Assignment: Individual Project

Course : CS/DSA 4513

Section : Section 001

Semester and Year: Fall 2022

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SCORE :

Tasks Performed

Task 1.

Task 3.

Task 5.

Task 1 :

1.1 ER Diagram

1.2 Relational Database

Employee(e_name , e_address ,salary)

Product(prod_id,prod_date,time,time_spent,Technical_staff_name,Tester_name,
Worker_name)

Accidents(Accident_no,Accident_date,no_of_workdays)

Account(Account_no,Account_date,cost)

Complaint(complaint_id,complaint_date,description_of_product,Treatment Expected)

Customer(customer_name,customer_address)

Technical_staff(Technical_staff_name,Technical_position)

Technical_degree(Technical_staff_name,degrees)

Workers(Worker_name,max_no_of_products)

Quality_Controller(Tester_name,type_of_products)

Product1(prod_id,size_of_prod1,major_software,account1_no)

Product2(prod_id,size_of_prod2,color_of_prod,account2_no)

Product3(prod_id,size_of_prod3,weight_of_prod,accoun3_no)

Prod1_account(Account1_no,account_date,cost)

Prod2_account(Account2_no,account_date,cost)

Prod3_account(Account3_no,account_date,cost)

Repairs(Technical_staff_name, prod_id ,repair_date)

Requests(Tech_staff_name, prod_id, Tester_name)

Faces (Tech_staff_name,prod_id,Accident_no)

Have(Tech_staff_name,prod_id,Accident_no)

Got(Tech_staff_name,prod_id,complaint_id)

Makes(Customer_name,prod_id,Complaint_id)

Tracks(prod_id,Account_no)

Task 2: Schema Diagram

Employees
E_name
E_address
salary

have
tech_staff_name
prod_id
accident_id

Requests
tech_staff_name
prod_id
tester_name

Repairs
Technical_staff_name
prod_id
repair_date

Accidents
Accident_no
Accident_date
no_of_workdays

Complaint
Complaint_id
Complaint_date
desc
Treatment_expected

faces
tech_staff_name
prod_id
accident_id

got
tech_staff_name
prod_id
complaint_id

Product
Prod_id
prod_date
time
technical_staff_name
Tester_name
Worker_name

makes
customer_name
prod_id
complaint_id

Workers
Workers_name
max_no_of_products

Prod1_Account
Account1_no

Product 1
Prod_id
size_of_prod1
major_software
Account1_no

Product 2
Prod_id
size_of_prod2
color_of_prod
Account2_no

Product 3
Prod_id
size_of_prod2
weight_of_prod
Account3_no

Technical_staff
Technical_staff_name
Technical_position

Prod2_Account
Account2_no

Quality_Controller
Tester_name
Typer_of_products

Technical_degree
Technical_staff_name
degreees

Prod3_Account
Account3_no

Accounts
Account_no
Account_date
cost

Customer_name
customer_name
customer_address

Purchases
customer_name
prod_id

6

Task 3:

3.1 STORAGE STRUCTURES EXPLAINATION

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organization	Justifications
Employee	1 – Insertion, 12-Range Search	Salary	2/month 1/month	B+ Tree File Indexing	B+ Tree is good for range search for the queries and is good for Insertion

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Product	2- Insertion	Prod_id	400/day	Sequential file Organization	This is one of the easiest method for inserting data in a sequential order

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Customer	3- Insertion 11- Random Search	Customer_ name	50/day 5/month	Static File Hashing	Static File Hashing works very well for searching a key using Rand Search

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Accidents	6- Insertion 15 - Deletion	Accident_ no	1/week	Heap file Organization	This method works well for Insertion and deletion of data

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Account	4- Insertion	Account_no	40/day	Sequential File Organization	This is one of the easiest method for inserting data in a sequential order

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Complaint	5 – Insertion 13- Random Search	Complaint_ id	30/day	Static File Hashing	Static File Hashing works very well for searching a key using Rand Search

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Technical_staff	1- Insertion 2- Random Search	Technical_ staff_ name	2/month 400/day	Static File Hashing	Static File Hashing works very well for searching a key using Random Search

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Technical_staff _degree	1- Insertion 2- Random Search	Technical_ staff_ name	2/month 400/day	Static File Hashing	Static File Hashing works very well for searching a key using Random Search

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Workers	1- Insertion 8- Random Search	Worker_ name	2/month 2000/day	Static File Hashing	Static File Hashing works very well for searching a key using Random Search

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Quality_ Controller	1- Insertion 10-Range Search 9 – Range Search	Tester_ name	2/month 40/day	B+ Tree Index	B+ Tree is good for range search for the queries and is good for Insertion

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Product 1	2- Insertion 4 – Insertion 7- Random Search	Prod_id	400/day 40/day 100/day	Static File Hashing	Static File Hashing works very well for searching a key using Random Search

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Product 2	2- Insertion 4 – Insertion 11- Random Search 14 – Random Search	Prod_id	400/day 40/day 5/month 5/day	Static File Hashing	Static File Hashing works very well for searching a key using Random Search

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Product3	2- Insertion 4 – Insertion 10- Range Search	Prod_id	400/day 40/day 40/day	B+ Tree	B+ Tree is good for range search for the queries and is good for Insertion

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Prod1_ Account	4- Insertion	Account1_no.	40/day	Sequential File Organizatio n	This is one of the easiest method for inserting data in a sequential order

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Prod2_ Account	4- Insertion	Account2_no.	40/day	Sequential File Organizatio n	This is one of the easiest method for inserting data in a sequential order

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Prod2_Account	4-Insertion	Account2_no.	40/day	Sequential File Organization	This is one of the easiest method for inserting data in a sequential order

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Repairs	13-Random Search 10- Range Search	Technical_staff_name	1/month 40/day	Heap file and B+ Trees	Heap file is suitable for storing random data and we can use B+ Trees for Range search

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Requests	1-Insertion 10-Random Search	Tester_name	2/month 40/day	Heap file	Heap file is suitable for storing random data

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Purchases	11- Range Search 2 - Insertion	Prod_id	5/month 400/day	B+ Trees	we can use B+ Trees for Range search because B+ Trees search values through different ranges

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Faces	13 - Random Search 6- Insertion	Accident_no	1/month	Static Hashing	Static File Hashing works very well for searching a key using Random Search

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organisation	Justifications
Have	6- Insertion	Accident_no	1/week	Sequential File Organisation	This is one of the easiest method for inserting data in a sequential order

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organistion	Justifications
Got	9- Range Search 13 – Random Search	Complaint_id	400/day 1/month	Heap file and B+ Trees	Heap file is suitable for storing random data and we can use B+ Trees for Range search

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organistion	Justifications
Makes	8- Random Search	Worker_name	2000/day	Heap file	Heap file is suitable for storing large amounts of random data

TABLE	QUERY # and Type	Search Key	Query Frequency	File Organistion	Justifications
Tracks	13- Random Search	Prod_id	1/month	Heap file	Heap file is suitable for storing large amounts of random data

3.2 Choices of Storage Structures

I think there will be three secondary indexes created on Employee, Products and Accounts because they are the only three records that will will be using mostly to access.

So creating indexes on those will be better.

Task 4 : CREATING TABLES ON SQL

Below screenshot has creation of all of the below mentioned Tables

- Employee
- Products
- Account
- Accident
- Complaints
- Customer
- Technical_staff
- Technical_degree
- Worker
- Quality_ Controller
- Product1_Account
- Product2_Account
- Product3_Account,
- Product1
- Product2
- Product3
- Repairs
- Requests
- Purchases
- Faces
- Have
- Makes
- Checks
- Tracks

```
 2    /* Creation of Employee Table*/
 3    CREATE  TABLE Employee (e_name varchar(64),
 4    e_address varchar(64),
 5    salary REAL Primary KEY(e_name))
 6    DROP TABLE IF EXISTS Products
 7    /* Creation of Products Table*/
 8    CREATE TABLE Products(prod_id VARCHAR(64),
 9    prod_date DATE,
10    Time_spent TIME,
11    Tech_staff_name varchar(64),
12    Tester_name varchar(64),
13    Worker_name varchar(64),
14    PRIMARY KEY(prod_id))
15    DROP TABLE IF EXISTS Account
16    /* Creation of Account Table*/
17    CREATE TABLE Account(Account_no VARCHAR(64),
18    Account_date DATE,
19    cost REAL,
20    PRIMARY KEY(Account_no))
21    DROP TABLE IF EXISTS Accidents
22    /* Creation of Accidents Table*/
23    CREATE TABLE Accidents(Accident_no VARCHAR(64),
24    accident_date DATE,
25    no_of_workdays int,
26    PRIMARY KEY(Accident_no))
27    DROP TABLE IF EXISTS Complaint
```

Messages

```
3:11:43 PM    Started executing query at Line 8
              Commands completed successfully.
              Total execution time: 00:00:00.118
```

```
28    /* Creation of Complaints Table*/
29    CREATE TABLE Complaint(Complaint_id VARCHAR(64),
30    Complaint_date DATE,
31    description_of_product varchar(64),
32    type_of_treatment varchar(64),
33    PRIMARY KEY(Complaint_id))
34    DROP TABLE IF EXISTS Customer
35    /* Creation of Customer Table*/
36    CREATE TABLE Customer (customer_name VARCHAR(64),
37    customer_address VARCHAR(64),
38    PRIMARY KEY(customer_name))
39    DROP TABLE IF EXISTS Technical_staff
40    /* Creation of Technical_staff Table*/
41    CREATE TABLE Technical_staff(Technical_staff_name VARCHAR(64),
42    Technical_position VARCHAR(64),
43    PRIMARY KEY(Technical_staff_name),
44    FOREIGN KEY(Technical_staff_name) references Employee)
45    INSERT INTO Technical_staff VALUES('Divya','Manager')
46    DROP TABLE IF EXISTS Technical_degree
47    /* Creation of TechnicalDegrees Table*/
48    CREATE TABLE Technical_degree(Technical_staff_name VARCHAR(64),
49    Degrees varchar(64),
50    PRIMARY KEY(Technical_staff_name),
51    FOREIGN KEY(Technical_staff_name) references Technical_staff )
52    DROP TABLE IF EXISTS Workers
53    /* Creation of Workers Table*/
```

Messages

```
3:11:43 PM    Started executing query at Line 8
              Commands completed successfully.
              Total execution time: 00:00:00.118
```

17

```sql
52   DROP TABLE IF EXISTS Workers
53   /* Creation of Workers Table*/
54   CREATE TABLE Workers(Worker_name VARCHAR(64),
55   max_no_of_products VARCHAR(64),
56   PRIMARY KEY(Worker_name),
57   FOREIGN KEY(Worker_name) REFERENCES Employee)
58   DROP TABLE IF EXISTS Quality_controller
59   /* Creation of Quality Controllers Table*/
60   CREATE TABLE Quality_controller(Tester_name VARCHAR(64),
61   type_of_product VARCHAR(64),
62   PRIMARY KEY(Tester_name),
63   FOREIGN KEY(Tester_name) REFERENCES Employee)
64   /* Creation of Product1_Account Table*/
65   DROP TABLE IF EXISTS Product1_Account
66   CREATE TABLE Product1_Account(Account1_no VARCHAR(64) ,
67   PRIMARY KEY(Account1_no),
68   FOREIGN KEY(Account1_no) REFERENCES Account)
69   DROP TABLE IF EXISTS Product2_Account
70   /* Creation of Product2_Account Table*/
71   CREATE TABLE Product2_Account(Account2_no VARCHAR(64) ,
72   PRIMARY KEY(Account2_no),
73    FOREIGN KEY(Account2_no) REFERENCES Account)
74    DROP TABLE IF EXISTS Product3_Account
75     /* Creation of Product3_Account Table*/
76   CREATE TABLE Product3_Account(Account3_no VARCHAR(64) , PRIMARY KEY(Account3_no), FOREIGN KEY(Account3_no) REFERENCES Account)
77   DROP TABLE IF EXISTS Product1
78   CREATE TABLE Product1(prod_id VARCHAR(64),
```

Messages

```
3:19:54 PM    Started executing query at Line 54
              Commands completed successfully.
              Total execution time: 00:00:00.128
```

```sql
78   /* Creation of Product1 Table */
79   CREATE TABLE Product1(prod_id VARCHAR(64),
80   size_of_prod1 VARCHAR(64),
81   name_of_software VARCHAR(64),
82   Account1_no VARCHAR(64),
83   PRIMARY KEY(prod_id),
84    FOREIGN KEY(Account1_no) REFERENCES Product1_Account,
85    FOREIGN KEY(prod_id) REFERENCES Products
86    )
87    DROP TABLE IF EXISTS Product2
88     /* Creation of Product2 Table*/
89   CREATE TABLE Product2(prod_id VARCHAR(64),
90   size_of_prod2 VARCHAR(64),
91   color_of_prod VARCHAR(64),
92   Account2_no VARCHAR(64),
93   PRIMARY KEY(prod_id),
94   FOREIGN KEY(Account2_no) REFERENCES Product2_Account,
95   FOREIGN KEY(prod_id) REFERENCES Products)
96   DROP TABLE IF EXISTS Product3
97    /* Creation of Product3 Table*/
98   CREATE TABLE Product3(prod_id VARCHAR(64),
99   size_of_prod3 VARCHAR(64),
100  weight_of_prod VARCHAR(64),
101  Account3_no VARCHAR(64),
102  PRIMARY KEY(prod_id),
103   FOREIGN KEY(Account3_no) REFERENCES Product3_Account,
104   FOREIGN KEY(prod_id) REFERENCES Products)
```

Messages

```
3:24:42 PM    Started executing query at Line 79
              Commands completed successfully.
              Total execution time: 00:00:00.151
```

```
106     /* Creation of Repairs Table*/
107     CREATE TABLE Repairs(Technical_staff_name VARCHAR(64),
108     PRIMARY key(Technical_staff_name, prod_id),
109     prod_id VARCHAR(64),
110     repair_date Date,
111     FOREIGN KEY(Technical_staff_name) REFERENCES Technical_staff,
112     FOREIGN KEY(prod_id) REFERENCES Products )
113     DROP TABLE IF EXISTS Requests
114     /* Creation of Requests Table*/
115     CREATE TABLE Requests(Technical_staff_name VARCHAR(64),
116     prod_id VARCHAR(64),
117     Tester_name VARCHAR(64),
118     PRIMARY KEY(Technical_staff_name,prod_id,Tester_name),
119     FOREIGN KEY(Technical_staff_name) REFERENCES Technical_staff,
120     FOREIGN KEY(prod_id) REFERENCES Products,
121     FOREIGN KEY(Tester_name) REFERENCES Quality_Controller)
122     DROP TABLE IF EXISTS Purchases
123     /* Creation of Purchases Table*/
124     CREATE TABLE Purchases(Customer_name VARCHAR(64),
125     prod_id VARCHAR(64),
126     PRIMARY KEY(customer_name,prod_id),
127     FOREIGN KEY(customer_name) REFERENCES Customer,
128     FOREIGN KEY(prod_id) REFERENCES Products )
129     DROP TABLE IF EXISTS Faces
130     /* Creation of Faces Table*/
131     CREATE TABLE Faces( Technical_staff_name VARCHAR(64),
```

Messages

```
3:31:00 PM    Started executing query at Line 131
              Commands completed successfully.
              Total execution time: 00:00:00.090
```

```
/* Creation of Have Table*/
CREATE TABLE Have( Worker_name VARCHAR(64),
prod_id VARCHAR(64),
Accident_no VARCHAR(64),
PRIMARY KEY(Worker_name,prod_id,Accident_no),
FOREIGN KEY(Worker_name) REFERENCES Workers,
FOREIGN KEY(prod_id) REFERENCES Products,
FOREIGN KEY(Accident_no) REFERENCES Accidents )
DROP TABLE IF EXISTS Got
/* Creation of Got Table*/
CREATE TABLE Got(Technical_staff_name VARCHAR(64),
prod_id VARCHAR(64),complaint_id VARCHAR(64),
PRIMARY KEY(Technical_staff_name,prod_id,complaint_id),
FOREIGN KEY(Technical_staff_name) REFERENCES Technical_staff,
FOREIGN KEY(prod_id) REFERENCES Products,
FOREIGN KEY(complaint_id) REFERENCES Complaint )
DROP TABLE IF EXISTS makes
/* Creation of makes Table*/
CREATE TABLE makes(Customer_name VARCHAR(64),
prod_id VARCHAR(64),complaint_id VARCHAR(64),
PRIMARY KEY(Customer_name,prod_id,complaint_id),
FOREIGN KEY(Customer_name) REFERENCES Customer,
FOREIGN KEY(prod_id) REFERENCES Products,
FOREIGN KEY(complaint_id) REFERENCES Complaint)
DROP TABLE IF EXISTS Checks
```

```
s

:49 PM     Started executing query at Line 149
           Commands completed successfully.
           Total execution time: 00:00:00.081
```

19

```sql
/* Creation of Checks Table */
CREATE TABLE Checks( Tester_name VARCHAR(64),
 prod_id VARCHAR(64),
 FOREIGN KEY(Tester_name) REFERENCES Quality_Controller,
 FOREIGN KEY(prod_id) REFERENCES Products,
 PRIMARY KEY(Tester_name,prod_id))
   /* Creation of Checks Table*/
DROP TABLE IF EXISTS Tracks
 CREATE TABLE Tracks(prod_id VARCHAR(64),Account_no VARCHAR(64),
 FOREIGN KEY(prod_id) REFERENCES Products,
 FOREIGN KEY(Account_no) REFERENCES Account,
 PRIMARY KEY(prod_id,Account_no))
```

/*Query1* (a) insert values to employee */

es

:12 PM   Started executing query at Line 165
            Commands completed successfully.
            Total execution time: 00:00:00.102

Task 5 :

5.1 : SQL statements (and Transact SQL stored procedures, if any) 51-54 Implementing all queries (1-15 and error checking)

Query 1 : Enter a New Employee

```
▷ Run  ☐ Cancel      ⅄ Disconnect  ⟳ Change Connection   cs-dsa-4513-sql-db        ⌄       ⅍ Estimated Plan  ⁝⁝ Enable Actual Plan  ⊞ Enable SQLCMD  ↦ Export as Notebook
189    /*Query1* (a) insert values to employee */
190    DROP PROCEDURE IF EXISTS insert_employee
191     GO
192    CREATE PROCEDURE insert_employee
193       @e_name varchar(64),
194       @e_address varchar(64),
195       @salary REAL
196    AS
197    BEGIN
198    Insert into Employee VALUES(@e_name,@e_address,@salary);
199    END
200    GO
201    /* Query to insert values to tech_staff */
202    DROP PROCEDURE IF EXISTS insert_tech_staff
203    GO
204    CREATE PROCEDURE insert_tech_staff
205    @tech_staff_name VARCHAR(64),
206    @tech_position VARCHAR(64)
207    AS
208    BEGIN
209    Insert into Technical_Staff VALUES(@tech_staff_name,@tech_position)
210    END
211    GO
212    /* insert values to technical staff degree */
213    DROP PROCEDURE IF EXISTS insert_tech_staff_degrees
214    GO
```

Messages

```
4:42:31 PM    Started executing query at Line 235
              Commands completed successfully.
              Total execution time: 00:00:00.064
```

```
▷ Run  ☐ Cancel      ⅄ Disconnect  ⟳ Change Connection   cs-dsa-4513-sql-db        ⌄       ⅍ Estimated Plan  ⁝⁝ Enable Actual Plan  ⊞ Enable SQLCMD  ↦ Export as Notebook
214    GO
215    CREATE PROCEDURE insert_tech_staff_degrees
216    @tech_staff_name VARCHAR(64),
217    @degree VARCHAR(64)
218    AS
219    BEGIN
220    Insert into Technical_degree VALUES(@tech_staff_name,@degree)
221    END
222    GO
223    /*insert values to workers table*/
224    DROP PROCEDURE IF EXISTS insert_workers
225    GO
226    CREATE PROCEDURE insert_workers
227    @worker_name varchar(64),
228    @no_of_products varchar(64)
229    AS
230    BEGIN
231    INSERT into Workers VALUES(@worker_name,@no_of_products)
232    END
233    GO
234    /*insert values to Quality Controllers table */
235    DROP PROCEDURE IF EXISTS insert_testers
236    GO
237    CREATE PROCEDURE insert_testers
238    @tester_name VARCHAR(64),
239    @type VARCHAR(64)
```

Messages

```
4:42:31 PM    Started executing query at Line 235
              Commands completed successfully.
              Total execution time: 00:00:00.064
```

Col 1 (41 selected)   Spaces: 4   UTF-8   CRLF   SQL   0 rows   Choose SQL Language   00:00:00   chop0005-sql-server.database.windows.net : cs-dsa-4513-sql-db   ⅀   ☐

```
234    /*insert values to Quality Controllers table */
235    DROP PROCEDURE IF EXISTS insert_testers
236    GO
237    CREATE PROCEDURE insert_testers
238    @tester_name VARCHAR(64),
239    @type VARCHAR(64)
240    AS
241    BEGIN
242    INSERT into Quality_Controller VALUES(@tester_name,@type)
243    END
244    GO
```

Select * From Employee

```
593    SELECT * FROM Employee
```

Results   Messages

	e_name	e_address	salary
1	Bhavya	2900	600000
2	Divya	Alight	40000
3	Likhitha	Alight	50000
4	Maharshi	Norman	90000
5	Megahana	Redpint	60000
6	Moksha	Redpoint	30000
7	Ramya	Norman	40000
8	Shruthi	Redpoint	60000
9	Shyam	CampusLodge	70000
10	Theeva	Traditions	80000

SELECT * from Technical_staff

```
594    SELECT * FROM Technical_staff
```

Results   Messages

	Technical_staff_name	Technical_position
1	Divya	Manager
2	Likhitha	MS
3	Moksha	Associate
4	Ramya	Director

SELECT * from Technical_degree

```
595        SELECT * from Technical_degree
```

Results   Messages

	Technical_staff_name ∨	Degrees ∨
1	Likhitha	MS
2	Moksha	BS
3	Ramya	MS

Select * from Workers

```
596        SELECT * FROM Workers
```

Results   Messages

	Worker_name ∨	max_no_of_products ∨
1	Megahana	60
2	Shyam	80
3	Theeva	80

Select * from Quality_Controller

```
597        SELECT * from Quality_controller
598
```

Results   Messages

	Tester_name ∨	type_of_product ∨
1	Bhavya	
2	Maharshi	Electronics
3	Shruthi	Hardcover

Query 2 : Enter a new product associated with the person who made the product, repaired the product if it is repaired, or checked the product (400/day) .

```
246  DROP PROCEDURE IF EXISTS insert_workertester_prods
247  GO
248  CREATE PROCEDURE insert_workertester_prods
249  @prod_id INT,
250  @prod_date VARCHAR(64),
251  @time_spent VARCHAR(64),
252  @Worker_name VARCHAR(64),
253  @Tester_name VARCHAR(64)
254  AS
255  BEGIN
256  INSERT INTO Products(prod_id,prod_date,time_spent,Worker_name,Tester_name) VALUES(@prod_id,@prod_date,@time_spent,@Worker_name,@Tester_name
257  END
258  GO
259  /* INSERT products associated with Technical staff*/
260  DROP PROCEDURE IF EXISTS insert_tech_staff_prods
261  GO
262  CREATE PROCEDURE insert_tech_staff_prods
263  @prod_id INT,
264  @prod_date VARCHAR(64),
265  @time_spent VARCHAR(64),
266  @tech_staff_name VARCHAR(64)
267  AS
268  BEGIN
269  INSERT INTO Products(prod_id,prod_date,time_spent,Tech_staff_name) VALUES(@prod_id,@prod_date,@time_spent,@tech_staff_name)
270  END
```

Messages

```
5:38:21 PM    Started executing query at Line 246
              Commands completed successfully.
5:38:21 PM    Started executing query at Line 248
              Commands completed successfully.
5:38:21 PM    Started executing query at Line 259
              Commands completed successfully.
```

Select * from Products

C: > Users > Likitha > Downloads > 🖴 Table_Creations.sql

▷ Run ☐ Cancel   ⸙ Disconnect ⟲ Change Connection | cs-dsa-4513-sql-db ⌄ | 🖧 Estimated Plan ⸽ Enable Actual Plan 🖪 Enab
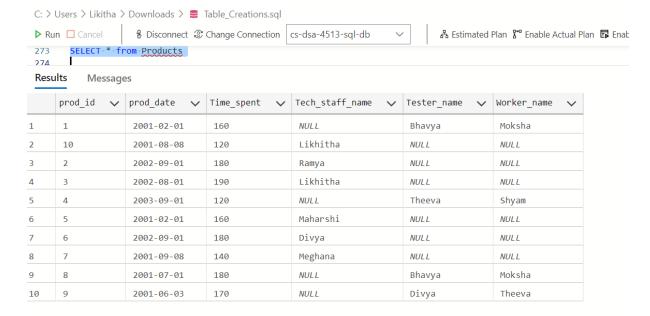
```
273   SELECT * from Products
274
```

Results   Messages

	prod_id	prod_date	Time_spent	Tech_staff_name	Tester_name	Worker_name
1	1	2001-02-01	160	NULL	Bhavya	Moksha
2	10	2001-08-08	120	Likhitha	NULL	NULL
3	2	2002-09-01	180	Ramya	NULL	NULL
4	3	2002-08-01	190	Likhitha	NULL	NULL
5	4	2003-09-01	120	NULL	Theeva	Shyam
6	5	2001-02-01	160	Maharshi	NULL	NULL
7	6	2002-09-01	180	Divya	NULL	NULL
8	7	2001-09-08	140	Meghana	NULL	NULL
9	8	2001-07-01	180	NULL	Bhavya	Moksha
10	9	2001-06-03	170	NULL	Divya	Theeva

24

Query 3: Enter a customer associated with some products

```
276   /*INSERT VALUES INTO CUSTOMER */
277   DROP PROCEDURE IF EXISTS insert_customer
278   GO
279   CREATE PROCEDURE insert_customer
280   @customer_id VARCHAR(64),
281   @customer_address VARCHAR(64)
282   AS
283   BEGIN
284   INSERT INTO Customer VALUES(@customer_id,@customer_address)
285   END
286   GO
287   /*INSERT INTO Purchase*/
288   DROP PROCEDURE insert_purchase
289   GO
290   CREATE PROCEDURE insert_purchase
291   @customer_id VARCHAR(64),
292   @prod_id VARCHAR(64)
293   AS
294   BEGIN
295   INSERT INTO Purchases VALUES(@customer_id,@prod_id)
296   END
297   GO
298   SELECT * FROM Purchases
299   /* INSERT INTO Account*/
300   DROP PROCEDURE IF EXISTS insert_Account
301   GO
302   CREATE PROCEDURE insert account
```

Messages

```
6:13:45 PM      Started executing query at Line 277
                Commands completed successfully.
6:13:45 PM      Started executing query at Line 279
                Commands completed successfully.
```

Col 3 (437 selected)   Spaces: 4   UTF-8   CRLF   SQL   0 rows   Choose SQL Language   00:00:00   chop0005-sql-server.dat

25

Select * FROM Purchases

```
298    SELECT * FROM Purchases
```

Results   Messages

	Customer_name	prod_id
1	Amy	8
2	Ariana	10
3	Camila	7
4	Harry	2
5	Hayley	8
6	Katy	9
7	Liam	4
8	lOUIS	6
9	Nial	5
10	Zayn	3

Select * FROM Customers

```
299    SELECT * from Customer
```

Results   Messages

	customer_name	customer_address
1	Amy	
2	Ariana	
3	Camila	
4	Harry	Campus
5	Hayley	
6	Katy	
7	Liam	
8	lOUIS	
9	Nial	
10	Taylor	Alight
11	Zayn	

26

Query 4: Create a new account associated with a product (40/day)

```sql
300   /* INSERT INTO Account*/
301   DROP PROCEDURE IF EXISTS insert_Account
302   GO
303   CREATE PROCEDURE insert_account
304   @account_no REAL,
305   @account_date VARCHAR(64),
306   @cost REAL
307   AS
308   BEGIN
309   INSERT into Account Values(@account_no,@account_date,@cost)
310   END
311   GO
312   /* INSERT INTO PRODUCT1Account*/
313   DROP PROCEDURE IF EXISTS insert_prod1
314   GO
315   CREATE PROCEDURE insert_prod1
316   @account1_no REAL
317   AS
318   BEGIN
319   INSERT INTO Product1_Account VALUES(@account1_no)
320   END
321   GO
322   /*INSERT INTO PRODUCT2 Account */
323   DROP PROCEDURE IF EXISTS insert_prod2
324   GO
```

Messages

```
6:48:50 PM    Started executing query at Line 335
              Commands completed successfully.
              Total execution time: 00:00:00.065
```

Col 3 (130 selected)   Spaces: 4   UTF-8   CRLF   SQL   0 rows   Choose SQL Language   00:00:00   chop0005-sql-server.database.windows.net : cs-dsa-4513-sql-db

```sql
322   /*INSERT INTO PRODUCT2 Account */
323   DROP PROCEDURE IF EXISTS insert_prod2
324   GO
325   CREATE PROCEDURE insert_prod2
326   @account2_no VARCHAR(64)
327   AS
328   BEGIN
329   INSERT INTO Product2_Account VALUES(@account2_no)
330   END
331   go
332   /* INSERT INTO PROD3_ACCOUNT */
333   DROP PROCEDURE IF EXISTS insert_prod3
334   GO
335   CREATE PROCEDURE insert_prod3
336   @account3_no VARCHAR(64)
337   AS
338   BEGIN
339   INSERT INTO Product3_Account VALUES(@account3_no)
340   END
341   GO
342   SELECT * FROM Account
343   /* INSERT INTO Complaint */
344   DROP PROCEDURE IF EXISTS insert_complaint
345   GO
346   CREATE PROCEDURE insert_complaint
```
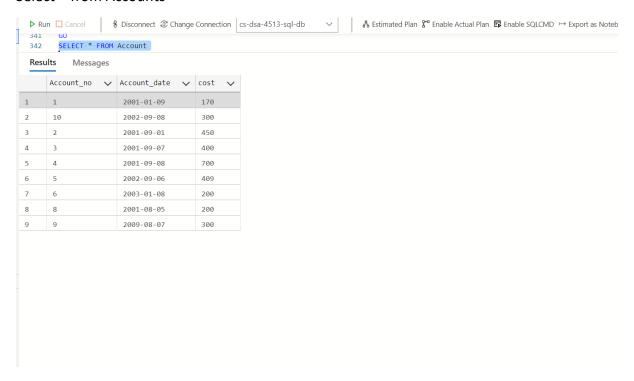
Messages

```
6:48:50 PM    Started executing query at Line 335
              Commands completed successfully.
              Total execution time: 00:00:00.065
```

Select * from Accounts

	Account_no	Account_date	cost
1	1	2001-01-09	170
2	10	2002-09-08	300
3	2	2001-09-01	450
4	3	2001-09-07	400
5	4	2001-09-08	700
6	5	2002-09-06	409
7	6	2003-01-08	200
8	8	2001-08-05	200
9	9	2009-08-07	300

Query 5 : Enter a complaint associated with a customer and product (30/day).

```
345   /* INSERT INTO Complaint */
346   DROP PROCEDURE IF EXISTS insert_complaint
347   GO
348   CREATE PROCEDURE insert_complaint
349   @complaint_id VARCHAR(64),
350   @complaint_date VARCHAR(64),
351   @description_of_product varchar(64),
352   @type_of_treatment varchar(64)
353   AS
354   BEGIN
355   INSERT into Complaint VALUES(@complaint_id,@complaint_date,@description_of_product,@type_of_treatment)
356   END
357   GO
358   /* INSERT INTO PRODUCTS */
359   DROP PROCEDURE IF EXISTS insert_prods
360   GO
361   CREATE PROCEDURE insert_prods
362   @prod_id INT,
363   @prod_date DATE,
364   @time_spent VARCHAR(64),
365   @Worker_name VARCHAR(64),
```

Messages

```
7:14:36 PM    Started executing query at Line 157
              Commands completed successfully.
              Total execution time: 00:00:00.068
```

```
364    @time_spent VARCHAR(64),
365    @Worker_name VARCHAR(64),
366    @Tester_name VARCHAR(64),
367    @Technical_staff VARCHAR(64)
368    AS
369    BEGIN
370    INSERT INTO Products(prod_id,prod_date,time_spent,Worker_name,Tester_name,Tech_staff_name) VALUES(@prod_id,@prod_date,@time_spent,@Work
371    END
372    GO
373    /*INSERT PRODUCTS TO MAKE */
374    DROP PROCEDURE IF EXISTS insert_make
375    GO
376    CREATE PROCEDURE insert_make
377    @cust_name VARCHAR(64),
378    @prod_id REAL,
379    @complaint_id REAL
380    AS
381    BEGIN
382    INSERT into makes VALUES(@cust_name,@prod_id,@complaint_id)
383    END
384    GO
```

Select * From Complaints

```
385    SELECT * from Complaint
```

Results   **Messages**

	Complaint_id ∨	Complaint_date ∨	description_of_product ∨	type_of_treatment ∨
1	1	2001-01-09	Money exchange	Money
2	19	2001-01-20	issues	money
3	2	2001-01-09	Issueoftype	Moneyexchange
4	3	2001-09-01	bulbs	Moneyexchange
5	6	2001-01-08	issues	moneyexchange
6	8	2001-01-02	Issue	Moneyexchange
7	9	2001-09-09	issue	moneyexchange

Query 6 : Enter an accident associated with an appropriate employee and product (1/week).

```
386    /*INSERT INTO ACCIDENTS */
387    DROP PROCEDURE IF EXISTS insert_accidents
388    GO
389    CREATE PROCEDURE insert_accidents
390    @accident_id REAL,
391    @date_of_accident VARCHAR(64),
392    @no_of_workdays REAL
393    AS
394    BEGIN
395    INSERT into Accidents VALUES(@accident_id,@date_of_accident,@no_of_workdays)
396    END
397    GO
398    /*INSERT INTO FACES */
399    DROP PROCEDURE IF EXISTS insert_faces
400    GO
401    CREATE PROCEDURE insert_faces
402    @Technical_staff_name VARCHAR(64),
403    @prod_id REAL,
404    @accident_id REAL
405    AS
406    BEGIN
407    INSERT into Faces VALUES(@Technical_staff_name,@prod_id,@accident_id)
```

Messages

```
7:27:39 PM    Started executing query at Line 387
              Commands completed successfully.
7:27:39 PM    Started executing query at Line 389
              Commands completed successfully.
7:27:39 PM    Started executing query at Line 398
              Commands completed successfully.
7:27:39 PM    Started executing query at Line 401
              Commands completed successfully.
7:27:39 PM    Started executing query at Line 410
              Commands completed successfully.
```

Col 1 (758 selected)   Spaces: 4   UTF-8   CRLF   SQL   0 rows   Choose SQL Language   00:00:00   chop0005-sql-server.database.windows.net : cs-dsa-4513-sql-db

```
407    INSERT into Faces VALUES(@Technical_staff_name,@prod_id,@accident_id)
408    END
409    GO
410    /*INSERT INTO HAVE*/
411    DROP PROCEDURE IF EXISTS insert_have
412    GO
413    CREATE PROCEDURE insert_have
414    @worker_name VARCHAR(64),
415    @prod_id REAL,
416    @accident_no VARCHAR(64)
417    AS
418    BEGIN
419    INSERT into Have VALUES(@worker_name,@prod_id,@accident_no)
420    END
421    GO
422    /*INSERT INTO PRODUCTS */
423    GO
```

Messages

```
7:27:39 PM    Started executing query at Line 387
              Commands completed successfully.
7:27:39 PM    Started executing query at Line 389
              Commands completed successfully.
7:27:39 PM    Started executing query at Line 398
              Commands completed successfully.
7:27:39 PM    Started executing query at Line 401
              Commands completed successfully.
```

Select * from Accidents

```
422    select * from Accidents
```

Results   Messages

	Accident_no	accident_date	no_of_workdays
1	1	2001-01-09	23
2	2	2001-09-08	20
3	3	2001-09-07	29
4	8	2001-09-08	25

Query 7 : Retrieve the date produced and time spent to produce a particular product (100/day).

```
606    SELECT prod_date, Time_spent from Products s,Product2 p where s.prod_id = p.prod_id
```

Results   Messages

	prod_date	Time_spent
1	2001-02-01	160

Run ☐ Cancel | ⅋ Disconnect ⟳ Change Connection | cs-dsa-4513-sql-db ⌄ | 🔏 Estimated Plan ⚙ Enable Actual Plan 🗐 Enab

606   SELECT prod_date, Time_spent from Products s,Product3 p where s.prod_id = p.prod_id

Results   Messages

	prod_date ⌄	Time_spent ⌄
1	2001-02-01	160

Run ☐ Cancel | ⅋ Disconnect ⟳ Change Connection | cs-dsa-4513-sql-db ⌄ | 🔏 Estimated Plan ⚙ Enable Ac

606   SELECT prod_date, Time_spent from Products s,Product1 p where s.prod_id = p.prod_id

Results   Messages

	prod_date ⌄	Time_spent ⌄
1	2001-02-01	160

32

Query 8 : Retrieve all products made by a particular worker (2000/day).

```sql
SELECT prod_id from Products p, Workers w where p.Worker_name = w.Worker_name
```

```
606     SELECT prod_id from Products p, Workers w where p.Worker_name = w.Worker_name
```

Results   Messages

	prod_id ∨
1	4
2	9

Query 9 : Retrieve the total number of errors a particular quality controller made. This is the total number of products certified by this controller and got some complaints (400/day).

```
606     SELECT COUNT(s.prod_id) AS count  from Products p ,
607     Checks s,Quality_controller q , Got g where s.prod_id = p.prod_id and p.Tester_name = s.Tester_name  and g.prod_id = p.prod_id
```

Results   Messages

	count ∨
1	3

10. Retrieve the total costs of the products in the product3 category which were repaired at the request of a particular quality controller (40/day).

```
SELECT sum(cost) as totalcost FROM Account a , Requests r,Repairs p,Product3
pd,Product3_Account pa3 where r.prod_id = p.prod_id and pd.Account3_no =
pa3.Account3_no and pa3.Account3_no = a.Account_no
```

```
608    SELECT sum(cost) as totalcost FROM
609    Account a , Requests r,Repairs p,Product3 pd,Product3_Account pa3 where
610    r.prod_id = p.prod_id and pd.Account3_no = pa3.Account3_no and pa3.Account3_no = a.Account_no
611    SELECT * from Account
```

Results   Messages

totalcost ⌄
1	700

Query 11 : Retrieve all customers (in name order) who purchased all products of a particular color (5/month).

```
SELECT c.customer_name  as Customer from Customer c , Purchases p , Product2 p2 where
c.customer_name = p.Customer_name and
p.prod_id = p2.prod_id and p2.color_of_prod = 'red' ORDER BY c.customer_name
```

```
617  SELECT c.customer_name  as Customer from Customer c , Purchases p , Product2 p2 where c.customer_name = p.Customer_name and
618  p.prod_id = p2.prod_id and p2.color_of_prod = 'red' ORDER BY c.customer_name
```

Results   Messages

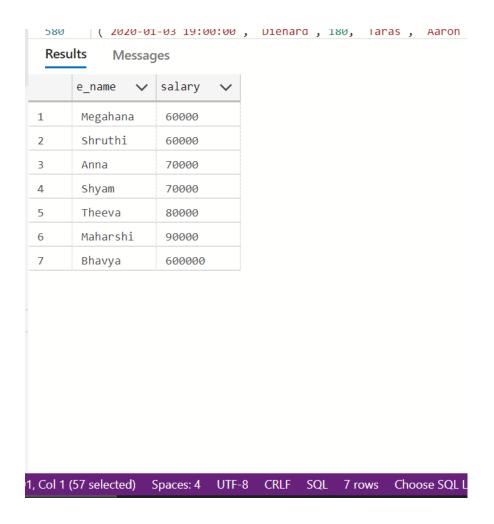|	Customer ∨
1	Harry
2	Zayn

Query 12 : Retrieve all employees whose salary is above a particular salary (1/month).

```
581   DROP PROCEDURE IF EXISTS compare_Salary
582   GO
583   CREATE PROCEDURE compare_Salary
584   @empsalary INT
585   AS
586   BEGIN
587   SELECT e_name,salary from Employee where salary > @empsalary
588   END
589   GO
590
591   CREATE INDEX Emp on Employee(salary)
592   CREATE INDEX prod on Products(prod_id)
593   CREATE INDEX account on Account(Account_no)
594
595   SELECT * FROM Employee
596   SELECT * FROM Technical_staff
597   SELECT * from Technical_degree
598   SELECT * FROM Workers
599   SELECT * from Quality controller
```

Messages

8:27:10 PM   Started executing query at Line 581
              Commands completed successfully.

35

580   (2020-01-03 19:00:00 , Dienard , 180, Taras , Aaron

Results   Messages

	e_name	salary
1	Megahana	60000
2	Shruthi	60000
3	Anna	70000
4	Shyam	70000
5	Theeva	80000
6	Maharshi	90000
7	Bhavya	600000

1, Col 1 (57 selected)   Spaces: 4   UTF-8   CRLF   SQL   7 rows   Choose SQL L

Query 13) Retrieve the total number of workdays lost due to accidents in repairing the products which got complaints (1/month).

```
620    SELECT COUNT(no_of_workdays) as totalworkdays from Accidents a, Repairs r,Got g,Faces f
621    WHERE r.prod_id = g.prod_id and f.Accident_no = a.Accident_no
```

Results   Messages

	totalworkdays
1	1

36

Query 14) Retrieve the average cost of all products made in a particular year (5/day).

```sql
SELECT Avg(cost) as avgcost FROM Account a ,  Products p,Tracks t where
YEAR(prod_date) = '2001';
```

```
622    SELECT Avg(cost) as avgcost FROM Account a ,  Products p,Tracks t where YEAR(prod_date) = '2001';
```

Results   Messages

	avgcost	
1	347.6666666666667	

Query15) Delete all accidents whose dates are in some range (1/day).

```sql
GO
CREATE PROCEDURE delete_accident
@RANGE1  DATE,
@RANGE2 DATE
AS
BEGIN
DELETE FROM Accidents where accident_date  BETWEEN @Range1 and @RANGE2;

END
GO
```

```
549    SELECT * from Accidents
550    INSERT INTO Accidents VALUES(7 '2002 09 07' 6)
```

Results   Messages

	Accident_no	accident_date	no_of_workdays
1	1	2001-01-09	23
2	2	2001-09-08	20
3	3	2001-09-07	29
4	7	2002-09-07	6
5	8	2001-09-08	25

Col 1 (25 selected)   Spaces: 4   UTF-8   CRLF   SQL   5 rows   Choose SQL L

5.2

Successful Compilation of Java Code

Task 6: Java Program Execution

6.1 Screenshots showing Testing of Query 1

Output in sql

	e_name	e_address	salary
1	Bhavya	Campus	50000
2	Divya	Alight	50000
3	Divyasai	Alight	70000
4	Likhitha	Alight	60000
5	Maharshi	Normanpoint	80000
6	Meghana	Norman	60000
7	Moksha	Norman	60000
8	Ramya	Traditions	600000
9	Shruthi	ALight	80000
10	Shyam	Redpoint	70000
11	Theeva	Traditions	80000

Col 1 (24 selected)   Spaces: 4   UTF-8   CRLF   SQL   11 rows   Choose S

38

```
317   16) Import the file
318   17) Export the file
319   18) Quit
320   1
321   Enter Employee name
322   Likhitha
323   Enter Address of the employee
324   Alight
325   Enter salary of the employee
326   60000
327   Connecting to the database...
328   Dispatching the query...
329   1Rows inserted
330   "\nWhich staff you want to add values to? \n" +
331             "1) Technical Staff; \n" +
332             "2) Workers; \n" +
333             "3) Quality_Controllers
334   Enter your choice:
335
336   1
337   Enter Technical position
338   Manager
339   1Rows inserted
340   Enter degree:
341   MS
342   1Rows inserted
343
344   Please select one of the options below:
345   1) Insert into Employees;
```

```
18) Quit
1
Enter Employee name
Meghana
Enter Address of the employee
Norman
Enter salary of the employee
60000
Connecting to the database...
Dispatching the query...
1Rows inserted
"\nWhich staff you want to add values to? \n" +
          "1) Technical Staff; \n" +
          "2) Workers; \n" +
          "3) Quality_Controllers
Enter your choice:


2
Enter maximum number of products
50
1Rows inserted
```

```
1
Enter Employee name
Bhavya
Enter Address of the employee
Campus
Enter salary of the employee
50000
Connecting to the database...
Dispatching the query...
1Rows inserted
"\nWhich staff you want to add values to? \n" +
          "1) Technical Staff; \n" +
          "2) Workers; \n" +
          "3) Quality_Controllers
Enter your choice:


3
Enter type of the product
Markers
1Rows inserted

Please select one of the options below:
```

```
17) Export the file
18) Quit
1
Enter Employee name
Ramya
Enter Address of the employee
Traditions
Enter salary of the employee
600000
Connecting to the database...
Dispatching the query...
1Rows inserted
"\nWhich staff you want to add values to? \n" +
         "1) Technical Staff; \n" +
         "2) Workers; \n" +
         "3) Quality_Controllers
Enter your choice:

2
Enter maximum number of products
60
1Rows inserted

Please select one of the options below:
1) Insert into Employees;
```

```
18) Quit
1
Enter Employee name
Shyam
Enter Address of the employee
Redpoint
Enter salary of the employee
70000
Connecting to the database...
Dispatching the query...
1Rows inserted
"\nWhich staff you want to add values to? \n" +
         "1) Technical Staff; \n" +
         "2) Workers; \n" +
         "3) Quality_Controllers
Enter your choice:

3
Enter type of the product
Electronics
1Rows inserted
```

```
18) Quit
1
Enter Employee name
Maharshi
Enter Address of the employee
Normanpoint
Enter salary of the employee
80000
Connecting to the database...
Dispatching the query...
1Rows inserted
"\nWhich staff you want to add values to? \n" +
            "1) Technical Staff; \n" +
            "2) Workers; \n" +
            "3) Quality_Controllers
Enter your choice:

3
Enter type of the product
70
1Rows inserted
```

```
1
Enter Employee name
Moksha
Enter Address of the employee
Norman
Enter salary of the employee
60000
Connecting to the database...
Dispatching the query...
1Rows inserted
"\nWhich staff you want to add values to? \n" +
            "1) Technical Staff; \n" +
            "2) Workers; \n" +
            "3) Quality_Controllers
Enter your choice:

3
Enter type of the product
Book
1Rows inserted
```

```
18) Quit
1
Enter Employee name
Shruthi
Enter Address of the employee
ALight
Enter salary of the employee
80000
Connecting to the database...
Dispatching the query...
1Rows inserted
"\nWhich staff you want to add values to? \n" +
          "1) Technical Staff; \n" +
          "2) Workers; \n" +
          "3) Quality_Controllers
Enter your choice:


3
Enter type of the product
Electronics
1Rows inserted
```

```
18) Quit
1
Enter Employee name
Theeva
Enter Address of the employee
Traditions
Enter salary of the employee
80000
Connecting to the database...
Dispatching the query...
1Rows inserted
"\nWhich staff you want to add values to? \n" +
          "1) Technical Staff; \n" +
          "2) Workers; \n" +
          "3) Quality_Controllers
Enter your choice:


3
Enter type of the product
Books
1Rows inserted
```

```
17) Export the file
18) Quit
1
Enter Employee name
Divyasai
Enter Address of the employee
Alight
Enter salary of the employee
70000
Connecting to the database...
Dispatching the query...
1Rows inserted
"\nWhich staff you want to add values to? \n" +
          "1) Technical Staff; \n" +
          "2) Workers; \n" +
          "3) Quality_Controllers
Enter your choice:


3
Enter type of the product
Laptop
1Rows inserted
```

6.2 Screenshots of Java showing testing of Query 2

```
17) Export the file
18) Quit
2
Enter product Id
1
Enter Product date
2001-01-01
Enter time spent on the product
160
"\nChoose Product is associated with which which staff? \n" +
          "1) Worker and Quality_Controllers; \n" +
          "2) Technical Staff; \n" +
          "3)
Enter your Choice
1
Connecting to the database...
Dispatching the query...
Enter name of worker
Bhavya
Enter name of Tester
Moksha
1Rows inserted
```

```
18) Quit
2
Enter product Id
3
Enter Product date
2001-09-08
Enter time spent on the product
160
"\nChoose Product is associated with which which staff? \n" +
          "1) Worker and Quality_Controllers; \n" +
          "2) Technical Staff; \n" +
          "3)
Enter your Choice
1
Connecting to the database...
Dispatching the query...
Enter name of worker
Aliya
Enter name of Tester
Divya
1Rows inserted
```

```
2
Enter product Id
4
Enter Product date
2002-09-09
Enter time spent on the product
170
"\nChoose Product is associated with which which staff? \n" +
          "1) Worker and Quality_Controllers; \n" +
          "2) Technical Staff; \n" +
          "3)
Enter your Choice
2
Connecting to the database...
Dispatching the query...
Enter name of Technical Staff Name
Ramya
1Rows inserted
```

```
17) Export the file
18) Quit
2
Enter product Id
5
Enter Product date
2009-09-08
Enter time spent on the product
230
"\nChoose Product is associated with which which staff? \n" +
           "1) Worker and Quality_Controllers; \n" +
           "2) Technical Staff; \n" +
           "3)
Enter your Choice
1
Connecting to the database...
Dispatching the query...
Enter name of worker
Megan
Enter name of Tester
fox
1Rows inserted
```

```
18) Quit
2
Enter product Id
6
Enter Product date
2003-09-01
Enter time spent on the product
130
"\nChoose Product is associated with which which staff? \n" +
          "1) Worker and Quality_Controllers; \n" +
          "2) Technical Staff; \n" +
          "3)
Enter your Choice
2
Connecting to the database...
Dispatching the query...
Enter name of Technical Staff Name
Harry
1Rows inserted
```

```
18) Quit
2
Enter product Id
7
Enter Product date
2004-04-09
Enter time spent on the product
450
"\nChoose Product is associated with which which staff? \n" +
           "1) Worker and Quality_Controllers; \n" +
           "2) Technical Staff; \n" +
           "3)
Enter your Choice
2
Connecting to the database...
Dispatching the query...
Enter name of Technical Staff Name
Ron
1Rows inserted
```

```
18) Quit
2
Enter product Id
8
Enter Product date
2009-07-01
Enter time spent on the product
123
"\nChoose Product is associated with which which staff? \n" +
          "1) Worker and Quality_Controllers; \n" +
          "2) Technical Staff; \n" +
          "3)
Enter your Choice
2
Connecting to the database...
Dispatching the query...
Enter name of Technical Staff Name
Shyam
1Rows inserted
```

```
18) Quit
2
Enter product Id
9
Enter Product date
2009-08-06
Enter time spent on the product
126
"\nChoose Product is associated with which which staff? \n" +
          "1) Worker and Quality_Controllers; \n" +
          "2) Technical Staff; \n" +
          "3)
Enter your Choice
2
Connecting to the database...
Dispatching the query...
Enter name of Technical Staff Name
Tara
1Rows inserted

Please select one of the options below:
```

```
18) Quit
2
Enter product Id
2
Enter Product date
2001-09-18
Enter time spent on the product
150
"\nChoose Product is associated with which which staff? \n" +
          "1) Worker and Quality_Controllers; \n" +
          "2) Technical Staff; \n" +
          "3)
Enter your Choice
2
Connecting to the database...
Dispatching the query...
Enter name of Technical Staff Name
Meghana
1Rows inserted
```

```
18) Quit
2
Enter product Id
10
Enter Product date
2009-08-07
Enter time spent on the product
289
"\nChoose Product is associated with which which staff? \n" +
            "1) Worker and Quality_Controllers; \n" +
            "2) Technical Staff; \n" +
            "3)
Enter your Choice
2
Connecting to the database...
Dispatching the query...
Enter name of Technical Staff Name
Neeraja
1Rows inserted
```

Output of the above query in sql

```
628    SELECT * from Products
```

Results   Messages

prod_id	prod_date	Time_spent	Tech_staff_name	Tester_name	Worker_name
1	2001-01-01	160	NULL	Moksha	Bhavya
10	2009-08-07	289	Neeraja	NULL	NULL
2	2001-09-18	150	Meghana	NULL	NULL
3	2001-09-08	160	NULL	Divya	Aliya
4	2002-09-09	170	Ramya	NULL	NULL
5	2009-09-08	230	NULL	fox	Megan
6	2003-09-01	130	Harry	NULL	NULL
7	2004-04-09	450	Ron	NULL	NULL
8	2009-07-01	123	Shyam	NULL	NULL
9	2009-08-06	126	Tara	NULL	NULL

6.3 SCREESNHOTS FOR QUERY3

```
17) Export the file
18) Quit
3
Enter name of the customer
Taylor
Enter Customer address
Alight
Connecting to the database...
Dispatching the query...
1Rows inserted
Enter the prod_id for which a Customer is Associated
1
1Rows inserted
```

```
18) Quit
3
Enter name of the customer
Harry
Enter Customer address
Alight
Connecting to the database...
Dispatching the query...
1Rows inserted
Enter the prod_id for which a Customer is Associated
1
1Rows inserted
```

```
3
Enter name of the customer
Zayn
Enter Customer address
Norman
Connecting to the database...
Dispatching the query...
1Rows inserted
Enter the prod_id for which a Customer is Associated
2
1Rows inserted
```

```
3
Enter name of the customer
Louis
Enter Customer address
Alight
Connecting to the database...
Dispatching the query...
1Rows inserted
Enter the prod_id for which a Customer is Associated
3
1Rows inserted
```

```
17) Export the file
18) Quit
3
Enter name of the customer
Camila
Enter Customer address
Norman
Connecting to the database...
Dispatching the query...
1Rows inserted
Enter the prod_id for which a Customer is Associated
4
1Rows inserted
```

```
18) Quit
3
Enter name of the customer
Hayley
Enter Customer address
redpoint
Connecting to the database...
Dispatching the query...
1Rows inserted
Enter the prod_id for which a Customer is Associated
6
1Rows inserted
```

```
18) Quit
3
Enter name of the customer
Katy
Enter Customer address
Aligh12
Connecting to the database...
Dispatching the query...
1Rows inserted
Enter the prod_id for which a Customer is Associated
9
1Rows inserted
```

```
18) Quit
3
Enter name of the customer
Arianna
Enter Customer address
Normanpoint
Connecting to the database...
Dispatching the query...
1Rows inserted
Enter the prod_id for which a Customer is Associated
9
1Rows inserted
```

Output for sql query 3

```
299    SELECT * from Customer
```

Results   Messages

	customer_name	customer_address
1	Arianna	Normanpoint
2	Camila	Norman
3	Harry	Alight
4	Hayley	redpoint
5	Katy	Aligh12
6	Liam	Redpoint
7	Louis	Alight
8	Nial	Campus
9	Taylor	Alight
10	Zayn	Norman

6.4 Java screenshots for query 4

```
4
Enter Account No.
11
Enter Account_date
2001-09-01
Enter cost of the product
700
Dispatching the query...
1Rows inserted
"\nWhich Account you want? \n" +
            "1) Product1 Account; \n" +
            "2) Product2 Account; \n" +
            "3) Product3 Account
Enter your choice:


1
1Rows inserted
```

```
18) Quit
4
Enter Account No.
12
Enter Account_date
2003-09-01
Enter cost of the product
800
Dispatching the query...
1Rows inserted
"\nWhich Account you want? \n" +
            "1) Product1 Account; \n" +
            "2) Product2 Account; \n" +
            "3) Product3 Account
Enter your choice:


2
1Rows inserted
```

```
4
Enter Account No.
14
Enter Account_date
2009-07-06
Enter cost of the product
400
Dispatching the query...
1Rows inserted
"\nWhich Account you want? \n" +
            "1) Product1 Account; \n" +
            "2) Product2 Account; \n" +
            "3) Product3 Account
Enter your choice:


3
1Rows inserted
```

```
18) Quit
4
Enter Account No.
13
Enter Account_date
2001-08-07
Enter cost of the product
400
Dispatching the query...
1Rows inserted
"\nWhich Account you want? \n" +
            "1) Product1 Account; \n" +
            "2) Product2 Account; \n" +
            "3) Product3 Account
Enter your choice:

3
1Rows inserted
```

```
18) Quit
4
Enter Account No.
15
Enter Account_date
2003-01-07
Enter cost of the product
700
Dispatching the query...
1Rows inserted
"\nWhich Account you want? \n" +
            "1) Product1 Account; \n" +
            "2) Product2 Account; \n" +
            "3) Product3 Account
Enter your choice:

3
1Rows inserted
```

```
18) Quit
4
Enter Account No.
15
Enter Account_date
2003-01-07
Enter cost of the product
700
Dispatching the query...
1Rows inserted
"\nWhich Account you want? \n" +
            "1) Product1 Account; \n" +
            "2) Product2 Account; \n" +
            "3) Product3 Account
Enter your choice:

3
1Rows inserted
```

```
18) Quit
4
Enter Account No.                              52
15
Enter Account_date
2003-01-07
Enter cost of the product
700
Dispatching the query...
1Rows inserted
"\nWhich Account you want? \n" +
            "1) Product1 Account; \n" +
            "2) Product2 Account; \n" +
            "3) Product3 Account
Enter your choice:


3
1Rows inserted
```

```
18) Quit
4
Enter Account No.
17
Enter Account_date
2001-09-08
Enter cost of the product
500
Dispatching the query...
1Rows inserted
"\nWhich Account you want? \n" +
            "1) Product1 Account; \n" +
            "2) Product2 Account; \n" +
            "3) Product3 Account
Enter your choice:


2
1Rows inserted
```

```
18) Quit
4
Enter Account No.
18
Enter Account_date
2009-08-01
Enter cost of the product
500
Dispatching the query...
1Rows inserted
"\nWhich Account you want? \n" +
          "1) Product1 Account; \n" +
          "2) Product2 Account; \n" +
          "3) Product3 Account
Enter your choice:


3
1Rows inserted

Please select one of the options below:
```

```
217     18) Quit
218     4
219     Enter Account No.
220     19
221     Enter Account_date
222     2001-09-19
223     Enter cost of the product
224     600
225     Dispatching the query...
226     1Rows inserted
227     "\nWhich Account you want? \n" +
228               "1) Product1 Account; \n" +
229               "2) Product2 Account; \n" +
230               "3) Product3 Account
231     Enter your choice:
232
233     1
234     1Rows inserted
235
```

Output for sql query 4


```
311   GO
312   SELECT * from Account
313   /* INSERT INTO PRODUCT1Account*/
```

Results   Messages

	Account_no ⌄	Account_date ⌄	cost ⌄
1	1	2001-01-09	170
2	10	2002-09-08	300
3	11	2001-09-01	700
4	12	2003-09-01	800
5	13	2001-08-07	400
6	14	2009-07-06	400
7	15	2003-01-07	700
8	16	2009-01-08	200
9	17	2001-09-08	500
10	18	2009-08-01	500

6.5 JAVA SCREENSHOTS FOR QUERY 5

```
10) Quit
5
Enter Complaint id
4
Enter date of complaint
2001-08-07
Enter description of complaint
FixBulbs
Enter type of treatment
MONEYRETURN
Dispatching the query...
1Rows inserted
Enter name of the customer
Hannah
Enter Customer address
Rosewood
1Rows inserted
Enter product Id
20
Enter Product date
2001-09-08
Enter time spent on the product
170
Enter name of worker
Bhavya
Enter name of tester
Likhitha
Enter name of Technical_staff
Divya
1Rows inserted
1Rows inserted
```

```
5
Enter date of complaint
2002-09-08
Enter description of complaint
Lights fix
Enter type of treatment
getmoneyback
Dispatching the query...
1Rows inserted
Enter name of the customer
Emily
Enter Customer address
Alight
1Rows inserted
Enter product Id
21
Enter Product date
2001-09-08
Enter time spent on the product
150
Enter name of worker
Ramya
Enter name of tester
shyam
Enter name of Technical_staff
shrithi
1Rows inserted
1Rows inserted
```

```
Enter Complaint id
6
Enter date of complaint
2001-07-08
Enter description of complaint
Washer fix
Enter type of treatment
Moneyexvhange
Dispatching the query...
1Rows inserted
Enter name of the customer
Spencer
Enter Customer address
Traditions
1Rows inserted
Enter product Id
22
Enter Product date
2001-07-02
Enter time spent on the product
170
Enter name of worker
Maria
Enter name of tester
rema
Enter name of Technical_staff
theeva
1Rows inserted
1Rows inserted
```

Output for Sql Query 5

	Complaint_id	Complaint_date	description_of_product	type_of_treatment
1	1	2001-09-09	Bulb issue	Money exchange
2	2	2001-09-08	bulbfix	Moneyexchange
3	3	2001-09-08	lightfix	moneyexchange

6.6 JAVA SCREENSHOTS FOR QUERY 6

```
Enter Accident Id:
21
Enter Accident date :
2001-09-08
Enter no_of_workdays
27
Dispatching the query...
Enter product Id
91
Enter Product date
2001-09-09
Enter time spent on the product
160
1Rows inserted
Enter Employee name
Aman
Enter Address of the employee
Alight
Enter salary of the employee
30000
1Rows inserted
"\nWhich staff you want to add values to? \n" +
          "1) Technical Staff; \n" +
          "2) Workers; \n" +
          "3) Quality_Controllers
Enter your choice:

2
Enter maximum number of products
70
1Rows inserted
1Rows inserted
```

```
18) Quit
6
Enter Accident Id:
22
Enter Accident date :
2003-09-08
Enter no_of_workdays
25
Dispatching the query...
Enter product Id
92
Enter Product date
2001-09-07
Enter time spent on the product
170
1Rows inserted
Enter Employee name
Spence
Enter Address of the employee
Alight
Enter salary of the employee
60000
1Rows inserted
"\nWhich staff you want to add values to? \n" +
        "1) Technical Staff; \n" +
        "2) Workers; \n" +
        "3) Quality_Controllers
Enter your choice:

3
```

```
6
Enter Accident Id:
23
Enter Accident date :
2001-07-06
Enter no_of_workdays
26
Dispatching the query...
Enter product Id
93
Enter Product date
2001-09-08
Enter time spent on the product
298
1Rows inserted
Enter Employee name
Em
Enter Address of the employee
Alight
Enter salary of the employee
60000
1Rows inserted
"\nWhich staff you want to add values to? \n" +
            "1) Technical Staff; \n" +
            "2) Workers; \n" +
            "3) Quality_Controllers
Enter your choice:

2
Enter maximum number of products
70
1Rows inserted
1Rows inserted
```

Output for Query 6:

```
312      SELECT * from Accidents
```

Results   Messages

	Accident_no	accident_date	no_of_workdays
1	1	2001-09-08	23
2	2	2001-09-08	27
3	21	2001-09-08	27

6.7 SCREENSHOT FOR JAVA QUERY 7

Output for query 7 in sql

6.8 JAVA SCREENSHOTS FOR 8TH QUERY

Output for query 8 in sql

6.9 JAVA SCREENSHOTS FOR QUERY 9

```
Please select one of the options below:
1) Insert into Employees;
2) Insert into Products;
3) Insert into Customers;
4) Insert into Accounts
5) Insert into complaints
6) Insert into Accidents
7) Select date and time from particular products
8)Retreive all products made by a particular Worker
9) Retrieve the total number of errors a particular quality controller ma
10)Retrieve the total costs of the products in the product3 category whic
11) Retrieve all customers (in name order) who purchased all products of
12) Retrieve all employees whose salary is above a particular salary (1/m
13) SELECT COUNT(no_of_workdays) as totalworkdays from Accidents a, Repai
14) SELECT Avg(cost) as avgcost FROM Account a ,  Products p,Tracks t whe
15)Delete
16) Import the file
17) Export the file
18) Quit
9
Dispatching the query...
```

Output for sql query 9

```
635      SELECT prod_id from Products p, Workers w where p.Worker_name = w.Worker_name
636
```

Results   Messages

prod_id ∨
1	21

6.9 JAVA SCREENSHOTS FOR SQL10

```
17) Export the file
18) Quit
10
Dispatching the query...
7929.0

Please select one of the options below:
1) Insert into Employees;
```

Output for sql query 10

```
640     SELECT sum(cost) as totalcost FROM Account a , Requests r,Repairs p,Product3 pd,Product3_Account pa3 where r.prod_id = p.prod_id and
641     |
642
```

Results   Messages

	totalcost ∨
1	7929

6.11 JAVA SCREENSHOTS FOR SQL QUERY11

```
17) Export the file
18) Quit
11
Dispatching the query...
Harry
Nial
Taylor
Zayn
```

Sql output for 11th query

```
642     SELECT c.customer_name  as Customer from Customer c , Purchases p , Pro
643     |
644
```

Results   Messages

	Customer ∨
1	Harry
2	Liam
3	Louis
4	Nial
5	Taylor
6	Zayn

6.12 JAVA SCREENSHOT FOR SQL 12

```
5) Insert into complaints
6) Insert into Accidents
7) Select date and time from particular products
8)Retreive all products made by a particular Worker
9) Retrieve the total number of errors a particular quality controller made.
10)Retrieve the total costs of the products in the product3 category which were repaired at the request of a particular quality controller
11) Retrieve all customers (in name order) who purchased all products of a particular color
12) Retrieve all employees whose salary is above a particular salary (1/month).
13) SELECT COUNT(no_of_workdays) as totalworkdays from Accidents a, Repairs r,Got g,Faces f WHERE r.prod_id = g.prod_id and f.Accident_no = a.Ac
14) SELECT Avg(cost) as avgcost FROM Account a ,  Products p,Tracks t where YEAR(prod_date) = '2001'
15)Delete
16) Import the file
17) Export the file
18) Quit
12
Enter Salary
40000
Dispatching the query...
Output:
Likhitha
50000
Megahana
60000
Shruthi
60000
Anna
70000
Shyam
70000
Theeva
80000
Maharshi
90000
Bhavya
600000
```

6.13 JAVA SCREENSHOT FOR SQL 13

```
1) Insert into Employees;
2) Insert into Products;
3) Insert into Customers;
4) Insert into Accounts
5) Insert into complaints
6) Insert into Accidents
7) Select date and time from particular products
8)Retreive all products made by a particular Worker
9) Retrieve the total number of errors a particular quality controller made.
10)Retrieve the total costs of the products in the product3 category which were repaired at the request of a particular quality controller
11) Retrieve all customers (in name order) who purchased all products of a particular color
12) Retrieve all employees whose salary is above a particular salary (1/month).
13) SELECT COUNT(no_of_workdays) as totalworkdays from Accidents a, Repairs r,Got g,Faces f WHERE r.prod_id = g.prod_id and f.Accident_no = a.Ac
14) SELECT Avg(cost) as avgcost FROM Account a ,  Products p,Tracks t where YEAR(prod_date) = '2001'
15)Delete
16) Import the file
17) Export the file
18) Quit
13
Dispatching the query...
1
```

6.14 JAVA SCREENSHOT FOR SQL14

```
8)Retrieve all products made by a particular Worker
9) Retrieve the total number of errors a particular quality controller made.
10)Retrieve the total costs of the products in the product3 category which were repaired at the request of a particular quality controller
11) Retrieve all customers (in name order) who purchased all products of a particular color
12) Retrieve all employees whose salary is above a particular salary (1/month).
13) SELECT COUNT(no_of_workdays) as totalworkdays from Accidents a, Repairs r,Got g,Faces f WHERE r.prod_id = g.prod_id and f.Accident_no = a.Ac
14) SELECT Avg(cost) as avgcost FROM Account a ,  Products p,Tracks t where YEAR(prod_date) = '2001'
15)Delete
16) Import the file
17) Export the file
18) Quit
14
Dispatching the query...
347.6666666666667

Please select one of the options below:
1) Insert into Employees;
2) Insert into Products;
3) Insert into Customers;
4) Insert into Accounts
5) Insert into complaints
6) Insert into Accidents
7) Select date and time from particular products
8)Retreive all products made by a particular Worker
9) Retrieve the total number of errors a particular quality controller made.
```

6.15 JAVA SCREENSHOT FOR SQL 15

```
IndividualProject [Java Application] C:\Users\Likitha\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.4.v20220805-1047\jre\bin\javaw.exe  (20-Nov-2022, 9:14:41 pm) [pid: 2168
8)Retreive all products made by a particular Worker
9) Retrieve the total number of errors a particular quality controller made.
10)Retrieve the total costs of the products in the product3 category which were repaired at the request of a particular quality controller
11) Retrieve all customers (in name order) who purchased all products of a particular color
12) Retrieve all employees whose salary is above a particular salary (1/month).
13) SELECT COUNT(no_of_workdays) as totalworkdays from Accidents a, Repairs r,Got g,Faces f WHERE r.prod_id = g.prod_id and f.Accident_no = a.Ac
14) SELECT Avg(cost) as avgcost FROM Account a ,  Products p,Tracks t where YEAR(prod_date) = '2001'
15)Delete
16) Import the file
17) Export the file
18) Quit
15
Dispatching the query...
1row deleted

Please select one of the options below:
1) Insert into Employees;
2) Insert into Products;
3) Insert into Customers;
4) Insert into Accounts
5) Insert into complaints
6) Insert into Accidents
7) Select date and time from particular products
8)Retreive all products made by a particular Worker
9) Retrieve the total number of errors a particular quality controller made.
10)Retrieve the total costs of the products in the product3 category which were repaired at the request of a particular quality controller
11) Retrieve all customers (in name order) who purchased all products of a particular color
12) Retrieve all employees whose salary is above a particular salary (1/month).
13) SELECT COUNT(no_of_workdays) as totalworkdays from Accidents a, Repairs r,Got g,Faces f WHERE r.prod_id = g.prod_id and f.Accident_no = a.Ac
14) SELECT Avg(cost) as avgcost FROM Account a ,  Products p,Tracks t where YEAR(prod_date) = '2001'
15)Delete
16) Import the file
17) Export the file
18) Quit
```

6.16 JAVA SCREENSHOT FOR SQL16

```
IndividualProject [Java Application] C:\Users\Likitha\.p2\pool\plugins\org.eclipse.justj.openjd
WELCOME TO THE DATABASE SYSTEM OF MyProducts, Inc.


Please select one of the options below:
1) Insert into Employees;
2) Insert into Products;
3) Insert into Customers;
4) Insert into Accounts
5) Insert into complaints
6) Insert into Accidents
7) Select date and time from particular products
8)Retreive all products made by a particular Worker
9) Retrieve the total number of errors a particular quality control
10)Retrieve the total costs of the products in the product3 categor
11) Retrieve all customers (in name order) who purchased all produc
12) Retrieve all employees whose salary is above a particular salar
13) SELECT COUNT(no_of_workdays) as totalworkdays from Accidents a,
14) SELECT Avg(cost) as avgcost FROM Account a ,  Products p,Tracks
15)Delete
16) Import the file
17) Export the file
18) Quit
16
Enter file name:
Data.csv
Connecting to the database...
Dispatching the query...
1 employee imported
```

65

	A	B	C	D	E
1	Betty	BHEL	700000		
2	Veronica	alight	50000		
3	Jughead	Rosewood	100000		
4					
5					
6					
7					
8					

6. 7 JAVA SCREENSHOTS FOR 17 QUERY

```
Please select one of the options below:
1) Insert into Employees;
2) Insert into Products;
3) Insert into Customers;
4) Insert into Accounts
5) Insert into complaints
6) Insert into Accidents
7) Select date and time from particular products
8)Retreive all products made by a particular Worker
9) Retrieve the total number of errors a particular quality controller made.
10)Retrieve the total costs of the products in the product3 category which were repaired at the request of a particular quality controller
11) Retrieve all customers (in name order) who purchased all products of a particular color
12) Retrieve all employees whose salary is above a particular salary (1/month).
13) SELECT COUNT(no_of_workdays) as totalworkdays from Accidents a, Repairs r,Got g,Faces f WHERE r.prod_id = g.prod_id and f.Accident_no = a.Acciden
14) SELECT Avg(cost) as avgcost FROM Account a ,  Products p,Tracks t where YEAR(prod_date) = '2001'
15)Delete
16) Import the file
17) Export the file
18) Quit
17
Enter file name:
Datafile.csv
Enter color
Red
Connecting to the database...
Dispatching the query...
Output:
```

	A	B	C	D	E	F	G
1	Harry	Liam	Louis	Nial	Taylor	Zayn	
2							
3							
4							
5							

Task 7:

JSP SCREENSHOT OF QUERY 12

Add Employee Salary

Enter the Employee Salary	
Employee Salary:	40000S
Clear	Insert

OUTPUT OF INSERTION PAGE

Employee_name	Salary
?"Betty "	700000.0
Bhavya	50000.0
Divya	50000.0
Divyasai	70000.0
Em	60000.0
Jughead	100000.0
Likhitha	60000.0
Maharshi	80000.0
Meghana	60000.0
Moksha	60000.0
Ramya	600000.0
Shruthi	80000.0
Shyam	70000.0
Spence	60000.0
Theeva	80000.0
Veronica	50000.0

JSP PAGE FOR QUERY 1

Add Employee Data

Enter the Employee Data:	
Employee name:	anuhya
Employee_address:	alight
Employee_salary:	45000
Clear	Insert

INSERTION DISPLAY PAGE

Employee data:

- Start Time: anuhya
- Movie Name: alight
- Duration: 45000

Was successfully inserted.

See all Employees data.

Add Employee Salary

Enter the Employee Salary	
Employee Salary:	40000
Clear	Insert

Employee_name	Salary
?"Betty "	700000.0
anuhya	45000.0
anushka	470000.0
Bhavya	50000.0
Divya	50000.0
Divyasai	70000.0
Em	60000.0
Jughead	100000.0
Likhitha	60000.0
Maharshi	80000.0
Meghana	60000.0
Moksha	60000.0
Ramya	600000.0
Shruthi	80000.0
Shyam	70000.0
Spence	60000.0
Theeva	80000.0
Veronica	50000.0