FUTURE Inc.

DATABASE MANAGEMENT SYSTEM
TAUGHT BY DR. LE GRUENWALD

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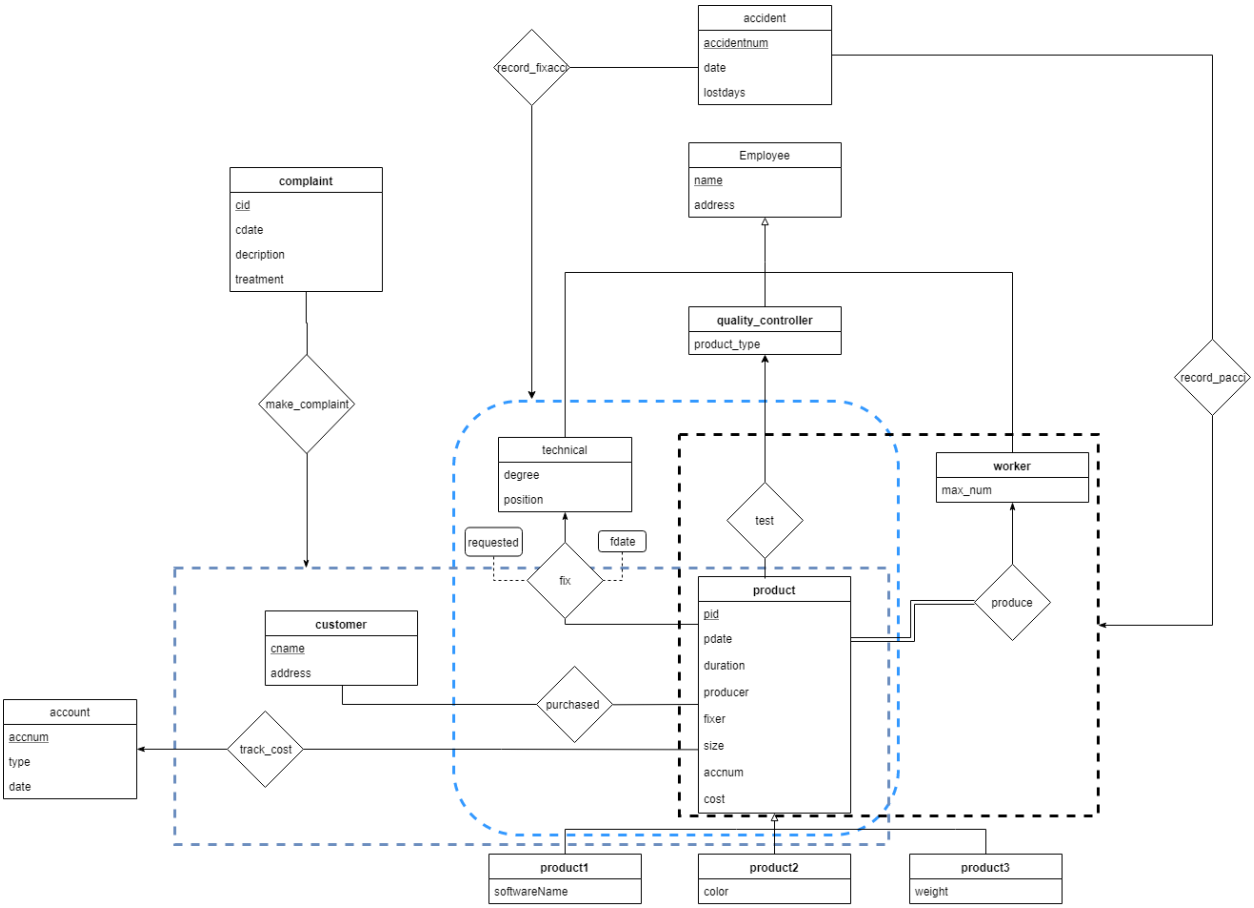
Tasks Performed **Page Number**

Task 1

1.1 ER DIAGRAM



1.2. RELATIONAL DATABASE SCHEMA

Quality_Controller (name, product_type)

Employee (name, address)

Technical (name, degree, position)

Fix (pid, name, fdate, requested)

Test (pid, name)

Worker (name, max_num)

Product (pid, pdate, duration, producer, size, accnum, cost)

Product1 (pid, software)

Product2 (pid, color)

Product3 (pid, weight)

Account (accnum, date, type)

Customer (cname, address)

Purchased (cname, pid)

Complaint (cid, cdate, description, treatment)

Make_Complaint (cid, cname, pid)

Accident (accidentnum, accidentdate. lostday)

Record_pacci (accidentnum, pid, name)

Record_Fixacci (accidentnum, pid, name)

Task 2. Data Dictionary

PK = PRIMARY KEY, FK = FOREIGN KEY

TABLE NAME	COLUMN NAME	DATA TYPE	DATA SIZE (BYTES)	CONSTRAINT TYPE/TABLE
Employee	name	VARCHAR	255	PK
Employee	address	VARCHAR	255	-
Quality_Controller	name	VARCHAR	255	PK/Employee
Quality_Controller	product_type	VARCHAR	50	-
Technical	name	VARCHAR	255	PK/Employee
Technical	degree	VARCHAR	10	-
Technical	position	VARCHAR	50	-
Fix	pid	INT	20	PK/Product
Fix	name	VARCHAR	255	FK/Technical
Fix	fdate	VARCHAR	50	-
Fix	requested	VARCHAR	50	-
Worker	name	VARCHAR	255	PK/Employee
Worker	max_num	INT	-	-
Product	pid	INT	-	PK
Product	pdate	DATE	-	-
Product	duration	INT	-	-
Product	producer	VARCHAR	255	FK/Worker
Product	tester	VARCHAR	255	FK/Qult_Ctrl
Product	size	VARCHAR	50	-
Product	accnum	INT	-	FK/Account
Product	cost	INT	-	
Product1	pid	INT	-	PK/Product
Product1	software	VARCHAR	255	-
Product2	pid	INT	-	PK/Product
Product2	color	VARCHAR	50	-
Product3	pid	INT	-	PK/Product
Product3	weight	VARCHAR	50	-
Account	accnum	INT	-	PK
Account	date	DATE	-	-
Account	type	VARCHAR	50	-
Customer	cname	VARCHAR	255	PK

Customer	address	VARCHAR	255	-
Purchased	cname	VARCHAR	255	PK/Customer
Purchased	pid	INT	-	PK/Product
Complaint	cid	INT	-	PK
Complaint	cdate	DATE	-	-
Complaint	description	VARCHAR	255	-
Complaint	treatment	VARCHAR	50	-
Make_Complaint	cid	INT	-	PK/Complaint
Make_Complaint	cname	VARCHAR	255	FK/ Purchased
Make_Complaint	pid	INT	-	FK/ Purchased
Accident	accidentnum	INT	-	PK
Accident	accidentdate	DATE	-	-
Accident	lostday	INT	-	-
Record_Fixacci	accidentnum	INT	-	FK/Accident
Record_Fixacci	pid	INT	-	
Record_Fixacci	name	VARCHAR	50	FK/Technical
Record_Pacci	accidentnum	INT	-	FK/Accident
Record_Pacci	pid	INT	-	
Record_Pacci	name	VARCHAR	50	FK/Worker

Task 3

3.1 DISCUSSION OF STORAGE STRUCTURE FOR TABLE

There are three main file organization such as heap file, index sequential file and dynamic hashing.

As I need to insert bulk data without ordering and don't not need any searching, I could use heap file organization.

I will use indexed sequential file for the table whose queries have range search

I will use dynamic hash file for the table whose queries have random search

Table Name	**Type of Query**	**Search Key**	**Frequency**	**File Organization**
Employee	[1] insert [6] random search	------- name	2/month 1/weak	Dynamic hash file
Quality_controller	[1] insert [16] random search	-------- name	2/month	Dynamic hash file
Technical	[1] insert [16] random search	--------- name	2/month 1/3 months	Dynamic hash file
Fix	[2] insert [10] random search [12] random search [14] random search	-------- requested pid name	400/day 40/day 1/month 5/day	Dynamic hash file
Worker	[1] insert [13] random search	--------- name	2/month 10/month	Dynamic hash file
Product	[2] insert [3] random search [4] random search [5] random search [8] random search [9] random search [10]random search [12] random search [14] random search [15] range search	--------- pid pid pid name pid pid pid pid pdate	400/day 50/day 40/day 30/day 2000/day 400/day 40/day 1/month 5/day 5/day	Dynamic hash file
Product2	[2] insert [11] random search	--------- color	400/day 5/month	Dynamic hash file
Product3	[2] insert [10] random search	--------- pid	40/day	Dynamic hash file
Account	[4] insert	---------	40/day	Heap file

Customer	[3] insert [5] random search [11] random search [13] random search [15] random search	--------- cname cname cname cname	50/day 30/day 5/month 10/month 5/day	Dynamic hash file
Purchased	[3] insert [11] random search [14] random search	--------- pid pid	50/day 5/month 5/day	Dynamic hash file
Complaint	[5] insert	---------	30/day	Heap file
Make_Complaint	[5] insert [9] random search [12] random search	--------- pid pid	30/day 400/day 1/month	Dynamic hash file
Accident	[6] insert [17] range search	--------- accidentdate	1/week 1/day	Indexed sequential file
Record_Fixacci	[6] insert [12] name	---------	1/week 1/month	Dynamic hash file
Record_pacc	[6] insert	---------	1/week	heap

3.2 DISCUSSION OF STORAGE STRUCTURE FOR TABLES

Because almost of search key above are primary keys which will be automatically indexed by the database system. Therefore, we need to index search key that are not primary key but are most searched in the table.

CREATE INDEX FixrequestedIndex

```
ON Fix (requested)

CREATE INDEX AccidentDateIndex
ON Accident (accidentdate)

CREATE INDEX ProductColorIndex
ON Product2 (color)

CREATE INDEX ProductDateIndex
ON Product (pdate)
```

Task 4. SQL and text files showing the creation of tables

```
CREATE TABLE employee(
    name            VARCHAR(255) NOT NULL PRIMARY KEY,
    address         VARCHAR(255) NOT NULL
);

CREATE TABLE quality_controller(
    name            VARCHAR(255) NOT NULL PRIMARY KEY REFERENCES Employee(name),
    product_type    VARCHAR(50) NOT NULL,

    CONSTRAINT      check_type CHECK(product_type in ('product 1', 'product 2',
'product 3'))
);

CREATE TABLE technical(
    name            VARCHAR(255) NOT NULL PRIMARY KEY REFERENCES Employee(name),
    degree          VARCHAR(10)  NOT NULL,
    position        VARCHAR(50)  NOT NULL,

    CONSTRAINT      check_degree CHECK(degree in ('BS', 'MS', 'Ph.D'))
);


CREATE TABLE worker(
    name            VARCHAR(255) NOT NULL PRIMARY KEY REFERENCES Employee(name),
    max_mun         INT NOT NULL
);

CREATE TABLE account(
    accnum          INT NOT NULL PRIMARY KEY,
    accdate         DATE NOT NULL,
    acctype         VARCHAR(50) NOT NULL,

    CONSTRAINT      check_acctype CHECK(acctype in ('product1-account',
'product2-account','product1-account'))
);

CREATE TABLE product(
    pid             INT NOT NULL PRIMARY KEY,
    pdate           DATE NOT NULL,
    duration        INT NOT NULL,
    producer        VARCHAR(255) NOT NULL FOREIGN KEY REFERENCES worker(name),
    tester          VARCHAR(255) NOT NULL FOREIGN KEY REFERENCES
quality_controller(name),
```

```sql
    accnum          INT NOT NULL FOREIGN KEY REFERENCES account (accnum),
    size            VARCHAR(50) NOT NULL,

    CONSTRAINT      p_unique UNIQUE(producer, tester, accnum)
);


CREATE TABLE product1(
    pid             INT NOT NULL PRIMARY KEY REFERENCES product(pid),
    software        VARCHAR(255)
);


CREATE TABLE product2(
    pid             INT NOT NULL PRIMARY KEY REFERENCES product(pid),
    color           VARCHAR(50) NOT NULL
);


CREATE TABLE product3(
    pid             INT NOT NULL PRIMARY KEY REFERENCES product(pid),
    weight          VARCHAR(50) NOT NULL
);


CREATE TABLE fix(
    pid             INT NOT NULL PRIMARY KEY REFERENCES product(pid),
    name            VARCHAR(255) NOT NULL FOREIGN KEY REFERENCES technical(name),
    fdate           DATE NOT NULL,
    requested       VARCHAR(50) NOT NULL,

    CONSTRAINT      check_request CHECK(requested in ('complaint', 'controller'))
);


CREATE TABLE customer(
    cname           VARCHAR(255) NOT NULL PRIMARY KEY,
    address         VARCHAR(255) NOT NULL
);


CREATE TABLE purchased(
    cname             VARCHAR(255) NOT NULL PRIMARY KEY REFERENCES
customer(cname),
    pid               INT NOT NULL UNIQUE FOREIGN KEY REFERENCES product(pid)
);
```

```sql
CREATE TABLE complaint(
    cid                 INT NOT NULL PRIMARY KEY,
    cdate               DATE NOT NULL,
    description         VARCHAR(255) NOT NULL,
    treatment           VARCHAR(50) NOT NULL,

    CONSTRAINT          check_treatment CHECK(treatment in ('refund', 'exchange'))
);


CREATE TABLE make_complaint(
    cid                 INT NOT NULL PRIMARY KEY,
    cname               VARCHAR(255) NOT NULL FOREIGN KEY REFERENCES
customer(cname),
    pid                 INT NOT NULL FOREIGN KEY REFERENCES product(pid)
);


CREATE TABLE accident(
    accidentnum         INT NOT NULL PRIMARY KEY,
    accidentdate        DATE NOT NULL,
    lostday             INT NOT NULL
);


CREATE TABLE record_fixacc(
    accidentnum         INT NOT NULL PRIMARY KEY REFERENCES accident(accidentnum),
    pid                 INT NOT NULL FOREIGN KEY REFERENCES product(pid),
    name              VARCHAR(255) NOT NULL FOREIGN KEY REFERENCES technical(name)
);


CREATE TABLE record_pacci(
    accidentnum         INT NOT NULL PRIMARY KEY REFERENCES accident(accidentnum),
    pid                 INT NOT NULL FOREIGN KEY REFERENCES product(pid),
    name              VARCHAR(255) NOT NULL FOREIGN KEY REFERENCES worker(name)
);


CREATE TABLE track_cost(
    pid                 INT NOT NULL PRIMARY KEY REFERENCES product(pid),
    accnum              INT NOT NULL FOREIGN KEY REFERENCES account(accnum),
    cost                INT NOT NULL
);
```

```sql
CREATE INDEX FixrequestedIndex
ON Fix (requested)

CREATE INDEX AccidentDateIndex
ON Accident (accidentdate)

CREATE INDEX ProductColorIndex
ON Product2 (color)

CREATE INDEX ProductDateIndex
ON Product (pdate)
```

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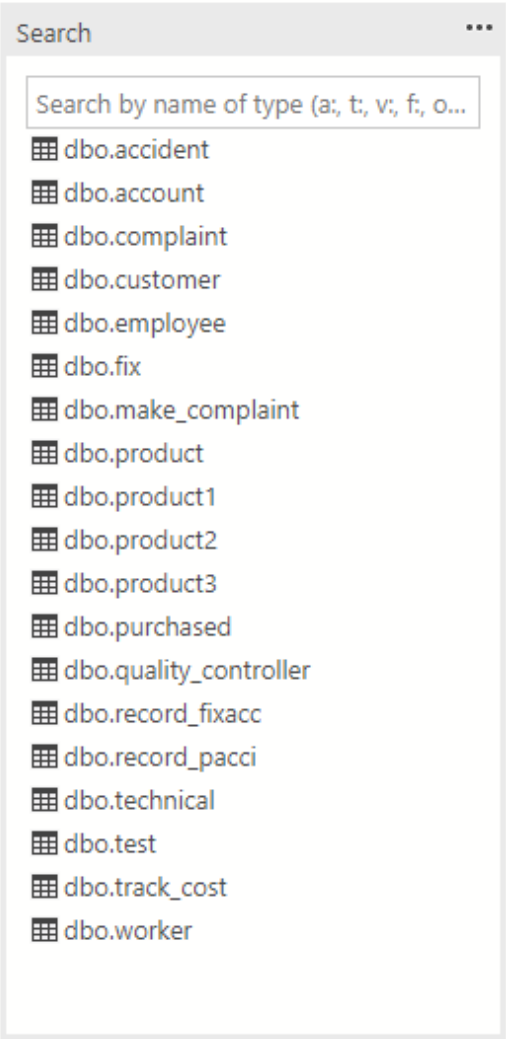
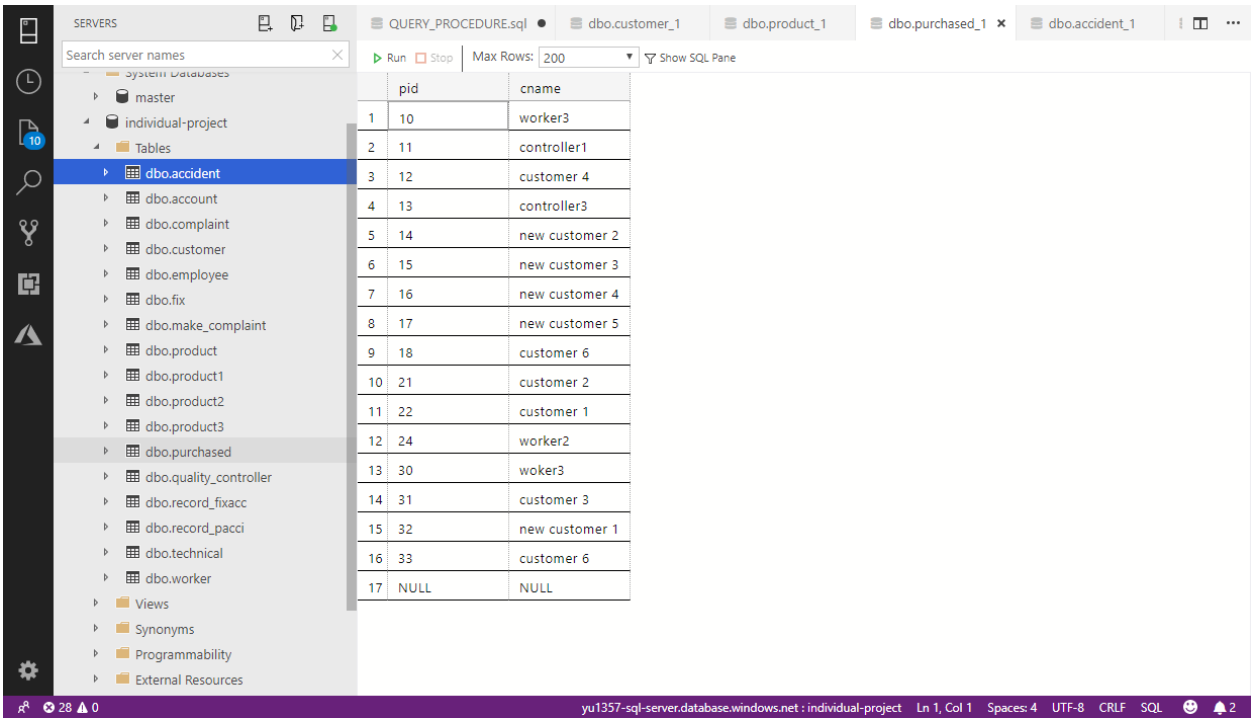
RESULT OF CREATED TABLE

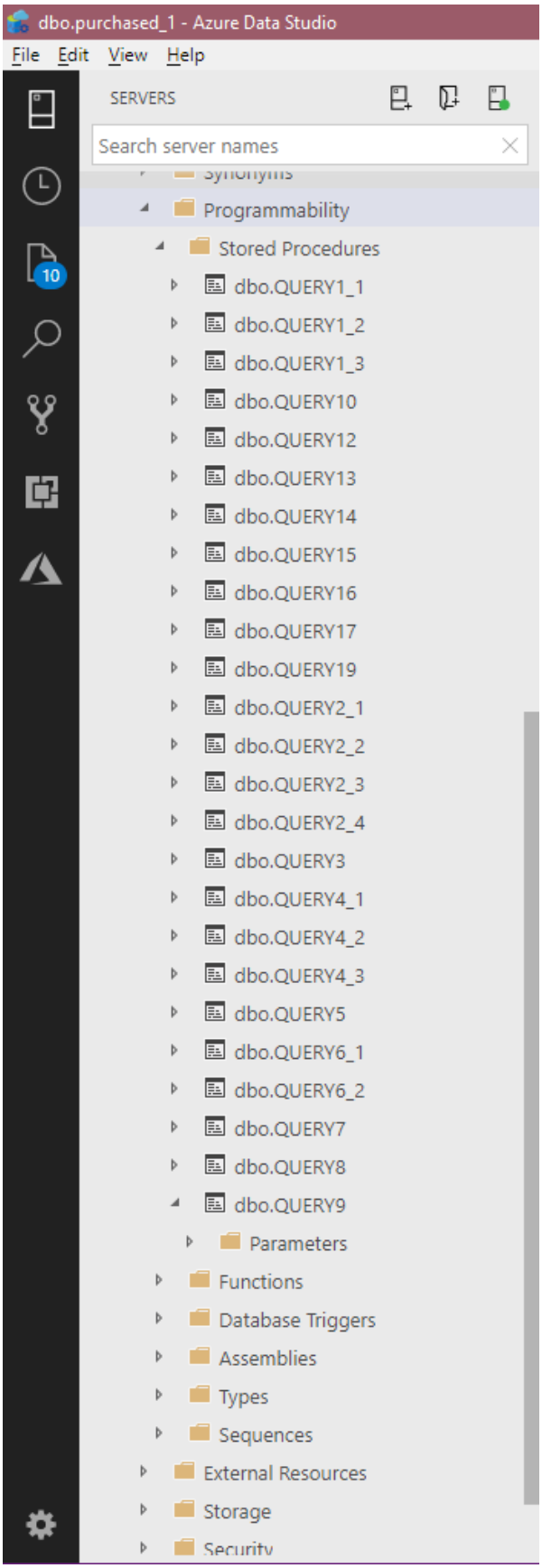


Task 5. Script file showing the entire Java program and its successful compilation

5.1RESULT PROMGRAMING



	pid	cname
1	10	worker3
2	11	controller1
3	12	customer 4
4	13	controller3
5	14	new customer 2
6	15	new customer 3
7	16	new customer 4
8	17	new customer 5
9	18	customer 6
10	21	customer 2
11	22	customer 1
12	24	worker2
13	30	woker3
14	31	customer 3
15	32	new customer 1
16	33	customer 6
17	NULL	NULL


dbo.purchased_1 - Azure Data Studio
File
Edit
View
Help
SERVERS
Search server names
Programmability
Stored Procedures
dbo.QUERY1_1
dbo.QUERY1_2
dbo.QUERY1_3
dbo.QUERY10
dbo.QUERY12
dbo.QUERY13
dbo.QUERY14
dbo.QUERY15
dbo.QUERY16
dbo.QUERY17
dbo.QUERY19
dbo.QUERY2_1
dbo.QUERY2_2
dbo.QUERY2_3
dbo.QUERY2_4
dbo.QUERY3
dbo.QUERY4_1
dbo.QUERY4_2
dbo.QUERY4_3
dbo.QUERY5
dbo.QUERY6_1
dbo.QUERY6_2
dbo.QUERY7
dbo.QUERY8
dbo.QUERY9
Parameters
Functions
Database Triggers
Assemblies
Types
Sequences
External Resources
Storage

5.2RESULT PROMGRAMING SQL TABLE

```
CREATE TABLE employee(
    name            VARCHAR(255) NOT NULL PRIMARY KEY,
    address         VARCHAR(255) NOT NULL
);

CREATE TABLE quality_controller(
    name            VARCHAR(255) NOT NULL PRIMARY KEY REFERENCES Employee(name),
    product_type    VARCHAR(50) NOT NULL,

    CONSTRAINT      check_type CHECK(product_type in ('product 1', 'product 2',
'product 3'))
);

CREATE TABLE technical(
    name            VARCHAR(255) NOT NULL PRIMARY KEY REFERENCES Employee(name),
    degree          VARCHAR(10)  NOT NULL,
    position        VARCHAR(50)  NOT NULL,

    CONSTRAINT      check_degree CHECK(degree in ('BS', 'MS', 'Ph.D'))
);


CREATE TABLE worker(
    name            VARCHAR(255) NOT NULL PRIMARY KEY REFERENCES Employee(name),
    max_mun         INT NOT NULL
);

CREATE TABLE account(
    accnum          INT NOT NULL PRIMARY KEY,
    accdate         DATE NOT NULL,
    acctype         VARCHAR(50) NOT NULL,

    CONSTRAINT      check_acctype CHECK(acctype in ('product1-account',
'product2-account','product3-account'))
);

CREATE TABLE product(
    pid             INT NOT NULL PRIMARY KEY,
    pdate           DATE NOT NULL,
    duration        INT NOT NULL,
    producer        VARCHAR(255) NOT NULL FOREIGN KEY REFERENCES worker(name),
    tester          VARCHAR(255) NOT NULL FOREIGN KEY REFERENCES
quality_controller(name),
    size            VARCHAR(50) NOT NULL,
```

```sql
    accnum          INT NOT NULL FOREIGN KEY REFERENCES account (accnum),
    cost            INT NOT NULL,
);


CREATE TABLE product1(
    pid             INT NOT NULL PRIMARY KEY REFERENCES product(pid),
    software        VARCHAR(255)
);


CREATE TABLE product2(
    pid             INT NOT NULL PRIMARY KEY REFERENCES product(pid),
    color           VARCHAR(50) NOT NULL
);


CREATE TABLE product3(
    pid             INT NOT NULL PRIMARY KEY REFERENCES product(pid),
    weight          VARCHAR(50) NOT NULL
);


CREATE TABLE fix(
    pid             INT NOT NULL PRIMARY KEY REFERENCES product(pid),
    name            VARCHAR(255) NOT NULL FOREIGN KEY REFERENCES technical(name),
    fdate           DATE NOT NULL,
    requested       VARCHAR(50) NOT NULL,

    CONSTRAINT      check_request CHECK(requested in ('complaint', 'controller'))
);


CREATE TABLE customer(
    cname           VARCHAR(255) NOT NULL PRIMARY KEY,
    address         VARCHAR(255) NOT NULL
);


CREATE TABLE purchased(
    pid               INT NOT NULL PRIMARY KEY REFERENCES product(pid),
    cname             VARCHAR(255) NOT NULL FOREIGN KEY REFERENCES
customer(cname)
);
```

```sql
CREATE TABLE complaint(
    cid                 INT NOT NULL PRIMARY KEY,
    cdate               DATE NOT NULL,
    description         VARCHAR(255) NOT NULL,
    treatment           VARCHAR(50) NOT NULL,

    CONSTRAINT          check_treatment CHECK(treatment in ('refund', 'exchange'))
);


CREATE TABLE make_complaint(
    cid                 INT NOT NULL PRIMARY KEY REFERENCES complaint(cid),
    cname               VARCHAR(255) NOT NULL FOREIGN KEY REFERENCES
customer(cname),
    pid                 INT NOT NULL FOREIGN KEY REFERENCES purchased(pid)
);


CREATE TABLE accident(
    accidentnum         INT NOT NULL PRIMARY KEY,
    accidentdate        DATE NOT NULL,
    lostday             INT NOT NULL
);


CREATE TABLE record_fixacc(
    accidentnum         INT NOT NULL PRIMARY KEY REFERENCES accident(accidentnum),
    pid                 INT NOT NULL FOREIGN KEY REFERENCES product(pid),
    name              VARCHAR(255) NOT NULL FOREIGN KEY REFERENCES technical(name)
);


CREATE TABLE record_pacci(
    accidentnum         INT NOT NULL PRIMARY KEY REFERENCES accident(accidentnum),
    pid                 INT NOT NULL FOREIGN KEY REFERENCES product(pid),
    name              VARCHAR(255) NOT NULL FOREIGN KEY REFERENCES worker(name)
);





CREATE INDEX FixrequestedIndex
ON Fix (requested)
```

```sql
CREATE INDEX AccidentDateIndex
ON Accident (accidentdate)

CREATE INDEX ProductColorIndex
ON Product2 (color)

CREATE INDEX ProductDateIndex
ON Product (pdate)
```

5.3RESULT PROMGRAMING SQL QUERY

```sql
--1) Enter a new employee  (2/month)
-------------------QUERY 1----------------------------------
--add Technical--
CREATE PROCEDURE QUERY1_1
@name       VARCHAR(255),
@address     VARCHAR(255),
@degree     VARCHAR(10),
@position   VARCHAR(50)
AS
BEGIN
INSERT INTO [dbo].[employee](name, address)                VALUES(@name,
@address);
INSERT INTO [dbo].[technical](name, degree, position)      VALUES(@name,
@degree, @position);
END
GO

--add Quality Controller
CREATE PROCEDURE QUERY1_2
@name           VARCHAR(255),
@address        VARCHAR(255),
@product_type   VARCHAR(50)
AS
BEGIN
INSERT INTO [dbo].[employee](name, address)                VALUES(@name,
@address);
INSERT INTO [dbo].[quality_controller](name, product_type)  VALUES(@name,
@product_type);
END
GO

--add worker
```

```sql
CREATE PROCEDURE QUERY1_3
@name           VARCHAR(255),
@address        VARCHAR(255),
@max_num   VARCHAR(50)
AS
BEGIN
INSERT INTO [dbo].[employee](name, address)                VALUES(@name,
@address);
INSERT INTO [dbo].[worker](name, max_mun)  VALUES(@name, @max_num);
END
GO
-------------------QUERY 1 end----------------------------------

--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).
-------------------QUERY2----------------------------------
--add product1
CREATE PROCEDURE QUERY2_1
@pid            INT,
@pdate          DATE,
@duration       INT,
@producer       VARCHAR(255),
@tester         VARCHAR(255),
@size           VARCHAR(255),
@accnum         INT,
@cost           INT,
@software       VARCHAR(255)
AS
BEGIN
INSERT INTO [dbo].[product](pid, pdate, duration, producer, tester, size, accnum,
cost) VALUES (@pid, @pdate, @duration, @producer, @tester, @size, @accnum,
@cost);
INSERT INTO [dbo].[product1](pid, software) VALUES(@pid, @software)
END
GO

--add product2
CREATE PROCEDURE QUERY2_2
@pid            INT,
@pdate          DATE,
@duration       INT,
@producer       VARCHAR(255),
@tester         VARCHAR(255),
@size           VARCHAR(255),
```

```
@accnum         INT,
@cost           INT,
@color          VARCHAR(50)
AS
BEGIN
INSERT INTO [dbo].[product](pid, pdate, duration, producer, tester, size, accnum,
cost) VALUES (@pid, @pdate, @duration, @producer, @tester, @size, @accnum,
@cost);
INSERT INTO [dbo].[product2](pid, color) VALUES(@pid, @color)
END
GO


--add Product 3
CREATE PROCEDURE QUERY2_3
@pid            INT,
@pdate          DATE,
@duration       INT,
@producer       VARCHAR(255),
@tester         VARCHAR(255),
@size           VARCHAR(255),
@accnum         INT,
@cost           INT,
@weight         VARCHAR(50)
AS
BEGIN
INSERT INTO [dbo].[product](pid, pdate, duration, producer, tester, size, accnum,
cost) VALUES (@pid, @pdate, @duration, @producer, @tester, @size, @accnum,
@cost);
INSERT INTO [dbo].[product3](pid, weight) VALUES(@pid, @weight)
END
GO

--add fixer
CREATE PROCEDURE QUERY2_4
@pid            INT,
@name           VARCHAR(255),
@fdate          DATE,
@requested      VARCHAR(50)
AS
BEGIN
INSERT INTO [dbo].[fix](pid, name, fdate, requested) VALUES(@pid, @name, @fdate,
@requested)
END
GO
```

```
-----------------------------------------------query2 end----------------------
-------------------

--Enter a customer  associated with some products (50/day).
---------------Query 3-----------------------
CREATE PROCEDURE QUERY3
@cname          VARCHAR(255),
@address        VARCHAR(255),
@pid            INT
AS
BEGIN
INSERT INTO [dbo].[customer](cname, address) VALUES(@cname, @address);
INSERT INTO [dbo].[purchased](cname, pid) VALUES(@cname, @pid);
END
GO

--4)Create a new account associated with a product (40/day).
-------------------Query4--------------
--product 1 without fixed. account associated
CREATE PROCEDURE QUERY4_1
@accnum         INT,
@accdate        DATE,
@acctype        VARCHAR(50),
@pid            INT,
@pdate          DATE,
@duration       INT,
@producer       VARCHAR(255),
@tester         VARCHAR(255),
@size           VARCHAR(255),
@software       VARCHAR(255),
@cost           INT
AS
BEGIN
INSERT INTO [dbo].[account](accnum, accdate, acctype) VALUES(@accnum, @accdate,
@acctype);
EXEC QUERY2_1  @pid = @pid, @pdate = @pdate, @duration = @duration, @producer =
@producer, @tester = @tester, @size = size, @accnum = @accnum, @cost =
@cost ,@software = @software;
END
GO

--product 2 without fixed account associated
CREATE PROCEDURE QUERY4_2
@accnum         INT,
@accdate        DATE,
```

```
@acctype        VARCHAR(50),
@pid            INT,
@pdate          DATE,
@duration       INT,
@producer       VARCHAR(255),
@tester         VARCHAR(255),
@size           VARCHAR(255),
@color          VARCHAR(50),
@cost           INT

AS
BEGIN
INSERT INTO [dbo].[account](accnum, accdate, acctype) VALUES(@accnum, @accdate,
@acctype);
EXEC QUERY2_2  @pid = @pid, @pdate = @pdate, @duration = @duration, @producer =
@producer, @tester = @tester, @size = size, @accnum = @accnum, @cost = @cost,
@color = @color;
END
GO

--product 3 without fixed account associated
CREATE PROCEDURE QUERY4_3
@accnum         INT,
@accdate        DATE,
@acctype        VARCHAR(50),
@pid            INT,
@pdate          DATE,
@duration       INT,
@producer       VARCHAR(255),
@tester         VARCHAR(255),
@size           VARCHAR(255),
@weight         VARCHAR(50),
@cost           INT

AS
BEGIN
INSERT INTO [dbo].[account](accnum, accdate, acctype) VALUES(@accnum, @accdate,
@acctype);
EXEC QUERY2_3  @pid = @pid, @pdate = @pdate, @duration = @duration, @producer =
@producer, @tester = @tester, @size = size, @accnum = @accnum, @cost = @cost,
@weitht = @weight;
END
GO
```

```sql
--5) Enter a complaint associated with a customer and product (30/day).
---------------Query5-------------
CREATE PROCEDURE QUERY5
@cid            INT,
@cdate          DATE,
@description    VARCHAR(255),
@treatment      VARCHAR(50),
@cname          VARCHAR(255),
@pid            INT
AS
BEGIN
INSERT INTO [dbo].[complaint](cid, cdate, [description], treatment) VALUES(@cid,
@cdate, @description, @treatment);
INSERT INTO [dbo].[make_complaint](cid, cname, pid) VALUES(@cid, @cname, @pid);
END
GO

--6) Enter  an accident associated with appropriate employee and product
(1/week).
---------------------Query 6--------------
----fixed accident
CREATE PROCEDURE QUERY6_1
@accidentnum      INT,
@accidentdate     DATE,
@lostday          INT,
@pid              INT,
@name             VARCHAR(255)
AS
BEGIN
INSERT INTO [dbo].[accident](accidentnum, accidentdate, lostday)
VALUES(@accidentnum, @accidentdate, @lostday);
INSERT INTO [dbo].[record_fixacc](accidentnum, pid, name) VALUES(@accidentnum,
@pid, @name);
END
GO

----produce accident
CREATE PROCEDURE QUERY6_2
@accidentnum      INT,
@accidentdate     DATE,
@lostday          INT,
@pid              INT,
@name             VARCHAR(255)
AS
BEGIN
```

```
INSERT INTO [dbo].[accident](accidentnum, accidentdate, lostday)
VALUES(@accidentnum, @accidentdate, @lostday);
INSERT INTO [dbo].[record_pacci](accidentnum, pid, name) VALUES(@accidentnum,
@pid, @name);
END
GO
----------------------------Query6 end--------------------------


--7) Retrieve the date produced and time spent to produce a particular product
(100/day).
----------------------------Query7-------------------------------
CREATE PROCEDURE QUERY7
@pid            INT,
@pdate          DATE OUTPUT,
@duration       INT OUTPUT
AS
BEGIN
SELECT @pdate = pdate, @duration = duration FROM [dbo].[product] WHERE pid =
@pid;
END
GO


--8) Retrieve all products  made by  a  particular worker (2000/day).
-----------------------Query 8---------------------
CREATE PROCEDURE QUERY8
@name           VARCHAR(255)
AS
BEGIN
SELECT  *FROM [dbo].[Product]
WHERE   producer = @name;
END
GO


--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).
------------------------QUERY 9------------------------------
CREATE PROCEDURE QUERY9
@name           VARCHAR(255),
@count          INT OUTPUT
AS
BEGIN
```

```
SELECT  @count = COUNT(pid) FROM [dbo].[make_complaint]
WHERE   pid IN (SELECT pid FROM [dbo].[product] WHERE tester = @name);
END
GO


-- Retrieve the total costs  of the products in the product3 category
--which were repaired at the request of  a particular quality controller
(40/day).
-------------------------------QUERY 10---------------------------------
CREATE PROCEDURE QUERY10
@name           VARCHAR(255),
@total_cost     INT OUTPUT
AS
BEGIN
SELECT  @total_cost = SUM(cost) FROM [dbo].[product]
WHERE   tester = @name  AND pid IN (SELECT pid FROM [dbo].[fix] WHERE requested =
'controller')
                        AND pid IN (SELECT pid FROM [dbo].[product3])
END
GO

--11) Retrieve all customers who purchased all products of a particular color
(5/month)
----------------------------------------QUERY 11---------------------------
CREATE PROCEDURE QUERY11
@color          VARCHAR(50)
AS
BEGIN

WITH nn AS (SELECT cname FROM [dbo].[purchased] WHERE pid in (SELECT pid FROM
[dbo].[product2] WHERE color = @color))
SELECT *
FROM [dbo].[customer]
WHERE cname IN (SELECT cname FROM [dbo].[purchased] WHERE pid = (SELECT
COUNT(pid) FROM [dbo].[product2] WHERE color = @color))
END
GO




--12)Retrieve  the total number of work days lost due to accidents in repairing
the products which got complaints (1/month).
```

```
----------------------------------------Query 12-------------------------------
CREATE PROCEDURE QUERY12
@totaldays          INT OUTPUT
AS
BEGIN
SELECT @totaldays = SUM(lostday) FROM [dbo].[accident] WHERE accidentnum IN
(SELECT accidentnum FROM [dbo].[record_fixacc] WHERE pid IN (SELECT pid FROM
[dbo].[make_complaint]))
END
GO



--13)Retrieve all customers who are also workers (10/month)
----------------------------QUERY 13------------------
CREATE PROCEDURE QUERY13
AS
BEGIN
SELECT * FROM [dbo].[customer] WHERE cname IN (SELECT name FROM [dbo].[worker])
END
GO


--14)Retrieve all the customers who have purchased the products made or certified
or repaired by themselves (5/day).
------------------------------Query14----------------------------
CREATE PROCEDURE QUERY14
AS
BEGIN
SELECT  cname
FROM    [dbo].[purchased]
WHERE   cname IN    (SELECT producer FROM [dbo].[product] WHERE
[dbo].[product].pid = [dbo].[purchased].pid)
OR      cname IN    (SELECT tester   FROM [dbo].[product] WHERE
[dbo].[product].pid = [dbo].[purchased].pid)
OR      cname IN    (SELECT name     FROM [dbo].[fix]     WHERE [dbo].[fix].pid =
[dbo].[purchased].pid);
END
GO

--15)Retrieve  the average cost of  all products made in a particular year
(5/day).
---------------------------------QUERRY 15-----------------------
CREATE PROCEDURE QUERY15
@year           INT,
```

```
@ave_cost       INT OUTPUT
AS
BEGIN
SELECT  @ave_cost = AVG(cost)
FROM    [dbo].[product]
WHERE   YEAR(pdate) = @year
END
GO

--16)Switch the position between a technical staff and a quality controller (1/ 3
months).
----------------------------------QUERY 16------------------------------
CREATE PROCEDURE QUERY16
@tec_name           VARCHAR(255),
@ctrl_name          VARCHAR(255)
AS
BEGIN
UPDATE [dbo].[product]
SET    tester = @tec_name
WHERE  tester = @ctrl_name;

UPDATE [dbo].[quality_controller]
SET    name = @tec_name
WHERE  name = @ctrl_name;

UPDATE [dbo].[fix]
SET    name = @ctrl_name
WHERE  name = @tec_name

UPDATE [dbo].[technical]
SET    name = @ctrl_name
WHERE  name = @tec_name
END
GO



---17) Delete all accidents whose dates are in some range (1/day).
---------------------------------Query 17----------------------
CREATE PROCEDURE QUERY17
@startDate     DATE,
@endDate       DATE
AS
BEGIN
ALTER TABLE [dbo].[accident]  NOCHECK  CONSTRAINT ALL
```

```sql
DELETE FROM [dbo].[accident]
WHERE   accidentdate <= @endDate AND accidentdate >= @startDate;
ALTER TABLE [dbo].[accident] CHECK CONSTRAINT ALL
END
GO

--(18) Import: enter new customers from a data file until the file is empty (the
user must be asked to enter the input file name);
-----------------------------------------Qury18--------------------------------
------------------USE QUERY3 FOR THIS



--19 Export: Retrieve all customers (in name order) and output them to a data
file instead of screen (the user must be asked to enter the output file name);
-------------------------------------------QUERY 19-------------------
CREATE PROCEDURE QUERY19
AS
BEGIN
SELECT *
FROM [dbo].[customer]
ORDER BY cname
END
GO
```

5.4. JAVA CODE

```
import java.io.FileReader;

import java.io.FileWriter;

import java.io.IOException;

import java.sql.BatchUpdateException;

import java.sql.CallableStatement;

import java.sql.Connection;

import java.sql.Date;

import java.sql.DriverManager;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.util.Scanner;



import com.microsoft.sqlserver.jdbc.SQLServerDataSource;


import au.com.bytecode.opencsv.CSVReader;

import au.com.bytecode.opencsv.CSVWriter;



public class FutureCompany{

    public static void main(String[] args) throws SQLException {

                        // connect to database

            String hostName = "yu1357-sql-server.database.windows.net";

        String dbName = "individual-project";

        String user = "yu1357";
```

```
        String password = "Yx28408483";

        String url =
String.format("jdbc:sqlserver://%s:1433;database=%s;user=%s;password=%s;encrypt=true;hostNa
meInCertificate=*.database.windows.net;loginTimeout=30;", hostName, dbName, user,
password);





            try(final Connection test = DriverManager.getConnection(url)){

                final String schema = test.getSchema();

                System.out.print("Successful connected to  - Schema: " + schema);

                System.out.println("");

            }

            catch(Exception e){

                System.out.println("Unable to access the database!");

                System.out.println(e.getMessage());

                System.exit(0);

            }


            Connection connection = DriverManager.getConnection(url);

            Scanner scan = new Scanner(System.in);

            String menu =

                "WELCOME TO THE Future Inc. DATABASE SYSTEM.\n"

                + "Please enter the number to the corresponding task you want to run.\n"

                + "\n"

                + "(1)  Enter a new employee into the database.\n"
```

```
+ "(2)  Enter a new product into database associated with the person who
made the product, repaired the product if it is repaired, or checked the product.\n"

+ "(3)  Enter a customer into database associated with some products.\n"

+ "(4)  Create a new account associated with a product into databse.\n"

+ "(5)  Enter a complaint associated with a customer and product.\n"

+ "(6)  Enter  an accident associated with appropriate employee and
product.\n"

+ "(7)  Retrieve the date produced and time spent to produce a particular
product.\n"

+ "(8)  Retrieve all products  made by  a  particular worker.\n"

+ "(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.\n"

+ "(10) Retrieve the total costs  of the products in the product3 category
which were repaired at the request of  a particular quality controller.\n"

+ "(11) Retrieve all customers who purchased all products of a particular
color.\n"

+ "(12) Retrieve  the total number of work days lost due to accidents in
repairing  the products which got complaints.\n"

+ "(13) Retrieve all customers who are also  workers.\n"

+ "(14) Retrieve all the customers who have purchased the products made or
certified or repaired by themselves.\n"

+ "(15) Retrieve  the average cost of  all products made in a particular year.\n"

+ "(16) Switch the position between a technical staff and a quality
controller.\n"

+ "(17) Delete all accidents whose dates are in some range.\n"

+ "(18) Import: enter new customers from a data file until the file is empty (the
user must be asked to enter the input file name).\n"

+ "(19) Export: Retrieve all customers (in name order) and output them to a
data file instead of screen (the user must be asked to enter the output file name).\n"

+ "(20) Quit.";

System.out.println("\n" + menu + "\n");
```

```
                    while(true){
                        System.out.println("Please enter the number to the corresponding task you
want to run.");
                        int task = Integer.parseInt(scan.nextLine());
                        String[] arg={};
                        String input;
                        switch (task){
                            case 1:
                                System.out.println("Enter the type(number) of employee: 1.
Technical, 2. Quality Controller, 3. Worker(Producer)");
                                switch(Integer.parseInt(scan.nextLine())){
                                    case 1:
                                        System.out.println("Enter your input in
follwing format: Technical name, adress, dgree, technical position");
                                        input = scan.nextLine();
                                        arg = input.split(", ");
                                        query1(connection, arg, 1);
                                        break;
                                    case 2:
                                        System.out.println("Enter your input in
follwing format: Quality Controller name, adress, product type(type like product # ex. product
1)");
                                        input = scan.nextLine();
                                        arg = input.split(", ");
                                        query1(connection, arg, 2);
                                        break;
                                    case 3:
```

```
                System.out.println("Enter your input in
follwing format: Worker name, adress, max produces/day");
                input = scan.nextLine();
                arg = input.split(", ");
                query1(connection, arg, 3);
                break;
            default:
                System.out.println("Fail to insert data! please
try again!");
                break;

        }
        break;
    case 2:
        System.out.println("Enter the type(number) of product: 1
for product1, 2 for product2, 3 for product3)");
        String pid = "";
        switch(Integer.parseInt(scan.nextLine())){

            case 1:
                System.out.println("Enter your input in
follwing format: ");
                System.out.println("product ID, produced
date(YYYY-MM-DD), producing duration(days), producer name, tester name, size, account
number, cost, sotfware name major used");
                input = scan.nextLine();
                arg = input.split(", ");
                pid = arg[0];
                query2(connection, arg, 1);
```

```
                    break;
                case 2:
                    System.out.println("Enter your input in
follwing format: ");
                    System.out.println("product ID, produced
date(YYYY-MM-DD), producing duration(days), producer name, tester name, size, account
number, cost, color");
                    input = scan.nextLine();
                    arg = input.split(", ");
                    pid = arg[0];
                    query2(connection, arg, 2);
                    break;
                case 3:
                    System.out.println("Enter your input in
follwing format: ");
                    System.out.println("product ID, produced
date(YYYY-MM-DD), producing duration(days), producer name, tester name, size, account
number, cost, weight");
                    input = scan.nextLine();
                    arg = input.split(", ");
                    pid = arg[0];
                    query2(connection, arg, 3);
                    break;
                default:
                    System.out.println("Fail to insert data! please
try again!");
                    break;

            }
```

```
                    if(pid.length() > 0){

                        System.out.println("Is the product repaired? 1 for
yes, 0 for no");

                        if(Integer.parseInt(scan.nextLine())== 1){

                            System.out.println("Enter your input in
follwing format: fixer name, fixed date(YYYY-MM-DD), requested by (type:
complaint/controller)");

                            input = pid + ", " + scan.nextLine();

                            arg = input.split(", ");

                            query2(connection, arg, 4);

                        }

                    }

                    break;


                case 3:

                    System.out.println("Enter your input in follwing format:
customer name, adress, product ID");

                    input = scan.nextLine();

                    arg = input.split(", ");

                    query3(connection, arg);

                    break;


                case 4:

                    System.out.println("What type of account you want to
create? (1 for product1-account, 2 for product2-account, 3 for  product3-account)");

                    int temp = Integer.parseInt(scan.nextLine());
```

```
System.out.println("Enter your input in follwing format:
account number, account established date(YYYY-MM-DD)");

input = scan.nextLine();

String pid4 = "";


switch(temp){

case 1:

System.out.println("Enter product " + temp +"
associated by account by following format: ");

System.out.println("product ID, produced
date(YYYY-MM-DD), producing duration time, producer name, tester name,size, sotfware name
major used, cost, ");

input = input + ", product1-account, " +
scan.nextLine();

arg = input.split(", ");

pid4 = arg[3];

query4(connection, arg, 1);

break;

case 2:

System.out.println("Enter product " + temp +"
associated by account by following format: ");

System.out.println("product ID, produced
date(YYYY-MM-DD), producing duration time, producer name, tester name,size, color, cost");

input = input + ", product2-account, " +
scan.nextLine();

arg = input.split(", ");

pid4 = arg[3];

query4(connection, arg, 2);

break;
```

```
                    case 3:
                        System.out.println("Enter product " + temp +"
associated by account by following format: ");
                        System.out.println("product ID, produced
date(YYYY-MM-DD), producing duration time, producer name, tester name, size, weight, cost");
                        input = input + ", product3-account, " +
scan.nextLine();
                        arg = input.split(", ");
                        pid4 = arg[3];
                        query4(connection, arg, 3);
                        break;
                    default:
                        System.out.println("Fail to insert data! please try
again!");
                        break;
                    }
                    if(pid4.length() > 0){

                        System.out.println("Is the product repaired? 1 for
yes, 0 for no");
                        if(Integer.parseInt(scan.nextLine())== 1){

                            System.out.println("Enter your input in
follwing format: fixer name, fixed date(YYYY-MM-DD), requested by (type:
complaint/controller)");
                            input = pid4 + ", " + scan.nextLine();

                            arg = input.split(", ");
                            query2(connection, arg, 4);
                        }
```

```
                }
                break;

            case 5:
                System.out.println("Enter your input in follwing format: compaint ID, compaint date(YYYY-MM-DD), description, treatment type in (refund/exchange),/n custemer name, product ID");
                input = scan.nextLine();
                arg = input.split(", ");
                query5(connection, arg);
                break;

            case 6:
                System.out.println("Enter your input in follwing format: accident number, accident date(YYYY-MM-DD), lost days, product ID, Employee name");
                input = scan.nextLine();
                arg = input.split(", ");
            System.out.println("Enter 1 for fix accident, 2 for producing accident.");
            query6(connection, arg, Integer.parseInt(scan.nextLine()));
                break;

            case 7:
                System.out.println("Enter the product ID: ");
                input = scan.nextLine();
                query7(connection, input);
                break;
```

```
case 8:
        System.out.println("Enter the worker's name: ");
        input = scan.nextLine();
        query8(connection, input);
        break;

case 9:
        System.out.println("Enter the Quality Controller's name: ");
        input = scan.nextLine();
        query9(connection, input);
        break;
case 10:
        System.out.println("Enter the Quality Controller's name: ");
        input = scan.nextLine();
        query10(connection, input);
        break;
case 11:
        System.out.println("Enter color: ");
        query11(connection,scan.nextLine());
        break;
case 12:
        query12(connection);
        break;
case 13:
        query13(connection);
        break;
```

```
                    case 14:
                        query14(connection);
                        break;
                    case 15:
                        System.out.println("Enter the year(YYYY): ");
                        input = scan.nextLine();
                        query15(connection, input);
                        break;
                    case 16:
                        System.out.println("Enter the: technical name, Quality
Controller name: ");
                        input = scan.nextLine();
                        arg = input.split(", ");
                        query16(connection, arg);
                        break;
                    case 17:
                        System.out.println("Enter the: start date, end date(YYYY-
MM-DD): ");
                        input = scan.nextLine();
                        arg = input.split(", ");
                        query17(connection, arg);
                        break;
                    case 18:
                        System.out.println("Enter the input file: ");
                        input = scan.nextLine();
                        query18(connection, input);
                        break;
```

```
                    case 19:
                        System.out.println("Enter the output file: ");
                        input = scan.nextLine();
                        query19(connection, input);
                        break;
                    case 20:
                        System.out.println("Thank you for using Future Inc
database, Bye!");
                        scan.close();
                    connection.close();
                        System.exit(0);
                        break;
                    }
                }
        }

    /**THIS IS QUERY 1*/
    public static void query1(Connection connection, String[] arg, int i){
        try{
            CallableStatement stmt;
            switch(i){
            case 1:
                stmt = connection.prepareCall("{call QUERY1_1(?,?,?,?)}");
            stmt.setString(1, arg[0]);
            stmt.setString(2, arg[1]);
            stmt.setString(3, arg[2]);
            stmt.setString(4, arg[3]);
```

```
        stmt.execute();
            break;
        case 2:
            stmt = connection.prepareCall("{call QUERY1_2(?,?,?)}");
            stmt.setString(1, arg[0]);
        stmt.setString(2, arg[1]);
        stmt.setString(3, arg[2]);
        stmt.execute();
            break;
        case 3:
            stmt = connection.prepareCall("{call QUERY1_3(?,?,?)}");
            stmt.setString(1, arg[0]);
        stmt.setString(2, arg[1]);
        stmt.setString(3, arg[2]);
        stmt.execute();
            break;
        default:
                System.out.println("Fail to insert data! please try again!");
                break;
        }



        System.out.println("Successful Excution.");
    }catch(Exception e){
        System.out.println("Fail to insert data!");
        e.printStackTrace();
```

```
        }
}

public static void query2(Connection connection, String[] arg, int i){
        try{
                CallableStatement stmt;
                switch(i){
                case 1:
                        stmt = connection.prepareCall("{call QUERY2_1(?,?,?,?,?,?,?,?,?)}");
                        stmt.setString(1, arg[0]);
                        stmt.setString(2, arg[1]);
                        stmt.setString(3, arg[2]);
                        stmt.setString(4, arg[3]);
                        stmt.setString(5, arg[4]);
                        stmt.setString(6, arg[5]);
                        stmt.setString(7, arg[6]);
                        stmt.setString(8, arg[7]);
                        stmt.setString(9, arg[8]);
                stmt.execute();
                        break;
                case 2:
                        stmt = connection.prepareCall("{call QUERY2_2(?,?,?,?,?,?,?,?,?)}");
                        stmt.setString(1, arg[0]);
                        stmt.setString(2, arg[1]);
                        stmt.setString(3, arg[2]);
                        stmt.setString(4, arg[3]);
```

```
            stmt.setString(5, arg[4]);
            stmt.setString(6, arg[5]);
            stmt.setString(7, arg[6]);
            stmt.setString(8, arg[7]);
            stmt.setString(9, arg[8]);
stmt.execute();
            break;
case 3:
            stmt = connection.prepareCall("{call QUERY2_3(?,?,?,?,?,?,?,?,?)}");
            stmt.setString(1, arg[0]);
            stmt.setString(2, arg[1]);
            stmt.setString(3, arg[2]);
            stmt.setString(4, arg[3]);
            stmt.setString(5, arg[4]);
            stmt.setString(6, arg[5]);
            stmt.setString(7, arg[6]);
            stmt.setString(8, arg[7]);
            stmt.setString(9, arg[8]);
stmt.execute();
            break;
case 4:
            stmt = connection.prepareCall("{call QUERY2_4(?,?,?,?)}");
            stmt.setString(1, arg[0]);
            stmt.setString(2, arg[1]);
            stmt.setString(3, arg[2]);
            stmt.setString(4, arg[3]);
```

```
                stmt.execute();
                        break;
                default:
                                System.out.println("Fail to insert data! please try again!");
                                break;
                }
                System.out.println("Successful Excution.");
        }catch(Exception e){
                System.out.println("Fail to insert data!");
                e.printStackTrace();
        }
}

public static void query3(Connection connection, String[] arg){
        try{
                CallableStatement stmt = connection.prepareCall("{call QUERY3(?,?,?)}");
                        stmt.setString(1, arg[0]);
                        stmt.setString(2, arg[1]);
                        stmt.setString(3, arg[2]);
                stmt.execute();
                System.out.println("Successful Excution.");
        }catch(Exception e){
                System.out.println("Fail to insert data!");
                e.printStackTrace();
        }
}
```

```
public static void query4(Connection connection, String[] arg, int i){
        try{
                CallableStatement stmt;


                        switch(i){
                        case 1:
                                stmt = connection.prepareCall("{call
QUERY4_1(?,?,?,?,?,?,?,?,?,?,?)}");
                        stmt.setString(1, arg[0]);
                                stmt.setString(2, arg[1]);
                                stmt.setString(3, arg[2]);
                                stmt.setString(4, arg[3]);
                                stmt.setString(5, arg[4]);
                                stmt.setString(6, arg[5]);
                                stmt.setString(7, arg[6]);
                                stmt.setString(8, arg[7]);
                                stmt.setString(9, arg[8]);
                                stmt.setString(10, arg[9]);
                                stmt.setString(11, arg[10]);
                                stmt.execute();
                                break;
                        case 2:
                                stmt = connection.prepareCall("{call
QUERY4_2(?,?,?,?,?,?,?,?,?,?,?)}");
                        stmt.setString(1, arg[0]);
                                stmt.setString(2, arg[1]);
```

```
stmt.setString(3, arg[2]);
stmt.setString(4, arg[3]);
stmt.setString(5, arg[4]);
stmt.setString(6, arg[5]);
stmt.setString(7, arg[6]);
stmt.setString(8, arg[7]);
stmt.setString(9, arg[8]);
stmt.setString(10, arg[9]);
stmt.setString(11, arg[10]);
stmt.execute();
break;
case 3:
stmt = connection.prepareCall("{call
QUERY4_3(?,?,?,?,?,?,?,?,?,?,?)}");
stmt.setString(1, arg[0]);
stmt.setString(2, arg[1]);
stmt.setString(3, arg[2]);
stmt.setString(4, arg[3]);
stmt.setString(5, arg[4]);
stmt.setString(6, arg[5]);
stmt.setString(7, arg[6]);
stmt.setString(8, arg[7]);
stmt.setString(9, arg[8]);
stmt.setString(10, arg[9]);
stmt.setString(11, arg[10]);
stmt.execute();
break;
```

```
                }

            System.out.println("Successful Excution.");
        }catch(Exception e){
            System.out.println("Fail to insert data!");
            e.printStackTrace();
        }
    }

    public static void query5(Connection connection, String[] arg){
        try{
            CallableStatement stmt = connection.prepareCall("{call QUERY5(?,?,?,?,?,?)}");
            stmt.setString(1, arg[0]);
                stmt.setString(2, arg[1]);
                stmt.setString(3, arg[2]);
                stmt.setString(4, arg[3]);
                stmt.setString(5, arg[4]);
                stmt.setString(6, arg[5]);
                stmt.execute();
            System.out.println("Successful Excution.");
        }catch(Exception e){
            System.out.println("Fail to insert data!");
            e.printStackTrace();
        }
    }
```

```
public static void query6(Connection connection, String[] arg, int i){
    try{
        CallableStatement stmt;


            switch(i){
            case 1:
                stmt = connection.prepareCall("{call QUERY6_1(?,?,?,?,?)}");
            stmt.setString(1, arg[0]);
                stmt.setString(2, arg[1]);
                stmt.setString(3, arg[2]);
                stmt.setString(4, arg[3]);
                stmt.setString(5, arg[4]);
                stmt.execute();
                break;
            case 2:
                stmt = connection.prepareCall("{call QUERY6_2(?,?,?,?,?)}");
            stmt.setString(1, arg[0]);
                stmt.setString(2, arg[1]);
                stmt.setString(3, arg[2]);
                stmt.setString(4, arg[3]);
                stmt.setString(5, arg[4]);
                stmt.execute();
                break;
        default:
                System.out.println("Fail to insert data! please try again!");
                break;
```

```
                        }



                        System.out.println("Successful Excution.");
        }catch(Exception e){
                System.out.println("Fail to insert data!");
                e.printStackTrace();
        }
    }
    public static void query7(Connection connection, String in){
        try{
                CallableStatement stmt = connection.prepareCall("{call QUERY7(?,?,?)}");
                stmt.setString(1, in);
        stmt.registerOutParameter("pdate", java.sql.Types.DATE);
        stmt.registerOutParameter("duration", java.sql.Types.INTEGER);
                        stmt.execute();
                        System.out.println("DATE                        Duration Time");
                        System.out.println(stmt.getDate("pdate") + "            " +
stmt.getInt("duration"));
        }catch(Exception e){
                System.out.println("Fail to insert data!");
                e.printStackTrace();
        }
                System.out.println("\n\n\n");
    }


    public static void query8(Connection connection, String arg){
```

```
try{
        CallableStatement stmt = connection.prepareCall("{call QUERY8(?)}");
        stmt.setString(1, arg);
                ResultSet rs = stmt.executeQuery();
      System.out.format("%s\t%s\t%s\t%s\t%s\t%s\t%s\t%s\n",
                "Product ID", "Produced Date", "Time Duration", "Producer", "Quality
Controller", "Size", "Account Number", "Cost");
                 while (rs.next())
            {
              int pid = rs.getInt("pid");
              Date pdate = rs.getDate("pdate");
              int duration = rs.getInt("duration");
              String producer = rs.getString("producer");
              String tester = rs.getString("tester");
              String size = rs.getString("size");
              int accnum = rs.getInt("accnum");
              int cost = rs.getInt("cost");

              // print the results
              System.out.format("%s\t\t%s\t%s\t\t%s\t%s\t\t%s\t%s\t\t%s\n",
                        pid, pdate, duration, producer, tester, size, accnum, cost);
            }
        System.out.println("Successful Excution.");
          stmt.close();

}catch(Exception e){
        System.out.println("Fail to insert data!");
```

```
                e.printStackTrace();
        }
    }

    public static void query9(Connection connection, String in){
        try{
                CallableStatement stmt = connection.prepareCall("{call QUERY9(?,?)}");
                stmt.setString(1, "worker 1");
        stmt.registerOutParameter("count", java.sql.Types.INTEGER);
                        stmt.execute();
                        System.out.println("The number of error made by " + in + ":  " +
stmt.getInt("count"));
        }catch(Exception e){
                System.out.println("Fail to insert data!");
                e.printStackTrace();
        }
                System.out.println("\n\n\n");
    }

    public static void query10(Connection connection, String in){
        try{
                CallableStatement stmt = connection.prepareCall("{call QUERY10(?,?)}");
                stmt.setString(1, in);
        stmt.registerOutParameter("total_cost", java.sql.Types.INTEGER);
                        stmt.execute();
                        System.out.println("Total Cost of product 3 which repiration requested by
"+ in + ":\t" +stmt.getInt("total_cost"));
```

```
        }catch(Exception e){
                System.out.println("Fail to insert data!");
                e.printStackTrace();
        }
                System.out.println("\n\n\n");
}

public static void query11(Connection connection, String in){
        try{
                CallableStatement stmt = connection.prepareCall("{call QUERY11(?)}");
                stmt.setString(1, in);
                ResultSet rs = stmt.executeQuery();
            System.out.format("%s\t\t\t%s\n", "Customer Name", "Adress");

                    while (rs.next())
                {
                  String cname = rs.getString("cname");
                  String address = rs.getString("address");
                  System.out.format("%s\t\t\t%s\n", cname, address);

                }
        }catch(Exception e){
                System.out.println("Fail to insert data!");
                e.printStackTrace();
        }
                System.out.println("\n\n\n");
```

```
    }

    public static void query12(Connection connection){
        try{
            CallableStatement stmt = connection.prepareCall("{call QUERY12(?)}");
        stmt.registerOutParameter("totaldays", java.sql.Types.INTEGER);
                stmt.execute();
                System.out.println("Total Lost day: " + "                    " +
stmt.getInt("totaldays"));
        }catch(Exception e){
            System.out.println("Fail execution!");
            e.printStackTrace();
        }
            System.out.println("\n\n\n");
    }

    public static void query13(Connection connection){
        try{
            CallableStatement stmt = connection.prepareCall("{call QUERY13()}");
                ResultSet rs = stmt.executeQuery();
            System.out.format("%s\t\t\t%s\n", "Customer Name", "Adress");

                while (rs.next())
                {
                  String cname = rs.getString("cname");
                  String address = rs.getString("address");
                // print the results
```

```
                System.out.format("%s\t\t\t%s\n", cname, address);
                }
            stmt.close();
        }catch(Exception e){
            System.out.println("Fail to insert data!");
            e.printStackTrace();
        }
            System.out.println("\n\n\n");
}

public static void query14(Connection connection){
        try{
            CallableStatement stmt = connection.prepareCall("{call QUERY14()}");
                ResultSet rs = stmt.executeQuery();
        System.out.format("%s\n", "Customer Name");
                while (rs.next())
                {
                String cname = rs.getString("cname");
            // print the results
                System.out.format("%s\n", cname);
                }

        }catch(Exception e){
            System.out.println("Fail to insert data!");
            e.printStackTrace();
        }
```

```
                System.out.println("\n\n\n");
    }

    public static void query15(Connection connection, String in){
        try{
                CallableStatement stmt = connection.prepareCall("{call QUERY15(?,?)}");
                stmt.setString(1, in);
        stmt.registerOutParameter("ave_cost", java.sql.Types.INTEGER);
                        stmt.execute();
                        System.out.println("AVERAGE COST IN " + in + " is: " +
stmt.getInt("ave_cost"));
        }catch(Exception e){
                System.out.println("Fail to insert data!");
                e.printStackTrace();
        }
                System.out.println("\n\n\n");
    }

    public static void query16(Connection connection, String[] arg){
        try{
                CallableStatement stmt = connection.prepareCall("{call QUERY7(?,?)}");
                stmt.setString(1, arg[0]);
                stmt.setString(2, arg[1]);
                        stmt.execute();
                        System.out.println("Update Sucessfully!");
        }catch(Exception e){
                System.out.println("Fail to insert data!");
```

```
            e.printStackTrace();
        }
            System.out.println("\n\n\n");
}

public static void query17(Connection connection, String[] arg){
        try{
            CallableStatement stmt = connection.prepareCall("{call QUERY17(?,?)}");
            stmt.setString(1, arg[0]);
            stmt.setString(2, arg[1]);
            stmt.execute();

                System.out.println("Executed Sucessfully!");
        }catch(Exception e){
            System.out.println("Fail to insert data!");
            e.printStackTrace();
        }
            System.out.println("\n\n\n");
}

public static void query18(Connection connection, String in){
        try{
            CallableStatement stmt = connection.prepareCall("{call QUERY3(?,?,?)}");
            CSVReader reader = null;
            reader = new CSVReader(new FileReader(in));
            String[] agrs;
```

```
            int lineNum = 0;
try {
                        while ((agrs = reader.readNext()) != null) {
                                lineNum++;
                                stmt.setString(1, agrs[0]);
                                stmt.setString(2, agrs[1]);
                                stmt.setString(3, agrs[2]);
                                stmt.addBatch();
                        }
                } catch (NumberFormatException e1) {
                        e1.printStackTrace();
                } catch (IOException e1) {
                        e1.printStackTrace();
                }

int[] numRecords = new int[lineNum];
try {
 numRecords = stmt.executeBatch();
} catch(BatchUpdateException e) {
 numRecords = e.getUpdateCounts();
 System.out.println("(ERROR) INSERTION exception: " + e.getMessage());
}
                reader.close();

 }catch(Exception e){
            System.out.println("Fail to insert data!");
```

```
                e.printStackTrace();
        }
        System.out.println("\n\n\n");
    }



    public static void query19(Connection connection, String out){
        try{
        CallableStatement stmt = connection.prepareCall("{call QUERY19()}");
        CSVWriter writer = new CSVWriter(new FileWriter(out));
                        ResultSet rs = stmt.executeQuery();
                        String in[] = new String[2];
                        while (rs.next()){
                    in[0] = rs.getString("cname");
                    in[1] = rs.getString("address");
                    writer.writeNext(in);
                    }
                        writer.close();
        }catch(Exception e){
                System.out.println("Fail to insert data!");
                e.printStackTrace();
        }
                System.out.println("\n\n\n");
    }

}
```

Task 6. Java program Execution

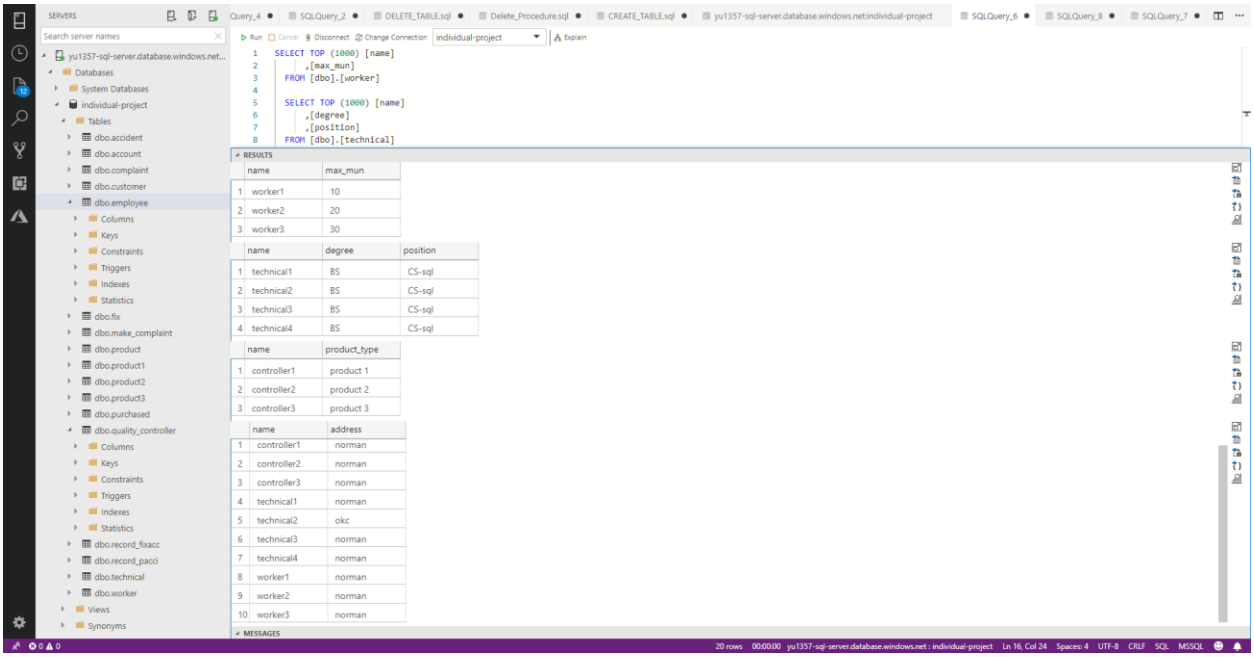
6.1. SCRIPT FILE SHOWING THE TESTING OF QUERY 1

```
Successful connected to  - Schema: dbo

WELCOME TO THE Future Inc. DATABASE SYSTEM.
Please enter the number to the corresponding task you want to run.

(1)  Enter a new employee into the database.
(2)  Enter a new product into database associated with the person who made the product, repaired the product if it is repaired, or checked the product.
(3)  Enter a customer into database associated with some products.
(4)  Create a new account associated with a product into databse.
(5)  Enter a complaint associated with a customer and product.
(6)  Enter  an accident associated with appropriate employee and product.
(7)  Retrieve the date produced and time spent to produce a particular product.
(8)  Retrieve all products  made by  a  particular worker.
(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
(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 who purchased all products of a particular color.
(12) Retrieve  the total number of work days lost due to accidents in repairing  the products which got complaints.
(13) Retrieve all customers who are also  workers.
(14) Retrieve all the customers who have purchased the products made or certified or repaired by themselves.
(15) Retrieve  the average cost of  all products made in a particular year.
(16) Switch the position between a technical staff and a quality controller.
(17) Delete all accidents whose dates are in some range.
(18) Import: enter new customers from a data file until the file is empty (the user must be asked to enter the input file name).
(19) Export: Retrieve all customers (in name order) and output them to a data file instead of screen (the user must be asked to enter the output file name).
(20) Quit.

Please enter the number to the corresponding task you want to run.
1
Enter the type(number) of employee: 1. Technical, 2. Quality Controller, 3. Worker(Producer)
1
Enter your input in follwing format: Technical name, adress, dgree, technical position
technical1, norman, BS, CS-sql
Successful Excution.
Please enter the number to the corresponding task you want to run.
1
Enter the type(number) of employee: 1. Technical, 2. Quality Controller, 3. Worker(Producer)
1
Enter your input in follwing format: Technical name, adress, dgree, technical position
technical2, okc, BS, CS-sql
Successful Excution.
Please enter the number to the corresponding task you want to run.
1
Enter the type(number) of employee: 1. Technical, 2. Quality Controller, 3. Worker(Producer)
1
Enter your input in follwing format: Technical name, adress, dgree, technical position
technical3, norman, BS, CS-sql
```


```
Please enter the number to the corresponding task you want to run.
1
Enter the type(number) of employee: 1. Technical, 2. Quality Controller, 3. Worker(Producer)
1
Enter your input in follwing format: Technical name, adress, dgree, technical position
technical1, norman, BS, CS-sql
Successful Excution.
Please enter the number to the corresponding task you want to run.
1
Enter the type(number) of employee: 1. Technical, 2. Quality Controller, 3. Worker(Producer)
1
Enter your input in follwing format: Technical name, adress, dgree, technical position
technical2, okc, BS, CS-sql
Successful Excution.
Please enter the number to the corresponding task you want to run.
1
Enter the type(number) of employee: 1. Technical, 2. Quality Controller, 3. Worker(Producer)
1
Enter your input in follwing format: Technical name, adress, dgree, technical position
```

```
technical3, norman, BS, CS-sql
Successful Excution.
Please enter the number to the corresponding task you want to run.
1
Enter the type(number) of employee: 1. Technical, 2. Quality Controller, 3.
Worker(Producer)
1
Enter your input in follwing format: Technical name, adress, dgree, technical
position
technical4, norman, BS, CS-sql
Successful Excution.
Please enter the number to the corresponding task you want to run.
1
Enter the type(number) of employee: 1. Technical, 2. Quality Controller, 3.
Worker(Producer)
2
Enter your input in follwing format: Quality Controller name, adress, product
type(type like product # ex. product 1)
controller1, norman, product 1
Successful Excution.
Please enter the number to the corresponding task you want to run.
1
Enter the type(number) of employee: 1. Technical, 2. Quality Controller, 3.
Worker(Producer)
2
Enter your input in follwing format: Quality Controller name, adress, product
type(type like product # ex. product 1)
controller2, norman, product 2
Successful Excution.
Please enter the number to the corresponding task you want to run.
1
Enter the type(number) of employee: 1. Technical, 2. Quality Controller, 3.
Worker(Producer)
2
Enter your input in follwing format: Quality Controller name, adress, product
type(type like product # ex. product 1)
controller3, norman, product 3
Successful Excution.
Please enter the number to the corresponding task you want to run.
1
Enter the type(number) of employee: 1. Technical, 2. Quality Controller, 3.
Worker(Producer)
3
Enter your input in follwing format: Worker name, adress, max produces/day
worker1, norman, 10
Successful Excution.
Please enter the number to the corresponding task you want to run.
1
Enter the type(number) of employee: 1. Technical, 2. Quality Controller, 3.
Worker(Producer)
3
Enter your input in follwing format: Worker name, adress, max produces/day
worker2, norman, 20
Successful Excution.
Please enter the number to the corresponding task you want to run.
1
```

```
Enter the type(number) of employee: 1. Technical, 2. Quality Controller, 3.
Worker(Producer)
3
Enter your input in follwing format: Worker name, adress, max produces/day
worker3, norman, 30
Successful Excution.
Please enter the number to the corresponding task you want to run.
```



6.2. SCRIPT FILE SHOWING THE TESTING OF QUERY 2

```
(18) Import: enter new customers from a data file until the file is empty (the user must be asked to enter the input file name).
(19) Export: Retrieve all customers (in name order) and output them to a data file instead of screen (the user must be asked to enter the output file name).
(20) Quit.

Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for product3)
1
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer name, tester name, size, account number, cost, sotfware name major used
15, 2001-11-11, 10, worker1, controller1, size1, 100, 10, sql-server
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD), requested by (type: complaint/controller)
technical2, 2006-11-11, controller
Successful Excution.
Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for product3)
1
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer name, tester name, size, account number, cost, sotfware name major used
17, 2002-11-11, 10, worker1, controller1, size1, 100, 10, sql-server
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
0
Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for product3)
1
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer name, tester name, size, account number, cost, sotfware name major used
18, 2004-11-11, 10, worker1, controller1, size1, 300, 40, sql-server
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
0
Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for product3)
26, 2003-11-11, 10, worker2, controller2, size2, black, 20
```


```
Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for
product3)
1
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer
name, tester name, size, account number, cost, sotfware name major used
15, 2001-11-11, 10, worker1, controller1, size1, 100, 10, sql-server
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD),
requested by (type: complaint/controller)
technical2, 2006-11-11, controller
Successful Excution.
Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for
product3)
1
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer
name, tester name, size, account number, cost, sotfware name major used
17, 2002-11-11, 10, worker1, controller1, size1, 100, 10, sql-server
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
0
Please enter the number to the corresponding task you want to run.
2
```

```
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for
product3)
1
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer
name, tester name, size, account number, cost, sotfware name major used
18, 2004-11-11, 10, worker1, controller1, size1, 300, 40, sql-server
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
0
Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for
product3)
26, 2003-11-11, 10, worker2, controller2, size2, black, 20

Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for
product3)
1
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer
name, tester name, size, account number, cost, sotfware name major used
12, 2005-11-11, 12, worker1, controller1, size12, 101, 12, vs
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD),
requested by (type: complaint/controller)
technical1, 2006-11-11, controller
Successful Excution.
Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for
product3)
1
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer
name, tester name, size, account number, cost, sotfware name major used
14, 2006-11-11, 12, worker1, controller1, size12, 101, 14, vs

Successful Excution.

Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for
product3)
2
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer
name, tester name, size, account number, cost, color
16, 2006-12-11, 12, worker1, controller1, size16, 101, 16, vs
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
0
Please enter the number to the corresponding task you want to run.
```

```
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for
product3)
2
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer
name, tester name, size, account number, cost, color
21, 2006-12-11, 12, worker2, controller2, size16, 101, 21, yellow
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD),
requested by (type: complaint/controller)
technical2, 2007-11-11, controller
Successful Excution.
Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for
product3)
2
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer
name, tester name, size, account number, cost, color
22, 2006-12-13, 12, worker2, controller2, size16, 101, 22, black
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
0
Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for
product3)
2
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer
name, tester name, size, account number, cost, color
24, 2006-12-15, 12, worker2, controller2, size16, 101, 24, black
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD),
requested by (type: complaint/controller)
technical2, 2007-11-11, complaint
Successful Excution.
Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for
product3)
3
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer
name, tester name, size, account number, cost, weight
30, 2007-12-13, 12, worker3, controller3, size16, 300, 22, 40kg
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD),
requested by (type: complaint/controller)
```

```
technical3, 2008-11-11, complaint
Successful Excution.
Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for
product3)
3
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer
name, tester name, size, account number, cost, weight
31, 2007-12-13, 12, worker3, controller3, size16, 300, 31, 31kg
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
0
Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for
product3)
3
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer
name, tester name, size, account number, cost, weight
32, 2007-12-14, 12, worker3, controller3, size16, 300, 66, 55kg
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD),
requested by (type: complaint/controller)
technical3, 2008-11-17, controller
Successful Excution.

Please enter the number to the corresponding task you want to run.
```

	pid	pdate	duration	producer	tester	size	accnum	cost
1	10	2001-11-11	10	worker1	controller1	size	100	10
2	11	2001-11-12	10	worker1	controller1	size	101	10
3	12	2005-11-11	12	worker1	controller1	size12	101	12
4	13	2001-11-13	30	worker1	controller1	size	103	10
5	14	2006-11-11	12	worker1	controller1	size12	101	14
6	15	2001-11-11	10	worker1	controller1	size1	100	10
7	16	2006-12-11	12	worker1	controller1	size16	101	16
8	17	2002-11-11	10	worker1	controller1	size1	100	10
9	18	2004-11-11	10	worker1	controller1	size1	100	40
10	20	2001-11-11	10	worker2	controller2	size	201	20
11	21	2006-12-11	12	worker2	controller2	size16	201	21
12	22	2006-12-13	12	worker2	controller2	size16	201	22
13	23	2001-11-13	10	worker2	controller2	size	201	30
14	24	2006-12-15	12	worker2	controller2	size16	201	24
15	30	2007-12-13	12	worker3	controller3	size16	300	22
16	31	2007-12-13	12	worker3	controller3	size16	300	31
17	32	2007-12-14	12	worker3	controller3	size16	300	66
18	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

	pid	name	fdate	requested
1	12	technical1	2006-11-11	controller
2	15	technical2	2006-11-11	controller
3	21	technical2	2007-11-11	controller
4	23	technical1	2005-11-11	controller
5	24	technical2	2007-11-11	complaint
6	30	technical3	2008-11-11	complaint
7	32	technical3	2008-11-17	controller
8	NULL	NULL	NULL	NULL

6.3. SCRIPT FILE SHOWING THE TESTING OF QUERY 3

```
416                 stmt.setString(7, arg[6]);
417                 stmt.setString(8, arg[7]);
418                 stmt.setString(9, arg[8]);
419                 stmt.setString(10, arg[9]);
420                 stmt.setString(11, arg[10]);
421                 stmt.execute();
422                 break;
423             case 2:
424                 stmt = connection.prepareCall("{call QUERY4_2(?,?,?,?,?,?,?,?,?,?,?)}");
425                 stmt.setString(1, arg[0]);
426                 stmt.setString(2, arg[1]);
427                 stmt.setString(3, arg[2]);
428                 stmt.setString(4, arg[3]);
429                 stmt.setString(5, arg[4]);
```

Problems | Javadoc | Declaration | Console | Gradle Tasks | Gradle Executions

```
<terminated> FutureCompany [Java Application] C:\Program Files\Java\jre1.8.0_191\bin\javaw.exe (Nov 19, 2018, 11:09:50 AM)
(18) Import: enter new customers from a data file until the file is empty (the user must be asked to enter
(19) Export: Retrieve all customers (in name order) and output them to a data file instead of screen (the u
(20) Quit.

Please enter the number to the corresponding task you want to run.
3
Enter your input in follwing format: customer name, adress, product ID
customer 1, Norman, 22
Successful Excution.
```

```
Please enter the number to the corresponding task you want to run.
3
Enter your input in follwing format: customer name, adress, product ID
customer 1, Norman, 22

Successful Excution.

Please enter the number to the corresponding task you want to run.
3
Enter your input in follwing format: customer name, adress, product ID
customer 2, Norman, 21
Successful Excution.
Please enter the number to the corresponding task you want to run.
3
Enter your input in follwing format: customer name, adress, product ID
customer 3, Norman, 31

Successful Excution.

Please enter the number to the corresponding task you want to run.
3
Enter your input in follwing format: customer name, adress, product ID
woker3, Norman, 30
Successful Excution.
Please enter the number to the corresponding task you want to run.
3
Enter your input in follwing format: customer name, adress, product ID
customer 4, Norman, 12

Successful Excution.

Enter your input in follwing format: customer name, adress, product ID
worker2, Norman, 24
```

```
Successful Excution.

Please enter the number to the corresponding task you want to run.
3
Enter your input in follwing format: customer name, adress, product ID
worker3, Norman, 10
Successful Excution.
Please enter the number to the corresponding task you want to run.
3
Enter your input in follwing format: customer name, adress, product ID
controller1, Norman, 11
Successful Excution.
Please enter the number to the corresponding task you want to run.
3
Enter your input in follwing format: customer name, adress, product ID
controller3, Norman, 13

Successful Excution.

Please enter the number to the corresponding task you want to run.
3
Enter your input in follwing format: customer name, adress, product ID
customer 6, Norman, 18
Successful Excution.

Please enter the number to the corresponding task you want to run.
```

Run Stop Max Rows: 200 Show SQL Pane

	cname	address
1	controller1	Norman
2	controller3	Norman
3	customer 1	Norman
4	customer 2	Norman
5	customer 3	Norman
6	customer 4	Norman
7	customer 6	Norman
8	woker3	Norman
9	worker2	Norman
10	worker3	Norman
11	NULL	NULL

Run Stop Max Rows: 200

	pid	cname
1	10	worker3
2	11	controller1
3	12	customer 4
4	13	controller3
5	18	customer 6
6	21	customer 2
7	22	customer 1
8	24	worker2
9	30	woker3
10	31	customer 3
11	NULL	NULL

6.4. SCRIPT FILE SHOWING THE TESTING OF QUERY 4

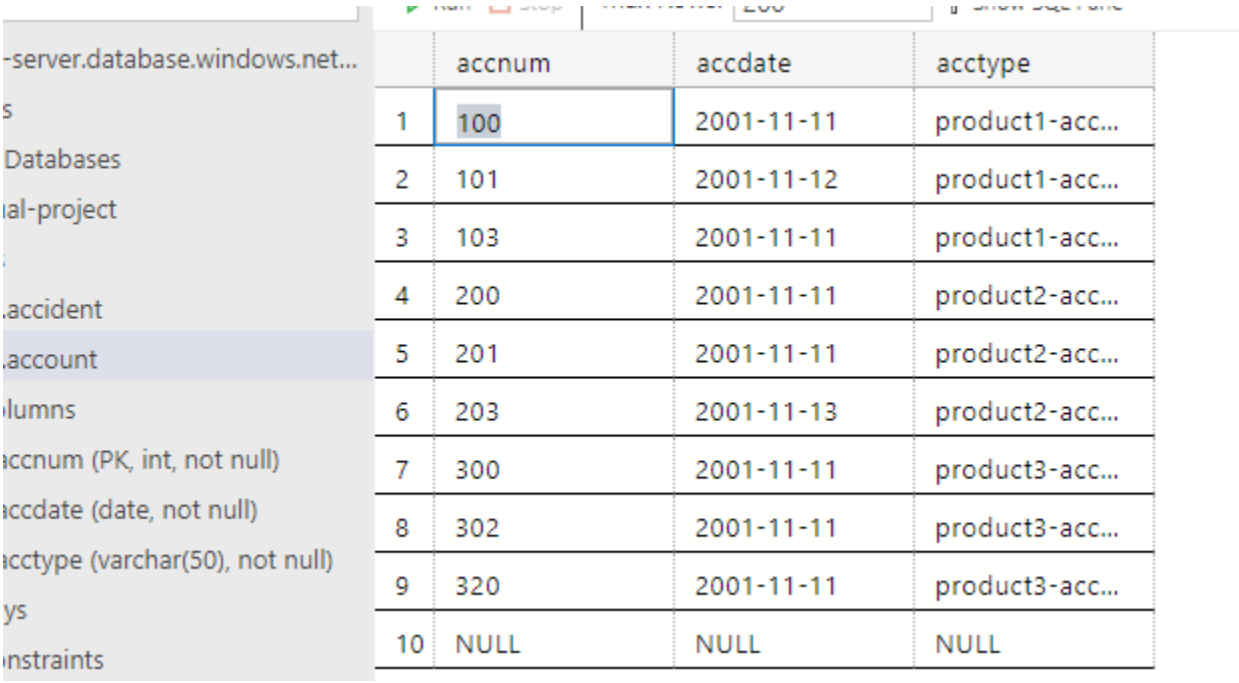
```
401     }
402
403     public static void query4(Connection connection, String[] arg, int i){
404         try{
405             CallableStatement stmt;
```

```
Problems | Javadoc | Declaration | Console | Gradle Tasks | Gradle Executions
FutureCompany [Java Application] C:\Program Files\Java\jre1.8.0_191\bin\javaw.exe (Nov 19, 2018, 3:03:34 AM)
(8)  Retrieve all products  made by  a  particular worker.
(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 sc
(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 who purchased all products of a particular color.
(12) Retrieve  the total number of work days lost due to accidents in repairing  the products which got complaints.
(13) Retrieve all customers who are also  workers.
(14) Retrieve all the customers who have purchased the products made or certified or repaired by themselves.
(15) Retrieve  the average cost of  all products made in a particular year.
(16) Switch the position between a technical staff and a quality controller.
(17) Delete all accidents whose dates are in some range.
(18) Import: enter new customers from a data file until the file is empty (the user must be asked to enter the input file name).
(19) Export: Retrieve all customers (in name order) and output them to a data file instead of screen (the user must be asked to enter the output file name).
(20) Quit.

Please enter the number to the corresponding task you want to run.
4
What type of account you want to create? (1 for product1-account, 2 for product2-account, 3 for  product3-account)
1
Enter your input in follwing format: account number, account established date(YYYY-MM-DD)
100, 2001-11-11
Enter product 1 associated by account by following format:
product ID, produced date(YYYY-MM-DD), producing duration time, producer name, tester name,size, sotfware name major used, cost,
10, 2001-11-11, 10, worker1, controller1, size1, 100, 10, sql-server
100
2001-11-11
product1-account
10
2001-11-11
10
worker1
controller1
size1
100
10
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD), requested by (type: complaint/controller)
technical1, 2001-12-12, controller1
```

```
Please enter the number to the corresponding task you want to run.
4
What type of account you want to create? (1 for product1-account, 2 for
product2-account, 3 for  product3-account)
1
Enter your input in follwing format: account number, account established
date(YYYY-MM-DD)
103, 2001-11-11
Enter product 1 associated by account by following format:
product ID, produced date(YYYY-MM-DD), producing duration time, producer
name, tester name,size, sotfware name major used, cost,
13, 2001-11-13, 30, worker1, controller1, size1, 100, 10, sql-server
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD),
requested by (type: complaint/controller)

technical1, 2005-11-11, comtronller

Please enter the number to the corresponding task you want to run.
4
What type of account you want to create? (1 for product1-account, 2 for
product2-account, 3 for  product3-account)
2
```

```
Enter your input in follwing format: account number, account established
date(YYYY-MM-DD)
200, 2001-11-11
Enter product 2 associated by account by following format:
product ID, produced date(YYYY-MM-DD), producing duration time, producer
name, tester name,size, color, cost
10, 2001-11-11, 10, worker1, controller1, size1, 100, 10, sql-server
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
0
Please enter the number to the corresponding task you want to run.
4
What type of account you want to create? (1 for product1-account, 2 for
product2-account, 3 for  product3-account)
2
Enter your input in follwing format: account number, account established
date(YYYY-MM-DD)
201, 2001-11-11
Enter product 2 associated by account by following format:
product ID, produced date(YYYY-MM-DD), producing duration time, producer
name, tester name,size, color, cost
20, 2001-11-11, 10, worker2, controller2, size2, blue, 20
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD),
requested by (type: complaint/controller)
technical1, 2005-11-11, contronller

Please enter the number to the corresponding task you want to run.
4
What type of account you want to create? (1 for product1-account, 2 for
product2-account, 3 for  product3-account)
2
Enter your input in follwing format: account number, account established
date(YYYY-MM-DD)
203, 2001-11-13
Enter product 2 associated by account by following format:
product ID, produced date(YYYY-MM-DD), producing duration time, producer
name, tester name,size, color, cost
23, 2001-11-13, 10, worker2, controller2, size2, green, 30
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD),
requested by (type: complaint/controller)
technical1, 2005-11-11, controller
Successful Excution.
Please enter the number to the corresponding task you want to run.
4
What type of account you want to create? (1 for product1-account, 2 for
product2-account, 3 for  product3-account)
3
Enter your input in follwing format: account number, account established
date(YYYY-MM-DD)
300, 2001-11-11
```

```
Enter product 3 associated by account by following format:
product ID, produced date(YYYY-MM-DD), producing duration time, producer
name, tester name, size, weight, cost
30, 2001-11-11, 30, worker3, controller3, size3, 3kg, 20
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD),
requested by (type: complaint/controller)

technical2, 2005-11-11, controller

Please enter the number to the corresponding task you want to run.
4
What type of account you want to create? (1 for product1-account, 2 for
product2-account, 3 for  product3-account)
3
Enter your input in follwing format: account number, account established
date(YYYY-MM-DD)
302, 2001-11-11
Enter product 3 associated by account by following format:
product ID, produced date(YYYY-MM-DD), producing duration time, producer
name, tester name, size, weight, cost
32, 2001-11-11, 30, worker3, controller3, size3, 3kg, 20
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD),
requested by (type: complaint/controller)

technical1, 2005-11-11, controller
```



	accnum	accdate	acctype
1	100	2001-11-11	product1-acc...
2	101	2001-11-12	product1-acc...
3	103	2001-11-11	product1-acc...
4	200	2001-11-11	product2-acc...
5	201	2001-11-11	product2-acc...
6	203	2001-11-13	product2-acc...
7	300	2001-11-11	product3-acc...
8	302	2001-11-11	product3-acc...
9	320	2001-11-11	product3-acc...
10	NULL	NULL	NULL

6.5. SCRIPT FILE SHOWING THE TESTING OF QUERY5

```
41          }
42
43          Connection connection = DriverManager.getConnection(url);
44          Scanner scan = new Scanner(System.in);
45          String menu =
46                  "WELCOME TO THE Future Inc. DATABASE SYSTEM.\n"
47                  + "Please enter the number to the corresponding task you want to run.\n"
48                  + "\n"
49                  + "(1)  Enter a new employee into the database.\n"
50                  + "(2)  Enter a new product into database associated with the person who made the pr
51                  + "(3)  Enter a customer into database associated with some products.\n"
52                  + "(4)  Create a new account associated with a product into databse.\n"
53                  + "(5)  Enter a complaint associated with a customer and product.\n"
54                  + "(6)  Enter  an accident associated with appropriate employee and product.\n"
```

Problems | Javadoc | Declaration | Console | Gradle Tasks | Gradle Executions

```
FutureCompany [Java Application] C:\Program Files\Java\jre1.8.0_191\bin\javaw.exe (Nov 19, 2018, 11:25:23 AM)
(18) Import: enter new customers from a data file until the file is empty (the user must be asked to enter
(19) Export: Retrieve all customers (in name order) and output them to a data file instead of screen (the u
(20) Quit.

Please enter the number to the corresponding task you want to run.
5
Enter your input in follwing format: compaint ID, compaint date(YYYY-MM-DD), description, treatment type in
10000, 2006-12-17, why?, refund, worker2, 24
Successful Excution.
Please enter the number to the corresponding task you want to run.
5
Enter your input in follwing format: compaint ID, compaint date(YYYY-MM-DD), description, treatment type in
10001, 2007-12-17, why?, exchange, woker3,  30
Successful Excution.
Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for product3)
3
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer name, tester name, size, account
33, 2008-12-14, 12, worker3, controller3, size16, 300, 66, 55kg
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD), requested by (type: complaint/cont
technical3, 2008-11-11, complaint
Successful Excution.
```

```
Please enter the number to the corresponding task you want to run.
5
Enter your input in follwing format: compaint ID, compaint date(YYYY-MM-DD),
description, treatment type in (refund/exchange),/n custemer name, product ID
10000, 2006-12-17, why?, refund, worker2, 24
Successful Excution.
Please enter the number to the corresponding task you want to run.
5
Enter your input in follwing format: compaint ID, compaint date(YYYY-MM-DD),
description, treatment type in (refund/exchange),/n custemer name, product ID
10001, 2007-12-17, why?, exchange, woker3,  30
Successful Excution.
Please enter the number to the corresponding task you want to run.
2
Enter the type(number) of product: 1 for product1, 2 for product2, 3 for
product3)
3
Enter your input in follwing format:
product ID, produced date(YYYY-MM-DD), producing duration(days), producer
name, tester name, size, account number, cost, weight
```

```
33, 2008-12-14, 12, worker3, controller3, size16, 300, 66, 55kg
Successful Excution.
Is the product repaired? 1 for yes, 0 for no
1
Enter your input in follwing format: fixer name, fixed date(YYYY-MM-DD),
requested by (type: complaint/controller)
technical3, 2008-11-11, complaint

Successful Excution.

Please enter the number to the corresponding task you want to run.
3
Enter your input in follwing format: customer name, adress, product ID
customer 10, Norman, 33

Successful Excution.
```

	cid	cdate	description	treatment
1	10000	2006-12-17	why?	refund
2	10001	2007-12-17	why?	exchange
3	10002	2008-12-17	why?	exchange
4	NULL	NULL	NULL	NULL

6.6 SCRIPT FILE SHOWING THE TESTING OF QUERY6

```
(16) Switch the position between a technical staff and a quality controller.
(17) Delete all accidents whose dates are in some range.
(18) Import: enter new customers from a data file until the file is empty (the user must be asked to enter
(19) Export: Retrieve all customers (in name order) and output them to a data file instead of screen (the u
(20) Quit.

Please enter the number to the corresponding task you want to run.
6
Enter your input in follwing format: accident number, accident date(YYYY-MM-DD), lost days, product ID, Emp
1000, 2005-11-11, 12, 5, 12, worker1
Enter 1 for fix accident, 2 for producing accident.
2
Successful Excution.
Please enter the number to the corresponding task you want to run.
6
Enter your input in follwing format: accident number, accident date(YYYY-MM-DD), lost days, product ID, Emp
1000, 2005-11-11, 12, 12, worker1
Enter 1 for fix accident, 2 for producing accident.
2
Successful Excution.
Please enter the number to the corresponding task you want to run.
6
Enter your input in follwing format: accident number, accident date(YYYY-MM-DD), lost days, product ID, Emp
1001, 2008-8-11, 30, 33, technical3
Enter 1 for fix accident, 2 for producing accident.
1
Successful Excution.
```

```
Please enter the number to the corresponding task you want to run.
6
Enter your input in follwing format: accident number, accident date(YYYY-MM-
DD), lost days, product ID, Employee name
1000, 2005-11-11, 12, 5, 12, worker1
Enter 1 for fix accident, 2 for producing accident.
2
Successful Excution.
Please enter the number to the corresponding task you want to run.
6
Enter your input in follwing format: accident number, accident date(YYYY-MM-
DD), lost days, product ID, Employee name
1000, 2005-11-11, 12, 12, worker1
Enter 1 for fix accident, 2 for producing accident.
2
Successful Excution.
Please enter the number to the corresponding task you want to run.
6
Enter your input in follwing format: accident number, accident date(YYYY-MM-
DD), lost days, product ID, Employee name
1001, 2008-8-11, 30, 33, technical3
Enter 1 for fix accident, 2 for producing accident.
1

Please enter the number to the corresponding task you want to run.
6
Enter your input in follwing format: accident number, accident date(YYYY-MM-
DD), lost days, product ID, Employee name
1002, 2006-5-11, 30, 16, worker1
Enter 1 for fix accident, 2 for producing accident.
2
```

dbo.accident_1 | dbo.record_fixacc_1 | dbo.record_pacci_

Run Stop Max Rows: 200 Show SQL Pane

	accidentnum	pid	name
1	1001	33	technical3
2	NULL	NULL	NULL

dbo.accident_1 | dbo.record_fixacc_1 | dbo.record_pacci

Run Stop Max Rows: 200 Show SQL Pane

	accidentnum	pid	name
1	1000	12	worker1
2	1001	16	worker1
3	1002	16	worker1
4	NULL	NULL	NULL

	accidentnum	accidentdate	lostday
1	1000	2005-11-11	12
2	1001	2008-08-11	30
3	1002	2006-05-11	30
4	NULL	NULL	NULL

6.7 SCRIPT FILE SHOWING THE TESTING OF QUERY7

```
Connection connection = DriverManager.getConnection(url);
Scanner scan = new Scanner(System.in);
String menu =
        "WELCOME TO THE Future Inc. DATABASE SYSTEM.\n"
        + "Please enter the number to the corresponding task you want to run.\n"
        + "\n"
        + "(1)  Enter a new employee into the database.\n"
        + "(2)  Enter a new product into database associated with the person who made the pr
        + "(3)  Enter a customer into database associated with some products.\n"
        + "(4)  Create a new account associated with a product into databse.\n"
        + "(5)  Enter a complaint associated with a customer and product.\n"
```

```
FutureCompany [Java Application] C:\Program Files\Java\jre1.8.0_191\bin\javaw.exe (Nov 19, 2018, 11:49:12 AM)
(16) Switch the position between a technical staff and a quality controller.
(17) Delete all accidents whose dates are in some range.
(18) Import: enter new customers from a data file until the file is empty (the user must be asked to enter
(19) Export: Retrieve all customers (in name order) and output them to a data file instead of screen (the u
(20) Quit.

Please enter the number to the corresponding task you want to run.
7
Enter the product ID:
21
DATE                    Duration Time
2006-12-11              12


Please enter the number to the corresponding task you want to run.
7
Enter the product ID:
22
DATE                    Duration Time
2006-12-13              12


Please enter the number to the corresponding task you want to run.
7
Enter the product ID:
33
DATE                    Duration Time
2008-12-14              12
```

6.8 SCRIPT FILE SHOWING THE TESTING OF QUERY8

```
Problems  @ Javadoc  Declaration  Console  Gradle Tasks  Gradle Executions
FutureCompany [Java Application] C:\Program Files\Java\jre1.8.0_191\bin\javaw.exe (Nov 19, 2018, 11:51:00 AM)
worker1
Product ID      Produced Date   Time Duration   Producer        Quality Controller      Size    Account Number  Cost
10              2001-11-11      10              worker1 controller1             size    100             10
11              2001-11-12      10              worker1 controller1             size    101             10
12              2005-11-11      12              worker1 controller1             size12  101             12
13              2001-11-13      30              worker1 controller1             size    103             10
14              2006-11-11      12              worker1 controller1             size12  101             14
15              2001-11-11      10              worker1 controller1             size1   100             10
16              2006-12-11      12              worker1 controller1             size16  101             16
17              2002-11-11      10              worker1 controller1             size1   100             10
18              2004-11-11      10              worker1 controller1             size1   100             40
Successful Excution.
Please enter the number to the corresponding task you want to run.
8
Enter the worker's name:
worker2
Product ID      Produced Date   Time Duration   Producer        Quality Controller      Size    Account Number  Cost
20              2001-11-11      10              worker2 controller2             size    201             20
21              2006-12-11      12              worker2 controller2             size16  201             21
22              2006-12-13      12              worker2 controller2             size16  201             22
23              2001-11-13      10              worker2 controller2             size    201             30
24              2006-12-15      12              worker2 controller2             size16  201             24
Successful Excution.
Please enter the number to the corresponding task you want to run.
8
Enter the worker's name:
worker3
Product ID      Produced Date   Time Duration   Producer        Quality Controller      Size    Account Number  Cost
30              2007-12-13      12              worker3 controller3             size16  300             22
31              2007-12-13      12              worker3 controller3             size16  300             31
32              2007-12-14      12              worker3 controller3             size16  300             66
33              2008-12-14      12              worker3 controller3             size16  300             66
Successful Excution.
Please enter the number to the corresponding task you want to run.
```

6.9 SCRIPT FILE SHOWING THE TESTING OF QUERY9

```
Please enter the number to the corresponding task you want to run.
9
Enter the Quality Controller's name:
controller1
The number of error made by controller1:  0



Please enter the number to the corresponding task you want to run.
9
Enter the Quality Controller's name:
controller2
The number of error made by controller2:  0



Please enter the number to the corresponding task you want to run.
9
Enter the Quality Controller's name:
controller3
The number of error made by controller3:  3



Please enter the number to the corresponding task you want to run.
```

6.10SCRIPT FILE SHOWING THE TESTING OF QUERY10

```
Please enter the number to the corresponding task you want to run.
10
Please enter the number to the corresponding task you want to run.
10
Enter the Quality Controller's name:
controller1
Total Cost of product 3 which repiration requested by controller1:      0



Please enter the number to the corresponding task you want to run.
10
Enter the Quality Controller's name:
controller2
Total Cost of product 3 which repiration requested by controller2:      0



Please enter the number to the corresponding task you want to run.
10
Enter the Quality Controller's name:
controller 3
Total Cost of product 3 which repiration requested by controller 3:     0



Please enter the number to the corresponding task you want to run.
```

6.11SCRIPT FILE SHOWING THE TESTING OF QUERY11

```java
        }
        System.out.println("\n\n\n");
    }

    public static void query11(Connection connection, String in){
        try{
            CallableStatement stmt = connection.prepareCall("{call QUERY11(?)}");
            stmt.setString(1, in);
            ResultSet rs = stmt.executeQuery();
            System.out.format("%s\t\t\t%s\n", "Customer Name", "Adress");

            while (rs.next())
              {
                String cname = rs.getString("cname");
                String address = rs.getString("address");
                System.out.format("%s\t\t\t%s\n", cname, address);

              }
```

Problems | Javadoc | Declaration | Console | Gradle Tasks | Gradle Executions

FutureCompany [Java Application] C:\Program Files\Java\jre1.8.0_191\bin\javaw.exe (Nov 19, 2018, 12:13:14 PM)

```
Please enter the number to the corresponding task you want to run.
11
Enter color:
blue
Customer Name                   Adress




Please enter the number to the corresponding task you want to run.
11
Enter color:
yellow
Customer Name                   Adress




Please enter the number to the corresponding task you want to run.
11
Enter color:
black
Customer Name                   Adress



Please enter the number to the corresponding task you want to run.
```

6.12SCRIPT FILE SHOWING THE TESTING OF QUERY12

```
(1)  Enter a new employee into the database.
(2)  Enter a new product into database associated with the person who made the product, repaired the product if it is repaired, or checked the product.
(3)  Enter a customer into database associated with some products.
(4)  Create a new account associated with a product into databse.
(5)  Enter a complaint associated with a customer and product.
(6)  Enter  an accident associated with appropriate employee and product.
(7)  Retrieve the date produced and time spent to produce a particular product.
(8)  Retrieve all products  made by  a  particular worker.
(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.
(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 who purchased all products of a particular color.
(12) Retrieve  the total number of work days lost due to accidents in repairing  the products which got complaints.
(13) Retrieve all customers who are also  workers.
(14) Retrieve all the customers who have purchased the products made or certified or repaired by themselves.
(15) Retrieve  the average cost of  all products made in a particular year.
(16) Switch the position between a technical staff and a quality controller.
(17) Delete all accidents whose dates are in some range.
(18) Import: enter new customers from a data file until the file is empty (the user must be asked to enter the input file name).
(19) Export: Retrieve all customers (in name order) and output them to a data file instead of screen (the user must be asked to enter the output file name).
(20) Quit.

Please enter the number to the corresponding task you want to run.
12
Total Lost day:                 30



Please enter the number to the corresponding task you want to run.
```

6.13SCRIPT FILE SHOWING THE TESTING OF QUERY13

```
Please enter the number to the corresponding task you want to run.
13
Customer Name                    Adress
worker2                 Norman
worker3                 Norman



Please enter the number to the corresponding task you want to run.
```

6.14SCRIPT FILE SHOWING THE TESTING OF QUERY14

```
Please enter the number to the corresponding task you want to run.
14
Customer Name
controller1
worker2



Please enter the number to the corresponding task you want to run.
```

6.15SCRIPT FILE SHOWING THE TESTING OF QUERY15

```
Customer Name
controller1
worker2




Please enter the number to the corresponding task you want to run.
15
Enter the year(YYYY):
2008
AVERAGE COST IN 2008 is: 66




Please enter the number to the corresponding task you want to run.
```

6.17SCRIPT FILE SHOWING THE TESTING OF QUERY17

	accidentnum	accidentdate	lostday
1	1000	2005-11-11	12
2	1001	2008-08-11	30
3	1002	2006-05-11	30
4	NULL	NULL	NULL

```
Please enter the number to the corresponding task you want to run.
17
Enter the: start date, end date(YYYY-MM-DD):
2001-11-11, 2003-11-11
Executed Sucessfully!
```

```
Please enter the number to the corresponding task you want to run.
```

6.19SCRIPT FILE SHOWING THE TESTING OF QUERY19

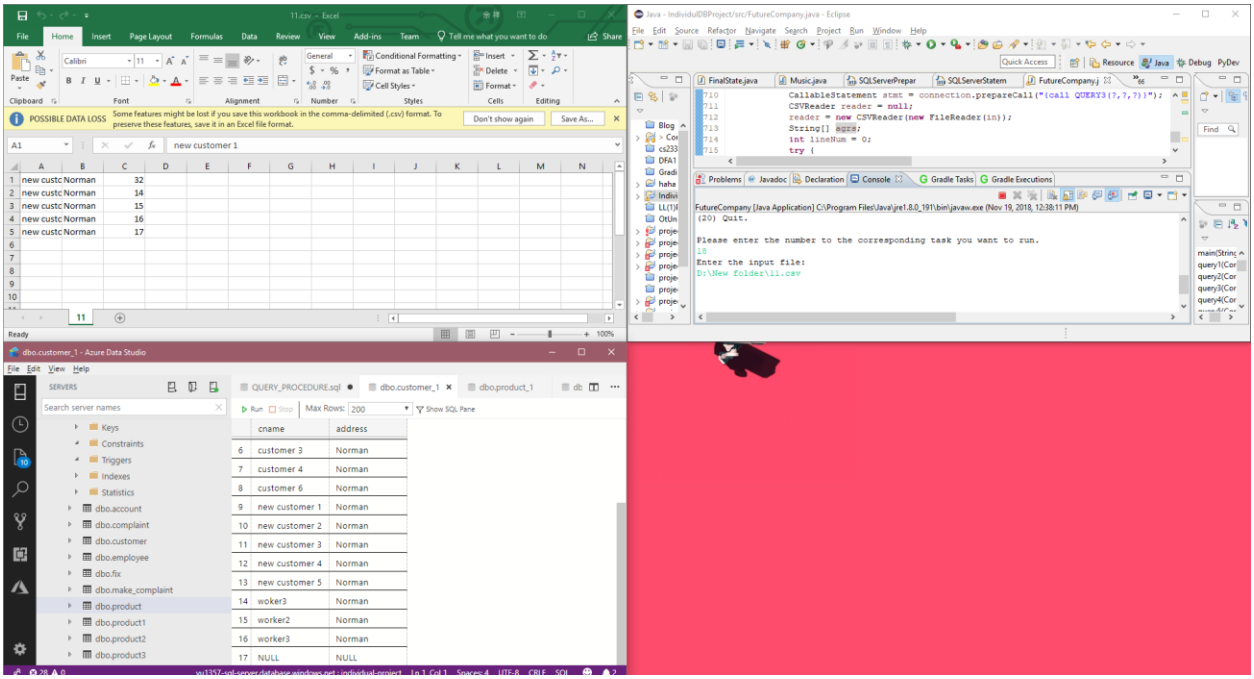
BEFORE:

	pid	cname
1	10	worker3
2	11	controller1
3	12	customer 4
4	13	controller3
5	18	customer 6
6	21	customer 2
7	22	customer 1
8	24	worker2
9	30	woker3
10	31	customer 3
11	33	customer 6
12	NULL	NULL

Run Stop Max Rows: 200

	cname	address
1	controller1	Norman
2	controller3	Norman
3	customer 1	Norman
4	customer 10	Norman
5	customer 2	Norman
6	customer 3	Norman
7	customer 4	Norman
8	customer 6	Norman
9	woker3	Norman
10	worker2	Norman
11	worker3	Norman
12	NULL	NULL

AFTER:


11.csv - Excel
POSSIBLE DATA LOSS
Some features might be lost if you save this workbook in the comma-delimited (.csv) format. To preserve these features, save it in an Excel file format.
Don't show again
Save As...
new custc Norman 32
new custc Norman 14
new custc Norman 15
new custc Norman 16
new custc Norman 17
dbo.customer_1 - Azure Data Studio
cname address
customer 3 Norman
customer 4 Norman
customer 6 Norman
new customer 1 Norman
new customer 2 Norman
new customer 3 Norman
new customer 4 Norman
new customer 5 Norman
woker3 Norman
worker2 Norman
worker3 Norman
NULL NULL
Java - IndividuDBProject/src/FutureCompany.java - Eclipse
CallableStatement stmt = connection.prepareCall("{call QUERY3(?,?,?)}");
CSVReader reader = null;
reader = new CSVReader(new FileReader(in));
String[] nxtLine;
int lineNum = 0;
try {
FutureCompany [Java Application] C:\Program Files\Java\jre1.8.0_191\bin\javaw.exe (Nov 19, 2018, 12:38:11 PM)
(20) Quit.
Please enter the number to the corresponding task you want to run.
18
Enter the input file:
D:\New folder\11.csv

	pid	cname
1	10	worker3
2	11	controller1
3	12	customer 4
4	13	controller3
5	14	new customer 2
6	15	new customer 3
7	16	new customer 4
8	17	new customer 5
9	18	customer 6
10	21	customer 2
11	22	customer 1
12	24	worker2
13	30	woker3
14	31	customer 3
15	32	new customer 1
16	33	customer 6
17	NULL	NULL

6.19SCRIPT FILE SHOWING THE TESTING OF QUERY19