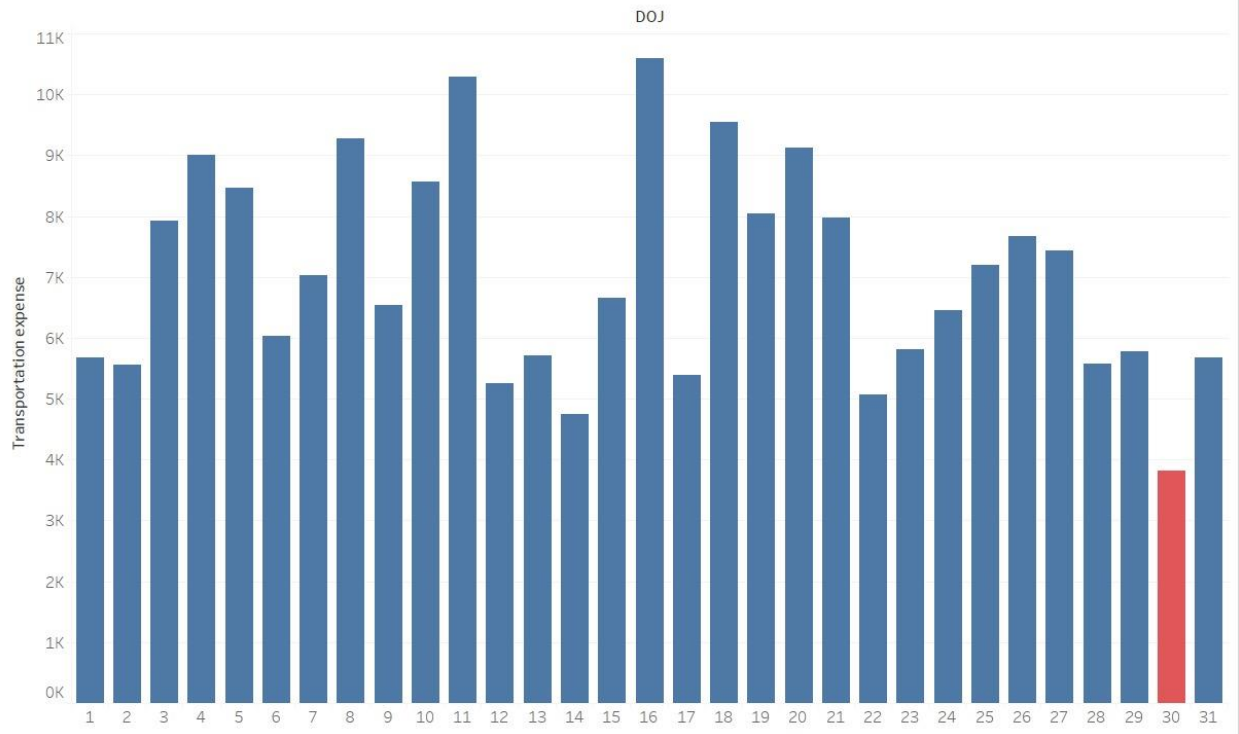


- We can interpret that most of employees working are Masters and Post-Graduation.

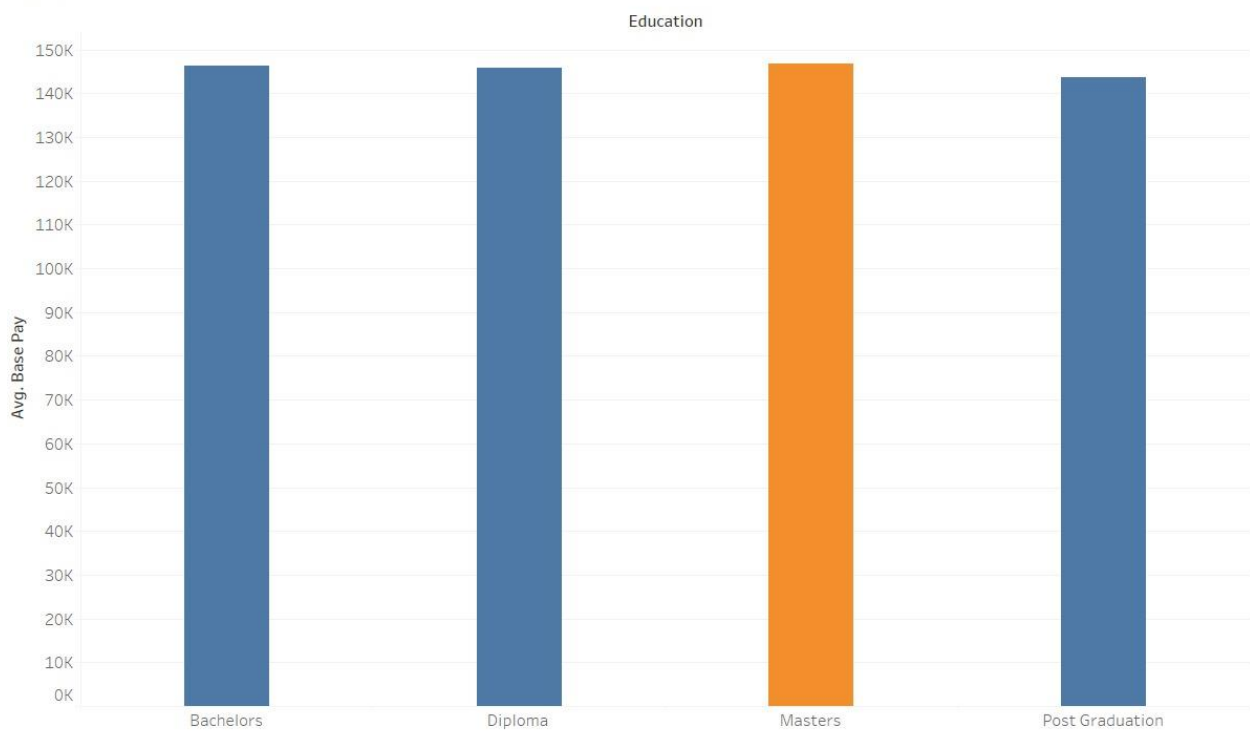


- We can interpret that employees are less likely to use transportation on 30 of the month.

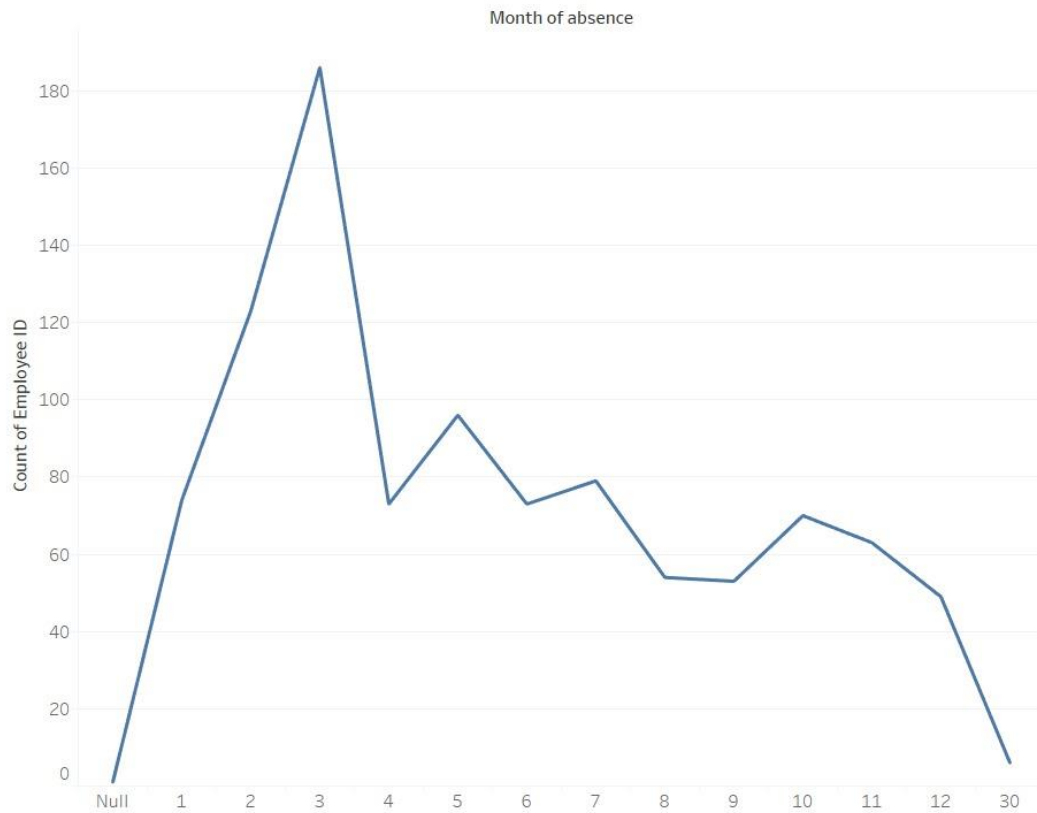
transportation cost daily in a month



- Employee pursued masters were on top of avg base pay.



- Most of the employees absentees are present in the mont of march.



- Most of the employees age ranges between 30-35

