Individual Project:

A Database System for Future Inc.

Database Management System

DSA - 4513

Fall 2016

Instructor: Dr. Le Gruenwald

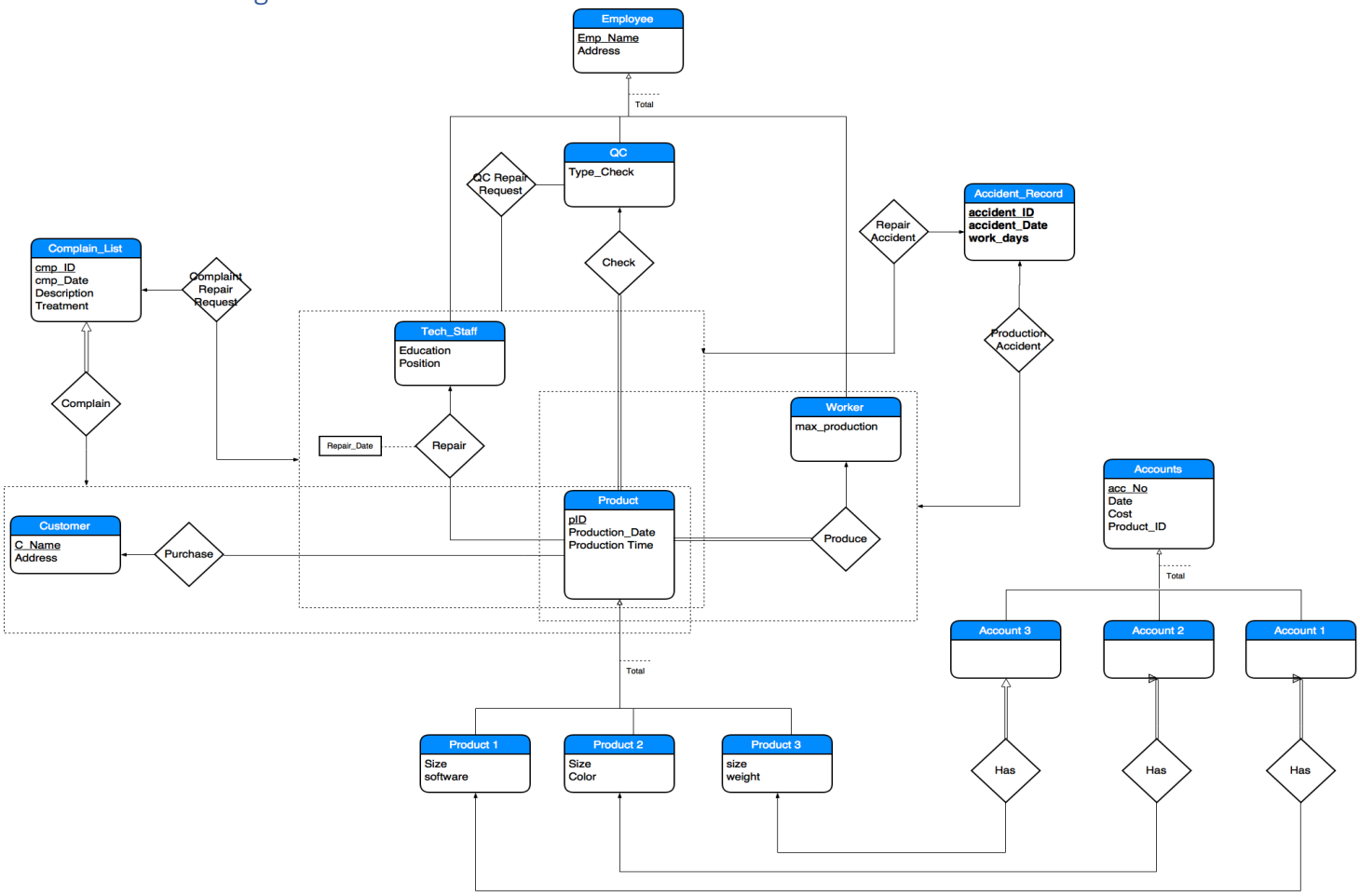
Author: Saeid Hosseinipoor

112995825

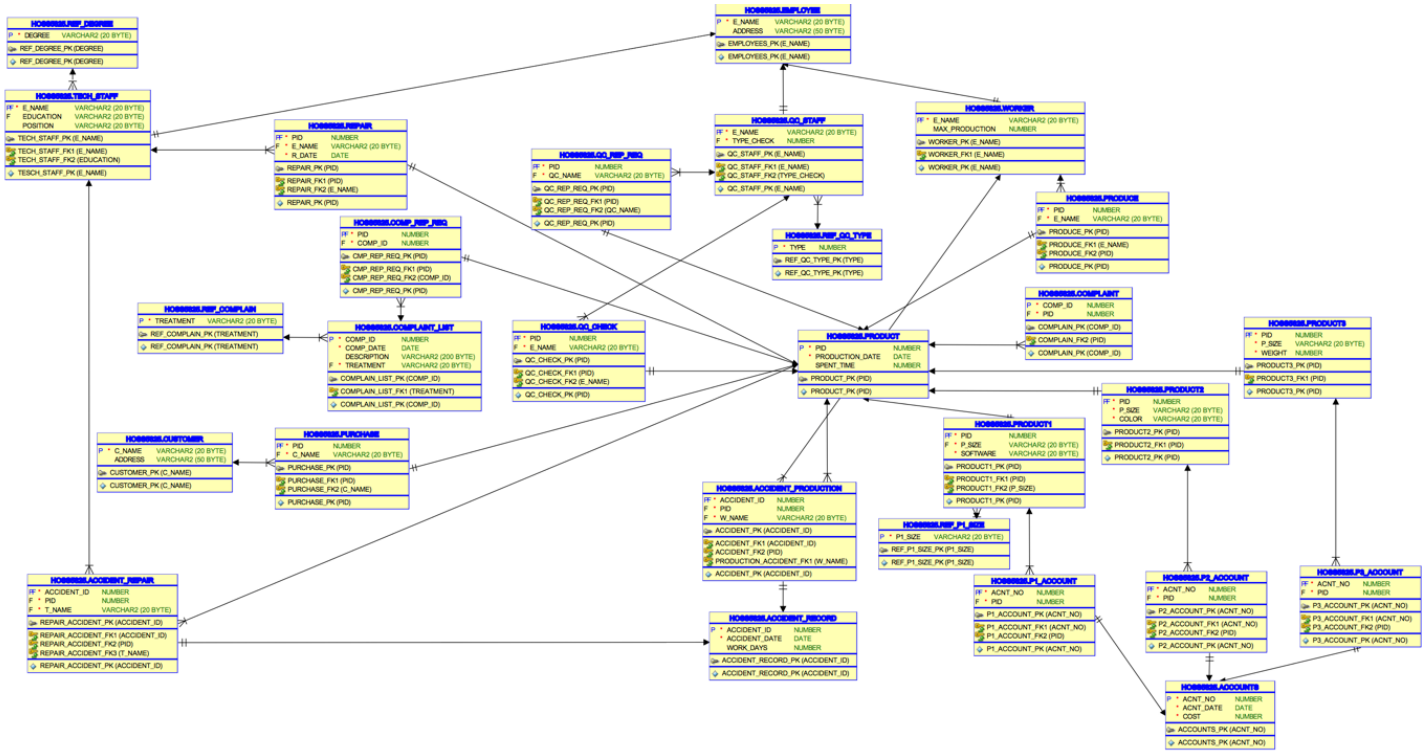
saied@ou.edu

Task 1. Diagrams

1.1. ER Diagram



1.2. Relational Schema



Task 2. Data Disctionary

All Tables Details

Design Name	Untitled_1
Version Date	18.11.2016 04:29:12
Version Comment	
Model Name	DSA-4513

Table Name	HOSS5825.ACCIDENT_RECORD
Functional Name	
Abbreviation	
Classification Type Name	
Object Type Name	

Number Of Columns	3
Number Of Rows Min.	0
Number Of Rows Max.	9999999
Expected Number Of Rows	0
Expected Growth	0
Growth Interval	Year

Used In Diagrams

Diagram Name
DSA_4513___SubView_1.pdf

Columns

No	Column Name	PK	FK	M	Data Type	DT kind	Domain Name	
1	ACCIDENT_NO	P		Y	NUMERIC	LT		
2	ACCIDENT_DATE				Date (7)	LT		
3	WORK_DAYS				NUMERIC	LT		

Indexes

Index Name	State	Functional	Spatial	Expression	
ACCIDENT_RECORD_PK	UN				
ACCIDENT_RECORD_PK	PK				

Table Name	HOSS5825.EMPLOYEES
Functional Name	
Abbreviation	
Classification Type Name	
Object Type Name	

Number Of Columns	2
Number Of Rows Min.	0
Number Of Rows Max.	9999999
Expected Number Of Rows	0
Expected Growth	0
Growth Interval	Year

Columns

No	Column Name	PK	FK	M	Data Type	DT kind	Domain Name	
1	NAME	P		Y	VARCHAR (20 BYTE)	LT		
2	ADDRESS				VARCHAR (50 BYTE)	LT		

Indexes

Index Name	State	Functional	Spatial	Expression	
EMPLOYEES_PK	UN				
EMPLOYEES_PK	PK				

Foreign Keys (referred from)

Name	Referred From	Mandatory	Transferable	
TECH_STAFF_FK1	TECH_STAFF	Y	Y	

Table Name	HOSS5825.PRODUCT
Functional Name	
Abbreviation	
Classification Type Name	
Object Type Name	

Number Of Columns	5
Number Of Rows Min.	0
Number Of Rows Max.	9999999
Expected Number Of Rows	0
Expected Growth	0
Growth Interval	Year

Columns

No	Column Name	PK	FK	M	Data Type	DT kind	Domain Name
1	PID	P		Y	NUMERIC	LT	
2	REPAIRER_NAME		F		VARCHAR (20 BYTE)	LT	
3	PRODUCTION_TIME				NUMERIC	LT	
4	PRODUCER_NAME				VARCHAR (20 BYTE)	LT	
5	QC_NAME				VARCHAR (20 BYTE)	LT	

Indexes

Index Name	State	Functional	Spatial	Expression
PRODUCT_PK	UN			
PRODUCT_PK	PK			

Foreign Keys (referring to)

Name	Refering To	Mandatory	Transferable	
PRODUCT_FK3	TECH_STAFF		Y	

Table Name	HOSS5825.REF_DEGREE
Functional Name	
Abbreviation	
Classification Type Name	
Object Type Name	

Number Of Columns	1
Number Of Rows Min.	0
Number Of Rows Max.	9999999
Expected Number Of Rows	0
Expected Growth	0
Growth Interval	Year

Columns

No	Column Name	PK	FK	M	Data Type	DT kind	Domain Name	
1	DEGREE	P		Y	VARCHAR (20 BYTE)	LT		

Indexes

Index Name	State	Functional	Spatial	Expression	
REF_DEGREE_PK	UN				
REF_DEGREE_PK	PK				

Foreign Keys (referred from)

Name	Referred From	Mandatory	Transferable	
TECH_STAFF_FK2	TECH_STAFF		Y	

Table Name	HOSS5825.TECH_STAFF
Functional Name	
Abbreviation	
Classification Type Name	
Object Type Name	

Number Of Columns	3
Number Of Rows Min.	0
Number Of Rows Max.	9999999
Expected Number Of Rows	0
Expected Growth	0
Growth Interval	Year

Columns

No	Column Name	PK	FK	M	Data Type	DT kind	Domain Name	
1	E_NAME	P	F	Y	VARCHAR (20 BYTE)	LT		
2	EDUCATION		F		VARCHAR (20 BYTE)	LT		
3	POSITION				VARCHAR (20 BYTE)	LT		

Indexes

Index Name	State	Functional	Spatial	Expression	
TESCH_STAFF_PK	UN				
TECH_STAFF_PK	PK				

Foreign Keys (referring to)

Name	Refering To	Mandatory	Transferable	
TECH_STAFF_FK1	EMPLOYEES	Y	Y	
TECH_STAFF_FK2	REF_DEGREE		Y	

Foreign Keys (referred from)

Name	Referred From	Mandatory	Transferable	
PRODUCT_FK3	PRODUCT		Y	

Task 3. Storage structure

1.3. Discussion of storage structures for tables

Table Name	Query No	Query Access	Key	Frequency	Storage Structure
Employee	1	Insert		2/month	Dynamic Hashing on E_NAME
	16	Random Search	E_Name	7 / 3 month	
Worker	1	Insert		2/month	Dynamic Hashing on E_NAME
	2	Random Search	E_Name	400/Day	
	13	Random Search	E_Name	10/month	
QC_Staff	1	Insert		2/month	Dynamic Hashing on E_NAME
	2	Random Search	E_Name	400/Day	
	16	Insert		1 / 3 month	
	16	Random Search	E_Name	2 / 3 month	
Tech_Staff	1	Insert		2/month	Dynamic Hashing on E_NAME
	2	Random Search	E_Name	400/Day	
	16	Insert		1 / 3 month	
	16	Random Search	E_Name	3 / 3 month	
Product	2	Insert		400/Day	Dynamic Hashing on PID and B+ Tree on Production Date and Dynamic Hashing on Spent Time
	3	Random Search	PID	50/Day	
	4	Random Search	PID	40/Day	
	6	Random Search	PID	1/week	
	7	Random Search	PID	100/Day	
	7	Random Search	Production Date	100/Day	

	7	Random Search	Spent Time	100/Day	
	8	Random Search	PID	2000/Day	
	9	Random Search	PID	400/Day	
	15	Range Search	Production Date	5/Day	
Produce	2	Insert		400/Day	Dynamic Hashing on PID and E_NAME
	6	Random Search	E_NAME	1/week	
	8	Random Search	PID	2000/Day	
	8	Random Search	E_NAME	2000/Day	
	14	Random Search	PID	5/Day	
	14	Random Search	E_NAME	5/Day	
QC_Check	2	Insert		400/Day	Dynamic Hashing on PID and E_NAME
	9	Random Search	PID	400/Day	
	9	Random Search	E_Name	400/Day	
	14	Random Search	PID	5/Day	
	14	Random Search	E_NAME	5/Day	
	16	Random Search	E_Name	1 / 3 month	
Repair	2	Insert		400/Day	Dynamic Hashing on PID and E_NAME
	6	Random Search	PID	1/week	

	14	Random Search	PID	5/Day	
	14	Random Search	E_NAME	5/Day	
	16	Random Search	E_Name	1 / 3 month	
Product1	2	Insert		400/Day	Dynamic Hashing on PID
	4	Random Search	PID	40/Day	
	15	Random Search	PID	5/Day	
Product2	2	Insert		400/Day	Dynamic Hashing on PID and Color
	4	Random Search	PID	40/Day	
	11	Random Search	PID	5/month	
	11	Random Search	Color	5/month	
	15	Random Search	PID	5/Day	
Product3	2	Insert		400/Day	Dynamic Hashing on PID
	4	Random Search	PID	40/Day	
	15	Random Search	PID	5/Day	
Customer	3	Random Search	C_Name	50/Day	Dynamic Hashing on C_NAME
	3	Insert		50/Day	
	5	Random Search	C_Name	30/Day	
	13	Random Search	C_Name	10/month	
Purchase	3	Insert		50/Day	Dynamic Hashing
	5	Random Search	PID	30/Day	

	11	Random Search	PID	5/month	on PID and C_NAME
	14	Random Search	PID	15/Day	
	14	Random Search	C_Name	15/Day	
Accounts	4	Random Search	Account No	40/Day	Dynamic Hashing on Account No
	4	Insert		40/Day	
	10	Random Search	Account No	40/Day	
P1_Account	4	Insert		40/Day	Heap File on Account No
P2_Account	4	Insert		40/Day	Heap File on Account No
P3_Account	4	Insert		40/Day	Dynamic Hashing on PID and Account No
	10	Random Search	Account No	40/Day	
	10	Random Search	PID	40/Day	
Complaint_List	5	Random Search	Comp_ID	30/Day	Dynamic Hashing on Comp ID
	5	Insert		30/Day	
Complaint	5	Insert		30/Day	Dynamic Hashing on PID
	9	Random Search	PID	400/Day	
Accident Record	6	Random Search	Accident ID	1/week	Dynamic Hashing on Accident ID and B+ Tree on
	6	Insert		1/week	
	12	Random Search	Accident ID	1/month	

	17	Range Search	Accident Date	3 / Day	Accident Date
	17	Random Search	Accident ID	1 / Day	
Accident Repair	6	Insert		1/week	Dynamic Hashing on Accident ID and E_Name and PID
	12	Random Search	PID	1/month	
	12	Random Search	Accident ID	1/month	
	16	Random Search	E_Name	1 / 3 month	
	17	Random Search	Accident ID	1 / Day	
Accident Production	6	Insert		1/week	Dynamic Hashing on Accident ID
	17	Random Search	Accident ID	1 / Day	
QC_Rep_Req	10	Random Search	QC_Name	40/Day	Dynamic Hashing on QC_NAME
	16	Random Search	QC_Name	1 / 3 month	
Comp_Rep_Req	12	Random Search	PID	1/month	Dynamic Hashing on PID

1.4. Discussion of storage structures for tables (Oracle 12c)

There is no control on storage structure on our Oracle account because it is restricted by administer of database.

Most of the indices are based on the primary key of the tables which are created by Oracle by default. The following indices were created in the database based on the table from previous section.

Table	Index
Accident_Record	Accident_Date
Accident_Repair	E_Name
Accident_Repair	PID

Product	Production_Date
Produce	E_Name
QC_Check	E_Name
Repair	E_Name
Product2	Color
Purchase	C_Name
P3_Account	PID

Task 4. SQL and text files showing the creation of tables in Oracle 12c

```
--------------------------------------------------------
--  DDL for Table ACCIDENT_PRODUCTION
--------------------------------------------------------

  CREATE TABLE "HOSS5825"."ACCIDENT_PRODUCTION"
   ("ACCIDENT_ID" NUMBER,
    "PID" NUMBER,
    "W_NAME" VARCHAR2(20 BYTE)
   ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table ACCIDENT_RECORD
--------------------------------------------------------

  CREATE TABLE "HOSS5825"."ACCIDENT_RECORD"
   ("ACCIDENT_ID" NUMBER,
```

```
  "ACCIDENT_DATE" DATE,
  "WORK_DAYS" NUMBER
 ) SEGMENT CREATION IMMEDIATE
 PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
 STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
 PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
 BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
 TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table ACCIDENT_REPAIR
--------------------------------------------------------

  CREATE TABLE "HOSS5825"."ACCIDENT_REPAIR"
   ("ACCIDENT_ID" NUMBER,
    "PID" NUMBER,
    "T_NAME" VARCHAR2(20 BYTE)
   ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table ACCOUNTS
--------------------------------------------------------

  CREATE TABLE "HOSS5825"."ACCOUNTS"
   ("ACNT_NO" NUMBER,
```

```
  "ACNT_DATE" DATE,
  "COST" NUMBER
 ) SEGMENT CREATION IMMEDIATE
 PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
NOCOMPRESS LOGGING
 STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
 PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
 BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
 TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table COMP_REP_REQ
--------------------------------------------------------

  CREATE TABLE "HOSS5825"."COMP_REP_REQ"
   ("PID" NUMBER,
    "COMP_ID" NUMBER
   ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table COMPLAINT
--------------------------------------------------------

  CREATE TABLE "HOSS5825"."COMPLAINT"
   ("COMP_ID" NUMBER,
    "PID" NUMBER
```

```
 ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table COMPLAINT_LIST
--------------------------------------------------------


  CREATE TABLE "HOSS5825"."COMPLAINT_LIST"
   ("COMP_ID" NUMBER,
    "COMP_DATE" DATE,
    "DESCRIPTION" VARCHAR2(200 BYTE),
    "TREATMENT" VARCHAR2(20 BYTE)
   ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table CUSTOMER
--------------------------------------------------------


  CREATE TABLE "HOSS5825"."CUSTOMER"
   ("C_NAME" VARCHAR2(20 BYTE),
    "ADDRESS" VARCHAR2(50 BYTE)
```

```
  ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table EMPLOYEE
--------------------------------------------------------


  CREATE TABLE "HOSS5825"."EMPLOYEE"
   ("E_NAME" VARCHAR2(20 BYTE),
    "ADDRESS" VARCHAR2(50 BYTE)
  ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table P1_ACCOUNT
--------------------------------------------------------


  CREATE TABLE "HOSS5825"."P1_ACCOUNT"
   ("ACNT_NO" NUMBER,
    "PID" NUMBER
  ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
```

```
  NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table P2_ACCOUNT
--------------------------------------------------------

  CREATE TABLE "HOSS5825"."P2_ACCOUNT"
   ("ACNT_NO" NUMBER,
    "PID" NUMBER
   ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
  NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table P3_ACCOUNT
--------------------------------------------------------

  CREATE TABLE "HOSS5825"."P3_ACCOUNT"
   ("ACNT_NO" NUMBER,
    "PID" NUMBER
   ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
  NOCOMPRESS LOGGING
```

```
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Table PRODUCE
  --------------------------------------------------------

    CREATE TABLE "HOSS5825"."PRODUCE"
     ("PID" NUMBER,
      "E_NAME" VARCHAR2(20 BYTE)
     ) SEGMENT CREATION IMMEDIATE
    PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
   NOCOMPRESS LOGGING
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Table PRODUCT
  --------------------------------------------------------

    CREATE TABLE "HOSS5825"."PRODUCT"
     ("PID" NUMBER,
      "PRODUCTION_DATE" DATE,
      "SPENT_TIME" NUMBER
     ) SEGMENT CREATION IMMEDIATE
    PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
   NOCOMPRESS LOGGING
```

```
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Table PRODUCT1
  --------------------------------------------------------

    CREATE TABLE "HOSS5825"."PRODUCT1"
     ("PID" NUMBER,
      "P_SIZE" VARCHAR2(20 BYTE),
      "SOFTWARE" VARCHAR2(20 BYTE)
     ) SEGMENT CREATION IMMEDIATE
    PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
   NOCOMPRESS LOGGING
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Table PRODUCT2
  --------------------------------------------------------

    CREATE TABLE "HOSS5825"."PRODUCT2"
     ("PID" NUMBER,
      "P_SIZE" VARCHAR2(20 BYTE),
      "COLOR" VARCHAR2(20 BYTE)
     ) SEGMENT CREATION IMMEDIATE
    PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
   NOCOMPRESS LOGGING
```

```
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Table PRODUCT3
  --------------------------------------------------------

    CREATE TABLE "HOSS5825"."PRODUCT3"
     ("PID" NUMBER,
      "P_SIZE" VARCHAR2(20 BYTE),
      "WEIGHT" NUMBER
     ) SEGMENT CREATION IMMEDIATE
    PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
   NOCOMPRESS LOGGING
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Table PURCHASE
  --------------------------------------------------------

    CREATE TABLE "HOSS5825"."PURCHASE"
     ("PID" NUMBER,
      "C_NAME" VARCHAR2(20 BYTE)
     ) SEGMENT CREATION IMMEDIATE
    PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
   NOCOMPRESS LOGGING
```

```
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table QC_CHECK
--------------------------------------------------------

  CREATE TABLE "HOSS5825"."QC_CHECK"
   ("PID" NUMBER,
    "E_NAME" VARCHAR2(20 BYTE)
   ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table QC_REP_REQ
--------------------------------------------------------

  CREATE TABLE "HOSS5825"."QC_REP_REQ"
   ("PID" NUMBER,
    "QC_NAME" VARCHAR2(20 BYTE)
   ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
```

```
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table QC_STAFF
--------------------------------------------------------

  CREATE TABLE "HOSS5825"."QC_STAFF"
   ("E_NAME" VARCHAR2(20 BYTE),
    "TYPE_CHECK" NUMBER
   ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table REF_COMPLAIN
--------------------------------------------------------

  CREATE TABLE "HOSS5825"."REF_COMPLAIN"
   ("TREATMENT" VARCHAR2(20 BYTE)
   ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
```

```
  TABLESPACE "HOSS5825" ;
-----------------------------------------------------
--  DDL for Table REF_DEGREE
-----------------------------------------------------

  CREATE TABLE "HOSS5825"."REF_DEGREE"
   ("DEGREE" VARCHAR2(20 BYTE)
   ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
  TABLESPACE "HOSS5825" ;
-----------------------------------------------------
--  DDL for Table REF_P1_SIZE
-----------------------------------------------------

  CREATE TABLE "HOSS5825"."REF_P1_SIZE"
   ("P1_SIZE" VARCHAR2(20 BYTE)
   ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
  TABLESPACE "HOSS5825" ;
-----------------------------------------------------
--  DDL for Table REF_QC_TYPE
-----------------------------------------------------
```

```
  CREATE TABLE "HOSS5825"."REF_QC_TYPE"
   ("TYPE" NUMBER
   ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table REPAIR
--------------------------------------------------------

  CREATE TABLE "HOSS5825"."REPAIR"
   ("PID" NUMBER,
    "E_NAME" VARCHAR2(20 BYTE),
    "R_DATE" DATE
   ) SEGMENT CREATION IMMEDIATE
  PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
 NOCOMPRESS LOGGING
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Table TECH_STAFF
--------------------------------------------------------

  CREATE TABLE "HOSS5825"."TECH_STAFF"
```

("E_NAME" VARCHAR2(20 BYTE),

"EDUCATION" VARCHAR2(20 BYTE),

"POSITION" VARCHAR2(20 BYTE)

) SEGMENT CREATION IMMEDIATE

PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255

NOCOMPRESS LOGGING

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825" ;

-- DDL for Table WORKER

CREATE TABLE "HOSS5825"."WORKER"

("E_NAME" VARCHAR2(20 BYTE),

"MAX_PRODUCTION" NUMBER

) SEGMENT CREATION IMMEDIATE

PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255

NOCOMPRESS LOGGING

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825" ;

-- DDL for Index ACCIDENT_PK

```
CREATE UNIQUE INDEX "HOSS5825"."ACCIDENT_PK" ON
"HOSS5825"."ACCIDENT_PRODUCTION" ("ACCIDENT_ID")
PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
TABLESPACE "HOSS5825" ;
--------------------------------------------------------
-- DDL for Index ACC_DATE
--------------------------------------------------------

CREATE INDEX "HOSS5825"."ACC_DATE" ON
"HOSS5825"."ACCIDENT_RECORD" ("ACCIDENT_DATE")
PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
TABLESPACE "HOSS5825" ;
--------------------------------------------------------
-- DDL for Index ACCIDENT_RECORD_PK
--------------------------------------------------------

CREATE UNIQUE INDEX "HOSS5825"."ACCIDENT_RECORD_PK" ON
"HOSS5825"."ACCIDENT_RECORD" ("ACCIDENT_ID")
PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
TABLESPACE "HOSS5825" ;
```

```
--------------------------------------------------------
--  DDL for Index ACC_REP_NAME
--------------------------------------------------------

  CREATE INDEX "HOSS5825"."ACC_REP_NAME" ON "HOSS5825"."ACCIDENT_REPAIR" ("T_NAME")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Index ACC_REP_PID
--------------------------------------------------------

  CREATE INDEX "HOSS5825"."ACC_REP_PID" ON "HOSS5825"."ACCIDENT_REPAIR" ("PID")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Index REPAIR_ACCIDENT_PK
--------------------------------------------------------

  CREATE UNIQUE INDEX "HOSS5825"."REPAIR_ACCIDENT_PK" ON "HOSS5825"."ACCIDENT_REPAIR" ("ACCIDENT_ID")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
```

```
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Index ACCOUNTS_PK
--------------------------------------------------------

    CREATE UNIQUE INDEX "HOSS5825"."ACCOUNTS_PK" ON "HOSS5825"."ACCOUNTS" ("ACNT_NO")
    PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Index CMP_REP_REQ_PK
--------------------------------------------------------

    CREATE UNIQUE INDEX "HOSS5825"."CMP_REP_REQ_PK" ON "HOSS5825"."COMP_REP_REQ" ("PID")
    PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Index COMPLAIN_PK
--------------------------------------------------------
```

```
CREATE UNIQUE INDEX "HOSS5825"."COMPLAIN_PK" ON
"HOSS5825"."COMPLAINT" ("COMP_ID")
PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
TABLESPACE "HOSS5825" ;
--------------------------------------------------------
-- DDL for Index COMPLAIN_LIST_PK
--------------------------------------------------------

CREATE UNIQUE INDEX "HOSS5825"."COMPLAIN_LIST_PK" ON
"HOSS5825"."COMPLAINT_LIST" ("COMP_ID")
PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
TABLESPACE "HOSS5825" ;
--------------------------------------------------------
-- DDL for Index CUSTOMER_PK
--------------------------------------------------------

CREATE UNIQUE INDEX "HOSS5825"."CUSTOMER_PK" ON
"HOSS5825"."CUSTOMER" ("C_NAME")
PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
TABLESPACE "HOSS5825" ;
```

```
--------------------------------------------------------
--  DDL for Index EMPLOYEES_PK
--------------------------------------------------------

  CREATE UNIQUE INDEX "HOSS5825"."EMPLOYEES_PK" ON "HOSS5825"."EMPLOYEE" ("E_NAME")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Index P1_ACCOUNT_PK
--------------------------------------------------------

  CREATE UNIQUE INDEX "HOSS5825"."P1_ACCOUNT_PK" ON "HOSS5825"."P1_ACCOUNT" ("ACNT_NO")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Index P2_ACCOUNT_PK
--------------------------------------------------------

  CREATE UNIQUE INDEX "HOSS5825"."P2_ACCOUNT_PK" ON "HOSS5825"."P2_ACCOUNT" ("ACNT_NO")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
```

```
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Index P3_ACCOUNT_PID
  --------------------------------------------------------

  CREATE INDEX "HOSS5825"."P3_ACCOUNT_PID" ON "HOSS5825"."P3_ACCOUNT" ("PID")
    PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Index P3_ACCOUNT_PK
  --------------------------------------------------------

  CREATE UNIQUE INDEX "HOSS5825"."P3_ACCOUNT_PK" ON "HOSS5825"."P3_ACCOUNT" ("ACNT_NO")
    PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Index PRODUCE__NAME
  --------------------------------------------------------
```

```
    CREATE INDEX "HOSS5825"."PRODUCE__NAME" ON "HOSS5825"."PRODUCE" ("E_NAME")
    PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Index PRODUCE_PK
  --------------------------------------------------------

    CREATE UNIQUE INDEX "HOSS5825"."PRODUCE_PK" ON "HOSS5825"."PRODUCE" ("PID")
    PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Index PRODUCT_TIME
  --------------------------------------------------------

    CREATE INDEX "HOSS5825"."PRODUCT_TIME" ON "HOSS5825"."PRODUCT" ("SPENT_TIME")
    PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825" ;
```

```
--------------------------------------------------------
--  DDL for Index PRODUCT_DATE
--------------------------------------------------------

  CREATE INDEX "HOSS5825"."PRODUCT_DATE" ON "HOSS5825"."PRODUCT"
("PRODUCTION_DATE")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Index PRODUCT_PK
--------------------------------------------------------

  CREATE UNIQUE INDEX "HOSS5825"."PRODUCT_PK" ON
"HOSS5825"."PRODUCT" ("PID")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Index PRODUCT1_PK
--------------------------------------------------------

  CREATE UNIQUE INDEX "HOSS5825"."PRODUCT1_PK" ON
"HOSS5825"."PRODUCT1" ("PID")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
```

```
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Index PRODUCT2_COLOR
  --------------------------------------------------------

  CREATE INDEX "HOSS5825"."PRODUCT2_COLOR" ON "HOSS5825"."PRODUCT2" ("COLOR")
    PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Index PRODUCT2_PK
  --------------------------------------------------------

  CREATE UNIQUE INDEX "HOSS5825"."PRODUCT2_PK" ON "HOSS5825"."PRODUCT2" ("PID")
    PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Index PRODUCT3_PK
  --------------------------------------------------------
```

```
CREATE UNIQUE INDEX "HOSS5825"."PRODUCT3_PK" ON
"HOSS5825"."PRODUCT3" ("PID")
PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
TABLESPACE "HOSS5825" ;
--------------------------------------------------------
-- DDL for Index PURCHASE_NAME
--------------------------------------------------------

CREATE INDEX "HOSS5825"."PURCHASE_NAME" ON
"HOSS5825"."PURCHASE" ("C_NAME")
PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
TABLESPACE "HOSS5825" ;
--------------------------------------------------------
-- DDL for Index PURCHASE_PK
--------------------------------------------------------

CREATE UNIQUE INDEX "HOSS5825"."PURCHASE_PK" ON
"HOSS5825"."PURCHASE" ("PID")
PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
TABLESPACE "HOSS5825" ;
```

```
--------------------------------------------------------
--  DDL for Index QC_CHECK__NAME
--------------------------------------------------------

  CREATE INDEX "HOSS5825"."QC_CHECK__NAME" ON "HOSS5825"."QC_CHECK" ("E_NAME")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Index QC_CHECK_PK
--------------------------------------------------------

  CREATE UNIQUE INDEX "HOSS5825"."QC_CHECK_PK" ON "HOSS5825"."QC_CHECK" ("PID")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Index QC_REP_REQ_PK
--------------------------------------------------------

  CREATE UNIQUE INDEX "HOSS5825"."QC_REP_REQ_PK" ON "HOSS5825"."QC_REP_REQ" ("PID")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
```

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825" ;

-- DDL for Index QC_STAFF_PK

CREATE UNIQUE INDEX "HOSS5825"."QC_STAFF_PK" ON "HOSS5825"."QC_STAFF" ("E_NAME")

PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825" ;

-- DDL for Index REF_COMPLAIN_PK

CREATE UNIQUE INDEX "HOSS5825"."REF_COMPLAIN_PK" ON "HOSS5825"."REF_COMPLAIN" ("TREATMENT")

PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825" ;

-- DDL for Index REF_DEGREE_PK

```
    CREATE UNIQUE INDEX "HOSS5825"."REF_DEGREE_PK" ON
"HOSS5825"."REF_DEGREE" ("DEGREE")
    PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Index REF_P1_SIZE_PK
  --------------------------------------------------------

    CREATE UNIQUE INDEX "HOSS5825"."REF_P1_SIZE_PK" ON
"HOSS5825"."REF_P1_SIZE" ("P1_SIZE")
    PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825" ;
  --------------------------------------------------------
  --  DDL for Index REF_QC_TYPE_PK
  --------------------------------------------------------

    CREATE UNIQUE INDEX "HOSS5825"."REF_QC_TYPE_PK" ON
"HOSS5825"."REF_QC_TYPE" ("TYPE")
    PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825" ;
```

```
--------------------------------------------------------
--  DDL for Index REPAIR__NAME
--------------------------------------------------------

  CREATE INDEX "HOSS5825"."REPAIR__NAME" ON "HOSS5825"."REPAIR"
("E_NAME")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Index REPAIR_PK
--------------------------------------------------------

  CREATE UNIQUE INDEX "HOSS5825"."REPAIR_PK" ON "HOSS5825"."REPAIR"
("PID")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
  TABLESPACE "HOSS5825" ;
--------------------------------------------------------
--  DDL for Index TESCH_STAFF_PK
--------------------------------------------------------

  CREATE UNIQUE INDEX "HOSS5825"."TESCH_STAFF_PK" ON
"HOSS5825"."TECH_STAFF" ("E_NAME")
  PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
```

```
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825" ;
    --------------------------------------------------------
    --  DDL for Index WORKER_PK
    --------------------------------------------------------


    CREATE UNIQUE INDEX "HOSS5825"."WORKER_PK" ON "HOSS5825"."WORKER" ("E_NAME")
    PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825" ;
    --------------------------------------------------------
    --  Constraints for Table ACCIDENT_PRODUCTION
    --------------------------------------------------------


    ALTER TABLE "HOSS5825"."ACCIDENT_PRODUCTION" ADD CONSTRAINT "ACCIDENT_PK" PRIMARY KEY ("ACCIDENT_ID")
    USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
    TABLESPACE "HOSS5825"  ENABLE;
    ALTER TABLE "HOSS5825"."ACCIDENT_PRODUCTION" MODIFY ("ACCIDENT_ID" NOT NULL ENABLE);
    ALTER TABLE "HOSS5825"."ACCIDENT_PRODUCTION" MODIFY ("PID" NOT NULL ENABLE);
```

```
ALTER TABLE "HOSS5825"."ACCIDENT_PRODUCTION" MODIFY ("W_NAME" NOT NULL ENABLE);

--------------------------------------------------------

-- Constraints for Table ACCIDENT_RECORD

--------------------------------------------------------


ALTER TABLE "HOSS5825"."ACCIDENT_RECORD" ADD CONSTRAINT "ACCIDENT_RECORD_PK" PRIMARY KEY ("ACCIDENT_ID")

USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825"  ENABLE;

ALTER TABLE "HOSS5825"."ACCIDENT_RECORD" MODIFY ("ACCIDENT_ID" NOT NULL ENABLE);

ALTER TABLE "HOSS5825"."ACCIDENT_RECORD" MODIFY ("ACCIDENT_DATE" NOT NULL ENABLE);

--------------------------------------------------------

-- Constraints for Table ACCIDENT_REPAIR

--------------------------------------------------------


ALTER TABLE "HOSS5825"."ACCIDENT_REPAIR" ADD CONSTRAINT "REPAIR_ACCIDENT_PK" PRIMARY KEY ("ACCIDENT_ID")

USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825"  ENABLE;

ALTER TABLE "HOSS5825"."ACCIDENT_REPAIR" MODIFY ("ACCIDENT_ID" NOT NULL ENABLE);
```

ALTER TABLE "HOSS5825"."ACCIDENT_REPAIR" MODIFY ("PID" NOT NULL ENABLE);

ALTER TABLE "HOSS5825"."ACCIDENT_REPAIR" MODIFY ("T_NAME" NOT NULL ENABLE);

-- Constraints for Table ACCOUNTS

ALTER TABLE "HOSS5825"."ACCOUNTS" ADD CONSTRAINT "ACCOUNTS_PK" PRIMARY KEY ("ACNT_NO")

USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825" ENABLE;

ALTER TABLE "HOSS5825"."ACCOUNTS" MODIFY ("ACNT_NO" NOT NULL ENABLE);

ALTER TABLE "HOSS5825"."ACCOUNTS" MODIFY ("ACNT_DATE" NOT NULL ENABLE);

ALTER TABLE "HOSS5825"."ACCOUNTS" MODIFY ("COST" NOT NULL ENABLE);

-- Constraints for Table COMP_REP_REQ

ALTER TABLE "HOSS5825"."COMP_REP_REQ" ADD CONSTRAINT "CMP_REP_REQ_PK" PRIMARY KEY ("PID")

USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825" ENABLE;

ALTER TABLE "HOSS5825"."COMP_REP_REQ" MODIFY ("PID" NOT NULL ENABLE);

ALTER TABLE "HOSS5825"."COMP_REP_REQ" MODIFY ("COMP_ID" NOT NULL ENABLE);

-- Constraints for Table COMPLAINT

ALTER TABLE "HOSS5825"."COMPLAINT" ADD CONSTRAINT "COMPLAIN_PK" PRIMARY KEY ("COMP_ID")

USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825" ENABLE;

ALTER TABLE "HOSS5825"."COMPLAINT" MODIFY ("COMP_ID" NOT NULL ENABLE);

ALTER TABLE "HOSS5825"."COMPLAINT" MODIFY ("PID" NOT NULL ENABLE);

-- Constraints for Table COMPLAINT_LIST

ALTER TABLE "HOSS5825"."COMPLAINT_LIST" ADD CONSTRAINT "COMPLAIN_LIST_PK" PRIMARY KEY ("COMP_ID")

USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

```
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825"  ENABLE;
    ALTER TABLE "HOSS5825"."COMPLAINT_LIST" MODIFY ("COMP_ID" NOT
NULL ENABLE);
    ALTER TABLE "HOSS5825"."COMPLAINT_LIST" MODIFY ("COMP_DATE" NOT
NULL ENABLE);
    ALTER TABLE "HOSS5825"."COMPLAINT_LIST" MODIFY ("TREATMENT" NOT
NULL ENABLE);
    --------------------------------------------------------
    --  Constraints for Table CUSTOMER
    --------------------------------------------------------


    ALTER TABLE "HOSS5825"."CUSTOMER" ADD CONSTRAINT
"CUSTOMER_PK" PRIMARY KEY ("C_NAME")
    USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE
STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825"  ENABLE;
    ALTER TABLE "HOSS5825"."CUSTOMER" MODIFY ("C_NAME" NOT NULL
ENABLE);
    --------------------------------------------------------
    --  Constraints for Table EMPLOYEE
    --------------------------------------------------------


    ALTER TABLE "HOSS5825"."EMPLOYEE" ADD CONSTRAINT
"EMPLOYEES_PK" PRIMARY KEY ("E_NAME")
    USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE
STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
```

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825" ENABLE;

ALTER TABLE "HOSS5825"."EMPLOYEE" MODIFY ("E_NAME" NOT NULL ENABLE);

-- Constraints for Table P1_ACCOUNT

ALTER TABLE "HOSS5825"."P1_ACCOUNT" ADD CONSTRAINT "P1_ACCOUNT_PK" PRIMARY KEY ("ACNT_NO")

USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825" ENABLE;

ALTER TABLE "HOSS5825"."P1_ACCOUNT" MODIFY ("ACNT_NO" NOT NULL ENABLE);

ALTER TABLE "HOSS5825"."P1_ACCOUNT" MODIFY ("PID" NOT NULL ENABLE);

-- Constraints for Table P2_ACCOUNT

ALTER TABLE "HOSS5825"."P2_ACCOUNT" ADD CONSTRAINT "P2_ACCOUNT_PK" PRIMARY KEY ("ACNT_NO")

USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

```
    TABLESPACE "HOSS5825"  ENABLE;
    ALTER TABLE "HOSS5825"."P2_ACCOUNT" MODIFY ("ACNT_NO" NOT NULL
ENABLE);
    ALTER TABLE "HOSS5825"."P2_ACCOUNT" MODIFY ("PID" NOT NULL
ENABLE);
    --------------------------------------------------------
    --  Constraints for Table P3_ACCOUNT
    --------------------------------------------------------


    ALTER TABLE "HOSS5825"."P3_ACCOUNT" ADD CONSTRAINT
"P3_ACCOUNT_PK" PRIMARY KEY ("ACNT_NO")
    USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE
STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825"  ENABLE;
    ALTER TABLE "HOSS5825"."P3_ACCOUNT" MODIFY ("ACNT_NO" NOT NULL
ENABLE);
    ALTER TABLE "HOSS5825"."P3_ACCOUNT" MODIFY ("PID" NOT NULL
ENABLE);
    --------------------------------------------------------
    --  Constraints for Table PRODUCE
    --------------------------------------------------------


    ALTER TABLE "HOSS5825"."PRODUCE" ADD CONSTRAINT "PRODUCE_PK"
PRIMARY KEY ("PID")
    USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE
STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
```

```
    TABLESPACE "HOSS5825"  ENABLE;
    ALTER TABLE "HOSS5825"."PRODUCE" MODIFY ("PID" NOT NULL ENABLE);
    ALTER TABLE "HOSS5825"."PRODUCE" MODIFY ("E_NAME" NOT NULL
ENABLE);
    --------------------------------------------------------
    --  Constraints for Table PRODUCT
    --------------------------------------------------------


    ALTER TABLE "HOSS5825"."PRODUCT" ADD CONSTRAINT "PRODUCT_PK"
PRIMARY KEY ("PID")
    USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE
STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825"  ENABLE;
    ALTER TABLE "HOSS5825"."PRODUCT" MODIFY ("PID" NOT NULL ENABLE);
    ALTER TABLE "HOSS5825"."PRODUCT" MODIFY ("PRODUCTION_DATE" NOT
NULL ENABLE);
    --------------------------------------------------------
    --  Constraints for Table PRODUCT1
    --------------------------------------------------------


    ALTER TABLE "HOSS5825"."PRODUCT1" ADD CONSTRAINT "PRODUCT1_PK"
PRIMARY KEY ("PID")
    USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE
STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825"  ENABLE;
    ALTER TABLE "HOSS5825"."PRODUCT1" MODIFY ("PID" NOT NULL ENABLE);
```

ALTER TABLE "HOSS5825"."PRODUCT1" MODIFY ("P_SIZE" NOT NULL ENABLE);

ALTER TABLE "HOSS5825"."PRODUCT1" MODIFY ("SOFTWARE" NOT NULL ENABLE);

-- Constraints for Table PRODUCT2

ALTER TABLE "HOSS5825"."PRODUCT2" ADD CONSTRAINT "PRODUCT2_PK" PRIMARY KEY ("PID")

USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825" ENABLE;

ALTER TABLE "HOSS5825"."PRODUCT2" MODIFY ("PID" NOT NULL ENABLE);

ALTER TABLE "HOSS5825"."PRODUCT2" MODIFY ("P_SIZE" NOT NULL ENABLE);

ALTER TABLE "HOSS5825"."PRODUCT2" MODIFY ("COLOR" NOT NULL ENABLE);

-- Constraints for Table PRODUCT3

ALTER TABLE "HOSS5825"."PRODUCT3" ADD CONSTRAINT "PRODUCT3_PK" PRIMARY KEY ("PID")

USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

```
    TABLESPACE "HOSS5825"  ENABLE;
    ALTER TABLE "HOSS5825"."PRODUCT3" MODIFY ("PID" NOT NULL ENABLE);
    ALTER TABLE "HOSS5825"."PRODUCT3" MODIFY ("P_SIZE" NOT NULL
ENABLE);
    ALTER TABLE "HOSS5825"."PRODUCT3" MODIFY ("WEIGHT" NOT NULL
ENABLE);
    --------------------------------------------------------
    --  Constraints for Table PURCHASE
    --------------------------------------------------------


    ALTER TABLE "HOSS5825"."PURCHASE" ADD CONSTRAINT "PURCHASE_PK"
PRIMARY KEY ("PID")
    USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE
STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825"  ENABLE;
    ALTER TABLE "HOSS5825"."PURCHASE" MODIFY ("PID" NOT NULL ENABLE);
    ALTER TABLE "HOSS5825"."PURCHASE" MODIFY ("C_NAME" NOT NULL
ENABLE);
    --------------------------------------------------------
    --  Constraints for Table QC_CHECK
    --------------------------------------------------------


    ALTER TABLE "HOSS5825"."QC_CHECK" ADD CONSTRAINT "QC_CHECK_PK"
PRIMARY KEY ("PID")
    USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE
STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
```

```
  TABLESPACE "HOSS5825"  ENABLE;
  ALTER TABLE "HOSS5825"."QC_CHECK" MODIFY ("PID" NOT NULL ENABLE);
  ALTER TABLE "HOSS5825"."QC_CHECK" MODIFY ("E_NAME" NOT NULL
ENABLE);
  --------------------------------------------------------
  --  Constraints for Table QC_REP_REQ
  --------------------------------------------------------

  ALTER TABLE "HOSS5825"."QC_REP_REQ" ADD CONSTRAINT
"QC_REP_REQ_PK" PRIMARY KEY ("PID")
  USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE
STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
  TABLESPACE "HOSS5825"  ENABLE;
  ALTER TABLE "HOSS5825"."QC_REP_REQ" MODIFY ("PID" NOT NULL
ENABLE);
  ALTER TABLE "HOSS5825"."QC_REP_REQ" MODIFY ("QC_NAME" NOT NULL
ENABLE);
  --------------------------------------------------------
  --  Constraints for Table QC_STAFF
  --------------------------------------------------------

  ALTER TABLE "HOSS5825"."QC_STAFF" ADD CONSTRAINT "QC_STAFF_PK"
PRIMARY KEY ("E_NAME")
  USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE
STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
  TABLESPACE "HOSS5825"  ENABLE;
```

```
ALTER TABLE "HOSS5825"."QC_STAFF" MODIFY ("E_NAME" NOT NULL ENABLE);
ALTER TABLE "HOSS5825"."QC_STAFF" MODIFY ("TYPE_CHECK" NOT NULL ENABLE);
--------------------------------------------------------
--  Constraints for Table REF_COMPLAIN
--------------------------------------------------------

ALTER TABLE "HOSS5825"."REF_COMPLAIN" ADD CONSTRAINT "REF_COMPLAIN_PK" PRIMARY KEY ("TREATMENT")
USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
TABLESPACE "HOSS5825"  ENABLE;
ALTER TABLE "HOSS5825"."REF_COMPLAIN" MODIFY ("TREATMENT" NOT NULL ENABLE);
--------------------------------------------------------
--  Constraints for Table REF_DEGREE
--------------------------------------------------------

ALTER TABLE "HOSS5825"."REF_DEGREE" ADD CONSTRAINT "REF_DEGREE_PK" PRIMARY KEY ("DEGREE")
USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
TABLESPACE "HOSS5825"  ENABLE;
ALTER TABLE "HOSS5825"."REF_DEGREE" MODIFY ("DEGREE" NOT NULL ENABLE);
```

```
--------------------------------------------------------

--  Constraints for Table REF_P1_SIZE

--------------------------------------------------------


  ALTER TABLE "HOSS5825"."REF_P1_SIZE" ADD CONSTRAINT "REF_P1_SIZE_PK" PRIMARY KEY ("P1_SIZE")

  USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

  TABLESPACE "HOSS5825"  ENABLE;

  ALTER TABLE "HOSS5825"."REF_P1_SIZE" MODIFY ("P1_SIZE" NOT NULL ENABLE);

--------------------------------------------------------

--  Constraints for Table REF_QC_TYPE

--------------------------------------------------------


  ALTER TABLE "HOSS5825"."REF_QC_TYPE" ADD CONSTRAINT "REF_QC_TYPE_PK" PRIMARY KEY ("TYPE")

  USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

  TABLESPACE "HOSS5825"  ENABLE;

  ALTER TABLE "HOSS5825"."REF_QC_TYPE" MODIFY ("TYPE" NOT NULL ENABLE);

--------------------------------------------------------

--  Constraints for Table REPAIR

--------------------------------------------------------
```

ALTER TABLE "HOSS5825"."REPAIR" ADD CONSTRAINT "REPAIR_PK" PRIMARY KEY ("PID")

USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825" ENABLE;

ALTER TABLE "HOSS5825"."REPAIR" MODIFY ("PID" NOT NULL ENABLE);

ALTER TABLE "HOSS5825"."REPAIR" MODIFY ("E_NAME" NOT NULL ENABLE);

ALTER TABLE "HOSS5825"."REPAIR" MODIFY ("R_DATE" NOT NULL ENABLE);

-- Constraints for Table TECH_STAFF

ALTER TABLE "HOSS5825"."TECH_STAFF" MODIFY ("E_NAME" NOT NULL ENABLE);

ALTER TABLE "HOSS5825"."TECH_STAFF" ADD CONSTRAINT "TECH_STAFF_PK" PRIMARY KEY ("E_NAME")

USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS

STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645

PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)

TABLESPACE "HOSS5825" ENABLE;

-- Constraints for Table WORKER

ALTER TABLE "HOSS5825"."WORKER" MODIFY ("E_NAME" NOT NULL ENABLE);

```
    ALTER TABLE "HOSS5825"."WORKER" ADD CONSTRAINT "WORKER_PK"
PRIMARY KEY ("E_NAME")
    USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE
STATISTICS
    STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
    PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
    BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE
DEFAULT)
    TABLESPACE "HOSS5825"  ENABLE;
```

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

```
    // This java application is provided for the individual project in DBMS course.
    // It shows a menu with 4 options. Two options ask for information to insert into a
database.
    // Third option shows all the available records. Forth option is exit program.

    // @author Saeid Hosseinipoor <saied@ou.edu>

    // imports required library
    import java.sql.*;
    import java.util.*;
    import com.opencsv.*;
    import java.io.*;


    // The main class
    public class idividualProject {

        // A method to establish a connection to our database containing user
information
        public static Connection dbConnect(){
```

```
                try {
                        // loads JDBC driver
                        Class.forName("oracle.jdbc.OracleDriver");
                }
                catch(Exception x){
                        System.out.println("Unable to load the driver class!");
                }

                Connection dbConnection = null;

                try {
                        // Login information to connect
                        dbConnection = DriverManager.getConnection

   ("jdbc:oracle:thin:@//oracle.cs.ou.edu:1521/pdborcl.cs.ou.edu",
                                                        "hoss5825","GLnn0Em9");
                        }

                catch(SQLException x ){
                        System.out.println("Couldn't get connection!");
                }
                // return the connection
                return dbConnection;
        }


//---------------------------------------- test ----------------------------------------

        // This is a test method using for debugging purposes.
        public void test(Connection dbConnection){
                Scanner scanFeilds = new Scanner(System.in);

                try {
```

```
            System.out.print("\nThis is test ");



                } catch (Exception e) {
                        System.out.println("Exception here ...");
                }
            }

    // ---------------------------------------- Option 1 ----------------------------------------

            // Enter a new employee
            public void option1(Connection dbConnection){
                Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user

                try {
                        int employeeType;

             System.out.println("\nChoose type of employee: ");
             System.out.println("1. Worker");
                        System.out.println("2. Quality Controller");
                        System.out.println("3. Technical Staff");
                        System.out.print("\nEnter your choice (1-3): ");
                        employeeType = Integer.parseInt(scanFeilds.nextLine());

                        Statement stmt = dbConnection.createStatement();
                        String eName = "";

                        if (employeeType <= 3 && employeeType >= 1) {
                                System.out.print("Enter the employee's name: ");
                    eName = scanFeilds.nextLine();
```

```
                    System.out.print("Enter the employee's address: ");
                    String eAddress = scanFeilds.nextLine();
                    stmt.executeQuery("INSERT INTO Employee(E_NAME, Address)
VALUES ('"
                    + eName + "', '" +  eAddress + "')");
                        }

                        switch (employeeType){
                case 1:
                    System.out.print("Enter the worker's maximum production per day:
");
                    int max_production = Integer.parseInt(scanFeilds.nextLine());
                    stmt.executeQuery("INSERT INTO Worker (E_NAME,
max_production) VALUES ('"
                                + eName + "', '" +  max_production + "')");
                    break;
                case 2:
                    System.out.print("Enter type of the products checked by this
employee. Enter 1, 2, or 3: ");
                    int Prod_Type = Integer.parseInt(scanFeilds.nextLine());
                    stmt.executeQuery("INSERT INTO QC_Staff (E_NAME,
Type_Check) VALUES ('"
                                + eName + "', '" +  Prod_Type + "')");
                    break;
                case 3:
                    System.out.println("Choose the education: ");
                    System.out.println("1. BS (Default)");
                                System.out.println("2. MS");
                                System.out.println("3. PhD");
                                System.out.print("Enter your choice (1-3): ");
                                int education_code =
Integer.parseInt(scanFeilds.nextLine());
                                String education = "BS";
                                if (education_code == 2) education = "MS";
```

```
                                        if (education_code == 3) education = "PhD";
                        System.out.print("Enter technical position: ");
                         String tech_pos = scanFeilds.nextLine();


                        stmt.executeQuery("INSERT INTO Tech_Staff (E_NAME,
Education, Position) VALUES ('"
                                         + eName + "', '" +  education + "', '" +  tech_pos +
"')");
                        break;
                                default:

                                        System.out.print("\nError! The employee type is not
available!");
                                        break;
                }

                // Shows that the operation was done.
                System.out.println("\nThe employee record added to the database.");
                        }
                        catch (Exception e) {
                                System.out.println(e.getMessage());
        // Shows exception message.
                        }
                }



    // ---------------------------------------- Option 2 ----------------------------------------


                // Enter a new product
                public void option2 (Connection dbConnection){
                        Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information from user
```

```
                try {

            System.out.println("\nTo compelte entering new product, you need to
have product ID, "
                    + "Production date, time spent to make a product, person
name who produced the product, "
                    + "person name who controlled the quality of the product,
and the person name who repaired "
                    + "the product if has been repaired.");

            System.out.print("Enter the product ID: ");
                    long pID = Long.parseLong (scanFeilds.nextLine());

                    System.out.print("Enter the production date in format of
yyyy-mm-dd: ");
                    String pDate = scanFeilds.nextLine();

                    System.out.print("Enter the production time spent (hours): ");
                    int pTime = Integer.parseInt(scanFeilds.nextLine());

                    System.out.print("Enter the production type. Choose 1-3: ");
                    int pType = Integer.parseInt(scanFeilds.nextLine());
                    if (pType < 1 || pType > 3) {
                        System.out.println("Product type is considered as 3.");
                        pType = 3;
                    }

                    System.out.println("\nChoose size of the product: ");
            System.out.println("1. Small");
                    System.out.println("2. Medium");
                    System.out.println("3. Large");
                    System.out.print("\nEnter your choice (1-3): ");
                    int pSizen = Integer.parseInt(scanFeilds.nextLine());
                    if (pSizen < 1 || pSizen > 3) {
```

```
                                        System.out.println("Product size is considered as
small.");
                                        pSizen = 1;
                                }
                                String pSize = "Small";
                                if (pSizen == 2) {pSize = "Medium";}
                                if (pSizen == 3) {pSize = "Large";}

                                String pSoft = "";
                                String pColor = "";
                                double pWeight = 0.0;
                                        switch (pType){
                        case 1:
                                System.out.print("Enter the software name: ");
                                        pSoft = scanFeilds.nextLine();
                                break;
                        case 2:
                                System.out.print("Enter the color: ");
                                        pColor = scanFeilds.nextLine();
                                break;
                        case 3:
                                System.out.print("Enter the weight: ");
                                        pWeight =
Double.parseDouble(scanFeilds.nextLine());
                                break;
                                        default:

                                        System.out.print("\nError!");
                                        break;
                        }

                                // Ask for worker's name
                                System.out.print("Enter the producer's name: ");
```

```
                    String pWorker = scanFeilds.nextLine();

                    Statement SQLstmt = dbConnection.createStatement();
                    ResultSet SQLresult = SQLstmt.executeQuery("select
E_Name From Worker"
                                + " Where E_Name = '" + pWorker + "'");

                    if (!SQLresult.next()) {
                        System.out.println("Error! The worker name is not
existed in database.");
                        System.out.println("Press enter to countinue ...");
                        scanFeilds.nextLine();
                        Exception e = null;
                        throw  e;
                    }

                    // Ask for QC staff's name
                    System.out.print("Enter the quality controller's name: ");
                    String pQC = scanFeilds.nextLine();

                    SQLstmt = dbConnection.createStatement();
                    SQLresult = SQLstmt.executeQuery("select E_Name From
QC_Staff"
                                + " Where E_Name = '" + pQC + "'");

                    if (!SQLresult.next()) {
                        System.out.println("Error! The quality controller's
name is not existed in database.");
                        System.out.println("Press enter to continue ...");
                        scanFeilds.nextLine();
                        Exception e = null;
                        throw  e;
                    }
```

```
                    // Ask for technical staff's name
                    System.out.print("Is the product repaired (Y/N)? ");
                    String repairedAnswer = scanFeilds.nextLine();

                    boolean repaired = false;
                    String pTech = "";
                    String repDate = "";
                    if (repairedAnswer.equalsIgnoreCase("Y")  ||
repairedAnswer.equalsIgnoreCase("Yes")){
                        repaired = true;

                        System.out.print("Enter the technical staff's name: ");
                        pTech = scanFeilds.nextLine();

                        SQLstmt = dbConnection.createStatement();
                        SQLresult = SQLstmt.executeQuery("select E_Name
From Tech_Staff"
                                + " Where E_Name = '" + pTech + "'");

                        if (!SQLresult.next()) {
                            System.out.println("Error! The technical staff's
name is not existed in database.");
                            System.out.println("Press enter to countinue
...");
                            scanFeilds.nextLine();
                            Exception e = null;
                            throw  e;
                        }

                        if (pType == 1) {
                            SQLstmt = dbConnection.createStatement();
                            SQLresult = SQLstmt.executeQuery("Select
Education from tech_staff where e_name = '" + pTech + "'");
```

```
                                        if (!SQLresult.next() ||
SQLresult.getString(1).equalsIgnoreCase("BS")){
                                            System.out.println("Error! The technical
staff's name is not eligible to repair this product.");

                                            System.out.println("Press enter to
countinue ...");
                                            scanFeilds.nextLine();
                                            Exception e = null;
                                            throw  e;
                                        }
                                    }

                                    System.out.print("Enter the repairment date in format
of yyyy-mm-dd: ");
                                    repDate = scanFeilds.nextLine();
                                }

                                // Inserts data to appropriate tables
                                SQLstmt = dbConnection.createStatement();
                                SQLstmt.executeQuery("INSERT INTO PRODUCT (PID,
PRODUCTION_DATE, SPENT_TIME)" +
                                        "VALUES ('" + pID + "', TO_DATE('" + pDate +
"', 'YYYY-MM-DD'), '" + pTime + "')");

                                SQLstmt.executeQuery("INSERT INTO PRODUCE (PID,
E_NAME)" +
                                        "VALUES ('" + pID + "', '" + pWorker + "')");

                                SQLstmt.executeQuery("INSERT INTO QC_CHECK (PID,
E_NAME) VALUES ('" + pID +
                                        "', '" + pQC + "')");

                                if (repairedAnswer.equalsIgnoreCase("Y")  ||
repairedAnswer.equalsIgnoreCase("Yes")){
```

```
                                SQLstmt.executeQuery("INSERT INTO REPAIR (PID,
E_NAME, R_DATE) VALUES ('"
                                        + pID + "', '" + pTech + "', TO_DATE('" +
repDate + "', 'YYYY-MM-DD'))");
                        }

                        switch (pType){
                case 1:
                        SQLstmt.executeQuery("INSERT INTO PRODUCT1 (PID, P_SIZE,
SOFTWARE) VALUES ('"
                                + pID + "', '" + pSize + "', '" + pSoft + "')");
                        break;
                case 2:
                        SQLstmt.executeQuery("INSERT INTO PRODUCT2 (PID, P_SIZE,
COLOR) VALUES ('"
                                + pID + "', '" + pSize + "', '" + pColor + "')");
                        break;
                case 3:
                        SQLstmt.executeQuery("INSERT INTO PRODUCT3 (PID, P_SIZE,
WEIGHT) VALUES ('"
                                + pID + "', '" + pSize + "', '" + pWeight + "')");
                        break;
                        default:

                                System.out.print("\nError!");
                                break;
                }

                // Shows that the operation was done.
                System.out.println("\nThe product record was added to the database.");
                        }
                        catch (Exception e) {
                                System.out.println(e.getMessage());
        // Shows exception message.
                        }
```

```
        }



// ---------------------------------------- Option 3 ----------------------------------------

        // Enter new customer
        public void option3 (Connection dbConnection){
                Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user

                try {

                        Statement SQLstmt = dbConnection.createStatement();

         System.out.print("Enter the customer's name: ");
         String cName = scanFeilds.nextLine();

         ResultSet SQLresult = SQLstmt.executeQuery("SELECT C_NAME
FROM CUSTOMER WHERE C_NAME = '"

    + cName + "'");
                        boolean customerIsAvailable = false;
                        String cAddress = "";
         if (SQLresult.next()) {
                customerIsAvailable = true;
         } else {
            System.out.print("Enter the customer's address: ");
                 cAddress = scanFeilds.nextLine();
         }

         System.out.print("Enter the product ID: ");
                        long pID = Long.parseLong (scanFeilds.nextLine());
```

```
                        SQLresult = SQLstmt.executeQuery("SELECT PID FROM
PRODUCT WHERE PID = '" + pID + "'");
                        boolean productIsAvailable = false;
                        if (SQLresult.next()) {
                                productIsAvailable = true;
                        } else {
                                System.out.print("There is no product available with
this ID.");
                    Exception e = null;
                                throw  e;
                        }


            if (!customerIsAvailable)
                    SQLstmt.executeQuery("INSERT INTO CUSTOMER (C_NAME,
ADDRESS) VALUES ('"
                        + cName + "', '" + cAddress + "')");


            SQLstmt.executeQuery("INSERT INTO PURCHASE (C_NAME, PID)
VALUES ('"
                        + cName + "', '" + pID + "')");


            // Shows that the operation was done.
            System.out.println("\nThe purchase was added to the database.");
                    }
                    catch (Exception e) {
                            System.out.println(e.getMessage());
      // Shows exception message.
                    }
            }


  // ---------------------------------------- Option 4 ----------------------------------------
```

```
        // Create a new account
        public void option4 (Connection dbConnection){
            Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user

            try {

                long accNo = 0;
                int pType = 0;
                Statement SQLstmt = dbConnection.createStatement();
                ResultSet SQLresult;



                System.out.print("Enter the product ID: ");
                long pID = Long.parseLong (scanFeilds.nextLine());
                SQLresult = SQLstmt.executeQuery("SELECT * FROM
PRODUCT WHERE PID = " + pID);
                if (!SQLresult.next()) {
                    System.out.println("\nProduct with ID of " + pID + " is
not available!");
                    Exception e = null;
                    throw  e;
                }

                SQLresult = SQLstmt.executeQuery("SELECT * FROM
PRODUCT NATURAL JOIN PRODUCT1 WHERE PID = " + pID);
                if (SQLresult.next()) {pType = 1;}
                SQLresult = SQLstmt.executeQuery("SELECT * FROM
PRODUCT NATURAL JOIN PRODUCT2 WHERE PID = " + pID);
                if (SQLresult.next()) {pType = 2;}
                SQLresult = SQLstmt.executeQuery("SELECT * FROM
PRODUCT NATURAL JOIN PRODUCT3 WHERE PID = " + pID);
                if (SQLresult.next()) {pType = 3;}
```

```
            if (pType == 0) {
                System.out.println("\nThe product type is not defined in database."
                        + "Please contact DBMS administrator.");
                        Exception e = null;
                        throw  e;
            }

            SQLresult = SQLstmt.executeQuery("SELECT ACNT_NO FROM
PRODUCT" + pType + " NATURAL JOIN P"
                    + pType + "_ACCOUNT WHERE PID = " + pID);
            if (SQLresult.next()) {
                accNo = SQLresult.getLong(1);
                System.out.println("\nAccount number " + accNo + " already exists
associated with Product " + pID);
                        Exception e = null;
                        throw  e;
            }

           SQLresult = SQLstmt.executeQuery("SELECT MAX(ACNT_NO) FROM
ACCOUNTS");
                    if (SQLresult.next()) {accNo =  SQLresult.getInt(1) + 1;} else
{accNo = 1111111;}
                    System.out.print("Enter the product cost: ");
                    double pCost = Double.parseDouble (scanFeilds.nextLine());

                    SQLstmt.executeQuery("INSERT INTO ACCOUNTS
(ACNT_NO, ACNT_DATE, COST) VALUES ('"
                            + accNo + "', SYSDATE-1, '" + pCost + "')");

                    SQLstmt.executeQuery("INSERT INTO P" + pType +
"_ACCOUNT (ACNT_NO, PID) VALUES ('"
                            + accNo + "', '" + pID + "')");

            // Shows that the operation was done.
```

```
                System.out.println("\nNew account number " + accNo + " has been
created for product ID " + pID);
                        }
                        catch (Exception e) {
                                System.out.println(e.getMessage());
        // Shows exception message.
                        }
                }



    // ---------------------------------------- Option 5 ----------------------------------------



                // Enter a complain
                public void option5 (Connection dbConnection){
                        Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user

                        try {


                                System.out.print("Enter the customer's name: ");
                 String cName = scanFeilds.nextLine();


                                Statement SQLstmt = dbConnection.createStatement();
                                ResultSet SQLresult;


                                SQLresult = SQLstmt.executeQuery ("SELECT * FROM
CUSTOMER WHERE C_NAME = '" + cName + "'");
                if (!SQLresult.next()) {
                                        System.out.print("The customer information is not
available in database.");
                         Exception e = null;
                                        throw  e;
```

```
                }

                System.out.print("Enter the product ID: ");
                        long pID = Long.parseLong (scanFeilds.nextLine());

                        SQLresult = SQLstmt.executeQuery("SELECT * FROM
PURCHASE WHERE PID = '"
                                        + pID + "' AND C_NAME = '" + cName + "'");
                        if (!SQLresult.next()) {
                                System.out.print("This customer didn't purchase this
item.");
                    Exception e = null;
                                throw  e;
                        }

                        int cmpID = 1111;
                        SQLresult = SQLstmt.executeQuery("SELECT
MAX(COMP_ID) FROM COMPLAINT_LIST");
                        if (SQLresult.next()) {cmpID =  SQLresult.getInt(1) + 1;}

                        System.out.print("Enter complain description: ");
                String cmpDescription = scanFeilds.nextLine();

                String cmpTreatment = "Money Back";
                System.out.println("\nChoose type of treatment: ");
                System.out.println("1. Get money back");
                        System.out.println("2. Exchange for another product");
                        System.out.print("\nEnter your choice (1-2): ");
                        int cmpTreatNo = Integer.parseInt(scanFeilds.nextLine());
                        if (cmpTreatNo == 2) {cmpTreatment = "Exchange";}

                        SQLstmt.executeQuery("INSERT INTO COMPLAINT_LIST
(COMP_ID, COMP_DATE, DESCRIPTION, TREATMENT) VALUES ("
```

```
                                        + cmpID + ", SYSDATE-1, '" + cmpDescription
+ "', '" + cmpTreatment + "')");

                        SQLstmt.executeQuery("INSERT INTO COMPLAINT
(COMP_ID, PID) VALUES ("
                                        + cmpID + ", " + pID + ")");

            // Shows that the operation was done.
            System.out.println("\nA complain has been recorded.");
                }
                catch (Exception e) {
                        System.out.println(e.getMessage());
    // Shows exception message.
                }
            }


  // ------------------------------------------ Option 6 ------------------------------------------


            // Enter an accident
            public void option6 (Connection dbConnection){
                Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user

                try {

             Statement SQLstmt = dbConnection.createStatement();
                        ResultSet SQLresult;

                        System.out.print("Enter the product ID: ");
                        long pID = Long.parseLong (scanFeilds.nextLine());
```

```
                        SQLresult = SQLstmt.executeQuery ("SELECT * FROM
PRODUCT WHERE PID = " + pID);
                if (!SQLresult.next()) {
                                System.out.print("There is no product available with
this ID.");
                        Exception e = null;
                                throw  e;
                }

                System.out.println("\nChoose type of accident: ");
                System.out.println("1. Repair accident");
                        System.out.println("2. Production accident");
                        System.out.print("\nEnter your choice (1-2): ");
                        int accType = Integer.parseInt(scanFeilds.nextLine());
                        if (accType != 1 && accType != 2) {
                                System.out.print("Type is wrong!");
                        Exception e = null;
                                throw  e;
                        }

                        System.out.print("Enter the work days lost: ");
                        int accDays = Integer.parseInt (scanFeilds.nextLine());

                         int accID = 11111;
                        SQLresult = SQLstmt.executeQuery("SELECT
MAX(ACCIDENT_ID) FROM ACCIDENT_RECORD");
                        if (SQLresult.next()) {accID =  SQLresult.getInt(1) + 1;}

                        SQLstmt.executeQuery ("INSERT INTO
ACCIDENT_RECORD (ACCIDENT_ID, ACCIDENT_DATE, WORK_DAYS) VALUES ("
                        + accID + ", SYSDATE-1, " + accDays + ")");

                        String eName = "";
                        if(accType == 1){
```

```
                    SQLresult = SQLstmt.executeQuery ("SELECT E_NAME FROM
REPAIR WHERE PID = " + pID);
                    if (!SQLresult.next()) {
                                        System.out.print("There is no repair record
available associated with this product.");
                                Exception e = null;
                                        throw  e;
                    }
                    eName = SQLresult.getString(1);
                    SQLstmt.executeQuery ("INSERT INTO ACCIDENT_REPAIR
(ACCIDENT_ID, PID, T_NAME) VALUES ("
                                + accID + ", " + pID + ", '" + eName + "')");
                            } else {
                                SQLresult = SQLstmt.executeQuery ("SELECT
E_NAME FROM PRODUCE WHERE PID = " + pID);
                    if (!SQLresult.next()) {
                                        System.out.print("There is no production record
available associated with this product.");
                                Exception e = null;
                                        throw  e;
                    }
                    eName = SQLresult.getString(1);
                    SQLstmt.executeQuery ("INSERT INTO
ACCIDENT_PRODUCTION (ACCIDENT_ID, PID, W_NAME) VALUES ("
                                + accID + ", " + pID + ", '" + eName + "')");
                            }


            // Shows that the operation was done.
            System.out.println("\nThe accident record added to the database.");
                    }
                    catch (Exception e) {
                        System.out.println(e.getMessage());
    // Shows exception message.
                    }
                }
```

```
// ---------------------------------------- Option 7 ----------------------------------------


        // Retrieve production information
        public void option7 (Connection dbConnection){
                Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user


                try {


         Statement SQLstmt = dbConnection.createStatement();


                        System.out.print("Enter the product ID: ");
                        long pID = Long.parseLong (scanFeilds.nextLine());


                        ResultSet SQLresult = SQLstmt.executeQuery ("SELECT *
FROM PRODUCT WHERE PID = " + pID);
         if (!SQLresult.next()) {
                                System.out.print("There is no product available with
this ID.");
                 Exception e = null;
                                throw  e;
         }


         SQLresult = SQLstmt.executeQuery ("SELECT PRODUCTION_DATE,
SPENT_TIME FROM PRODUCT WHERE PID = " + pID);
         if (SQLresult.next()) {
                                System.out.println ("\nThis product is produced on " +
SQLresult.getDate(1));
                                System.out.println ("The spent time for this product is
" + SQLresult.getInt(2));
         }
```

```
                }
                catch (Exception e) {
                        System.out.println(e.getMessage());
        // Shows exception message.
                }
        }



    // ---------------------------------------- Option 8 ----------------------------------------


        // Retrieve product
        public void option8 (Connection dbConnection){
                Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user

                try {

         Statement SQLstmt = dbConnection.createStatement();
                        ResultSet SQLresult;

                        System.out.print("Enter the worker's name: ");
                        String wName = scanFeilds.nextLine();

                        SQLresult = SQLstmt.executeQuery ("SELECT * FROM
PRODUCT NATURAL JOIN PRODUCE WHERE E_NAME = '" + wName + "'");

                        System.out.println ("The product's information produced by "
+ wName + " is:\n");
                        ResultSetMetaData rsmd = SQLresult.getMetaData();
        int columnsNumber = rsmd.getColumnCount();
        for (int i = 1; i <= columnsNumber; i++) {
                System.out.println (rsmd.getColumnName(i) + "\t\t");
```

```
                }
                System.out.println ("------------------------------------------------------------------
");
                while (SQLresult.next()) {
                        for (int i = 1; i <= columnsNumber; i++) {
                                if (i == 2) System.out.print (SQLresult.getDate(i) + "\t\t");
                                else System.out.print (SQLresult.getString(i) + "\t\t");
                        }
                        System.out.print ("\n");
                }
                        }
                        catch (Exception e) {
                                System.out.println(e.getMessage());
        // Shows exception message.
                        }
                }


    // ---------------------------------------- Option 9 ----------------------------------------


                // Retrieve QC error
                public void option9 (Connection dbConnection){
                        Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information from user

                        try {

                 Statement SQLstmt = dbConnection.createStatement();
                                ResultSet SQLresult;

                                System.out.print("Enter the quality controller's name: ");
                                String qcName = scanFeilds.nextLine();
```

```
                        SQLresult = SQLstmt.executeQuery("SELECT COUNT(PID)
FROM (SELECT * FROM PRODUCT NATURAL JOIN QC_CHECK WHERE E_NAME
= '"
                                + qcName + "') WHERE PID IN (SELECT PID
FROM COMPLAINT)");
                        int mistakes = 0;
                        if (SQLresult.next())
                                mistakes = SQLresult.getInt(1);

                        System.out.print("\n" + qcName + " made " + mistakes + "
error(s)!");
                }
                catch (Exception e) {
                        System.out.println(e.getMessage());
        // Shows exception message.
                }
        }



    // ---------------------------------------- Option 10 ----------------------------------------


        // Retrieve total cost of product 3 reported by QC
        public void option10 (Connection dbConnection){
                Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user

                try {

         Statement SQLstmt = dbConnection.createStatement();
                        ResultSet SQLresult = SQLstmt.executeQuery("ALTER
SESSION SET NLS_COMP=LINGUISTIC");
```

```
                        SQLresult = SQLstmt.executeQuery("ALTER SESSION SET
NLS_SORT=BINARY_CI");

                        System.out.print("Enter the quality controller's name: ");
                        String qcName = scanFeilds.nextLine();

                        SQLresult = SQLstmt.executeQuery("SELECT SUM(COST)
FROM ACCOUNTS NATURAL JOIN P3_ACCOUNT "
                                + "WHERE PID IN (SELECT PID FROM
QC_REP_REQ WHERE QC_NAME = '"
                                + qcName + "')");
                        double cost = 0.00;
                        if (SQLresult.next())
                                cost = SQLresult.getInt(1);
                        System.out.println("Total cost is $" + cost);
                }
                catch (Exception e) {
                        System.out.println(e.getMessage());
        // Shows exception message.
                }
        }



    // ---------------------------------------- Option 11 ----------------------------------------


        // Retrieve customers bought color products
        public void option11 (Connection dbConnection){
                Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user

                try {
```

```
                Statement SQLstmt = dbConnection.createStatement();
                ResultSet SQLresult = SQLstmt.executeQuery("ALTER SESSION SET
NLS_COMP=LINGUISTIC");
                                SQLstmt.executeQuery("ALTER SESSION SET
NLS_SORT=BINARY_CI");

                                //System.out.print("Enter the customer's name: ");
                                //String cName = scanFeilds.nextLine();

                                System.out.print("Enter the product's color: ");
                                String pColor = scanFeilds.nextLine();

                                SQLresult = SQLstmt.executeQuery("SELECT C_NAME
FROM PURCHASE NATURAL JOIN "
                                                + "PRODUCT2 WHERE COLOR = '" + pColor
+ "'");

                                System.out.println("\nThe following customer(s) bought " +
pColor + " product(s): ");
                                while (SQLresult.next())
System.out.println(SQLresult.getString(1));


                        }
                        catch (Exception e) {
                                System.out.println(e.getMessage());
        // Shows exception message.
                        }
                }


    // ---------------------------------------- Option 12 ----------------------------------------
```

```
		// Retrieve total work days due to complaints
		public void option12 (Connection dbConnection){
			Scanner scanFeilds = new Scanner(System.in);		// Open a new scanner to take information fron user

			try {

		 Statement SQLstmt = dbConnection.createStatement();
		 ResultSet SQLresult = SQLstmt.executeQuery("SELECT SUM(WORK_DAYS) FROM "
				+ "(ACCIDENT_REPAIR NATURAL JOIN COMP_REP_REQ) NATURAL JOIN ACCIDENT_RECORD");

		 int lostDays = 0;
				while (SQLresult.next()) lostDays = SQLresult.getInt(1);
				System.out.print("\nTotal days of work lost due to complaint(s) is: " + lostDays);
			}
			catch (Exception e) {
				System.out.println(e.getMessage());
	// Shows exception message.
			}
		}

	// ---------------------------------------- Option13  ----------------------------------------


		// Retrieve customers who are also workers
		public void option13 (Connection dbConnection){
			Scanner scanFeilds = new Scanner(System.in);		// Open a new scanner to take information fron user

			try {
```

```
                Statement SQLstmt = dbConnection.createStatement();
                ResultSet SQLresult = SQLstmt.executeQuery("ALTER SESSION SET
NLS_COMP=LINGUISTIC");
                                SQLstmt.executeQuery("ALTER SESSION SET
NLS_SORT=BINARY_CI");


                                SQLresult = SQLstmt.executeQuery("SELECT C_NAME
FROM CUSTOMER WHERE "
                                                + "C_NAME IN (SELECT E_NAME FROM
WORKER)");


                                System.out.println("The following customer(s) are also
worker(s): ");
                                while (SQLresult.next())
System.out.println(SQLresult.getString(1));


                        }
                        catch (Exception e) {
                                System.out.println(e.getMessage());
        // Shows exception message.
                        }
                }



    // ---------------------------------------- Option 14 ----------------------------------------


                // Retrieve customers who have bought their worked products
                public void option14 (Connection dbConnection){
                        Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user


                        try {


                Statement SQLstmt = dbConnection.createStatement();
```

```
                ResultSet SQLresult = SQLstmt.executeQuery("ALTER SESSION SET
NLS_COMP=LINGUISTIC");
                                SQLstmt.executeQuery("ALTER SESSION SET
NLS_SORT=BINARY_CI");


                                System.out.println("\nThe following customer(s) have bought
their own work(s): ");


                                SQLresult = SQLstmt.executeQuery("SELECT C_NAME
FROM PURCHASE "
                                                + "NATURAL JOIN PRODUCE WHERE
C_NAME = E_NAME");
                                while (SQLresult.next())
System.out.println(SQLresult.getString(1));


                                SQLresult = SQLstmt.executeQuery("SELECT C_NAME
FROM PURCHASE "
                                                + "NATURAL JOIN QC_CHECK WHERE
C_NAME = E_NAME");
                                while (SQLresult.next())
System.out.println(SQLresult.getString(1));


                                SQLresult = SQLstmt.executeQuery("SELECT C_NAME
FROM PURCHASE "
                                                + "NATURAL JOIN REPAIR WHERE C_NAME
= E_NAME");
                                while (SQLresult.next())
System.out.println(SQLresult.getString(1));


                        }
                        catch (Exception e) {
                                System.out.println(e.getMessage());
        // Shows exception message.
                        }
                }
```

```
// ---------------------------------------- Option 15 ----------------------------------------


        // Retrieve average cost of all products made in particular year
        public void option15 (Connection dbConnection){
            Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user

            try {

         Statement SQLstmt = dbConnection.createStatement();
         ResultSet SQLresult = SQLstmt.executeQuery("ALTER SESSION SET
NLS_COMP=LINGUISTIC");
                    SQLstmt.executeQuery("ALTER SESSION SET
NLS_SORT=BINARY_CI");

                    System.out.print("Enter the year: ");
                    int pYear = scanFeilds.nextInt();

                    SQLresult = SQLstmt.executeQuery("SELECT AVG(COST)
FROM "
                            + "(SELECT * FROM PRODUCT WHERE
PRODUCTION_DATE BETWEEN "
                            + "'01-JAN-" + pYear + "' AND '31-DEC-" +
pYear + "')"
                            + "NATURAL JOIN "
                            + "(SELECT * FROM P1_ACCOUNT UNION
(SELECT * FROM P2_ACCOUNT UNION (SELECT * FROM P3_ACCOUNT))) "
                            + "NATURAL JOIN ACCOUNTS");

                    double avgCost = 0.0;
                    while (SQLresult.next()) avgCost = SQLresult.getDouble(1);
```

```
                        System.out.println("\nThe average cost of all products maid
in "
                                        + pYear + " is $%.2f" +
Math.round(avgCost*100)/100);

                    }
                    catch (Exception e) {
                        System.out.println(e.getMessage());
        // Shows exception message.
                    }
                }


    // ---------------------------------------- Option 16 ----------------------------------------


                // Switch the position between a technical staff and a quality controller
                public void option16 (Connection dbConnection){
                    Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user

                    try {


                     Statement SQLstmt = dbConnection.createStatement();
                     ResultSet SQLresult = SQLstmt.executeQuery("ALTER SESSION SET
NLS_COMP=LINGUISTIC");
                        SQLstmt.executeQuery("ALTER SESSION SET
NLS_SORT=BINARY_CI");

                        System.out.print("Enter the quality controller's name: ");
                        String qcName = scanFeilds.nextLine();

                        System.out.print("Enter the technical staff's name: ");
                        String tsName = scanFeilds.nextLine();
```

```
                    SQLstmt.executeQuery("INSERT INTO TECH_STAFF
(E_NAME, EDUCATION, POSITION) "
                            + "VALUES((SELECT E_NAME FROM
EMPLOYEE WHERE E_NAME = '" + qcName + "'), "
                            + " (SELECT EDUCATION FROM
TECH_STAFF WHERE E_NAME = '" + tsName + "'), "
                            + "(SELECT POSITION FROM TECH_STAFF
WHERE E_NAME = '" + tsName + "'))");


                    SQLstmt.executeQuery("INSERT INTO QC_STAFF
(E_NAME, TYPE_CHECK) "
                            + "VALUES((SELECT E_NAME FROM
EMPLOYEE WHERE E_NAME = '" + tsName + "'), "
                            + " (SELECT TYPE_CHECK FROM
QC_STAFF WHERE E_NAME = '" + qcName + "'))");


                    SQLstmt.executeQuery("UPDATE REPAIR "
                            + "SET E_NAME = (SELECT E_NAME FROM
EMPLOYEE WHERE E_NAME = '" + qcName + "') "
                            + "WHERE E_NAME = '" + tsName + "'");


                    SQLstmt.executeQuery("UPDATE ACCIDENT_REPAIR "
                            + "SET T_NAME = (SELECT E_NAME FROM
EMPLOYEE WHERE E_NAME = '" + qcName + "') "
                            + "WHERE T_NAME = '" + tsName + "'");


                    SQLstmt.executeQuery("DELETE FROM TECH_STAFF "
                            + "WHERE E_NAME = (SELECT E_NAME
FROM EMPLOYEE WHERE E_NAME = '" + tsName + "')");


                    SQLstmt.executeQuery("UPDATE QC_CHECK "
                            + "SET E_NAME = (SELECT E_NAME FROM
EMPLOYEE WHERE E_NAME = '" + tsName + "') "
                            + "WHERE E_NAME = '" + qcName + "'");
```

```
                        SQLstmt.executeQuery("UPDATE QC_REP_REQ "
                                + "SET QC_NAME = (SELECT E_NAME
FROM EMPLOYEE WHERE E_NAME = '" + tsName + "') "
                                + "WHERE QC_NAME = '" + qcName + "'");

                        SQLstmt.executeQuery("DELETE FROM QC_STAFF "
                                + "WHERE E_NAME = (SELECT E_NAME
FROM EMPLOYEE WHERE E_NAME = '" + qcName + "')");

                        System.out.println("\nDatabase has been updated.");

                }
                catch (Exception e) {
                        System.out.println(e.getMessage());
        // Shows exception message.
                }
        }


    // ---------------------------------------- Option 17 ----------------------------------------


        // Delete all the accident between given dates
        public void option17 (Connection dbConnection){
                Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user

                try {

         Statement SQLstmt = dbConnection.createStatement();
         ResultSet SQLresult = SQLstmt.executeQuery("ALTER SESSION SET
NLS_COMP=LINGUISTIC");
                        SQLstmt.executeQuery("ALTER SESSION SET
NLS_SORT=BINARY_CI");
```

```
                        System.out.print("Enter the beginning date in format of
(yyyy-mm-dd): ");
                        String begDate = scanFeilds.nextLine();

                        System.out.print("Enter the end date in format of (yyyy-mm-
dd): ");
                        String endDate = scanFeilds.nextLine();

                        String tempStmt = "(SELECT ACCIDENT_ID FROM
ACCIDENT_RECORD WHERE ACCIDENT_DATE BETWEEN TO_DATE('"
                                + begDate + "', 'YYYY-MM-DD') AND
TO_DATE('" + endDate + "', 'YYYY-MM-DD'))";

                        SQLstmt.executeQuery("DELETE FROM
ACCIDENT_PRODUCTION WHERE ACCIDENT_ID IN " + tempStmt);

                        SQLstmt.executeQuery("DELETE FROM
ACCIDENT_REPAIR WHERE ACCIDENT_ID IN " + tempStmt);

                        SQLstmt.executeQuery("DELETE FROM
ACCIDENT_RECORD WHERE ACCIDENT_ID IN " + tempStmt);

                        System.out.println("Database has been updated.");

                }
                catch (Exception e) {
                        System.out.println(e.getMessage());
    // Shows exception message.
                }
        }

// ---------------------------------------- Option 18 ----------------------------------------
```

```
        // Import new customers from a data file
        public void option18 (Connection dbConnection){
            Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user

              try {

                    System.out.print("Please enter input filename: ");
            String fileName = scanFeilds.nextLine();
            if (fileName == null) {
              System.out.println ("The filename set to default name 'import
customers.csv'.");
              fileName = "import customers.csv";
            }

            Statement SQLstmt = dbConnection.createStatement();
            ResultSet myResultSet;

            String[] row = null;

            CSVReader csvReader = new CSVReader(new
FileReader(fileName));
            List content = csvReader.readAll();

            int countNew = 0;
            int countOld = 0;
            for (Object object : content) {
              row = (String[]) object;
              myResultSet = SQLstmt.executeQuery("SELECT C_NAME FROM
CUSTOMER WHERE C_NAME = '" + row[0] + "'");
              if (!myResultSet.next()) {
                    SQLstmt.executeQuery("INSERT INTO CUSTOMER
(C_NAME, ADDRESS) VALUES ('"
```

```
                                        + row[0] + "', '" + row[1] + "')");
                        countNew++;
                    } else {
                        countOld++;
                    }
                }
                SQLstmt.executeQuery("DELETE FROM CUSTOMER WHERE
C_NAME = 'C_NAME'");

                System.out.println (countNew + " new customer(s) were added to the
database. "
                        + countOld + " of given custemr(s) were already in the list.");

                csvReader.close();
                }
                catch (Exception e) {
                    System.out.println(e.getMessage());
        // Shows exception message.
                }
            }



    // ---------------------------------------- Option 19 ----------------------------------------


            // Exports customer's information to a data file
            public void option19 (Connection dbConnection){
                Scanner scanFeilds = new Scanner(System.in);                    //
Open a new scanner to take information fron user

                try {

                    System.out.print("Please enter output filename: ");
```

```
                    String fileName = scanFeilds.nextLine();
                    if (fileName == null) {
                      System.out.println ("The filename set to default name 'export
customers'.");
                      fileName = "export customers.csv";
                    }

                    CSVWriter writer = new CSVWriter(new FileWriter(fileName));

                    Statement SQLstmt = dbConnection.createStatement();
                    ResultSet myResultSet = SQLstmt.executeQuery("SELECT * FROM
CUSTOMER ORDER BY C_NAME");

                    writer.writeAll(myResultSet, true);
                    writer.close();

                    System.out.println("\nCustomers information imported into '" +
fileName + "' file.");

                      }
                      catch (Exception e) {
                              System.out.println(e.getMessage());
        // Shows exception message.
                      }
                }




    // ------------------------------------------------------ Main ------------------------------------------
--
    // ------------------------------------------------------ Main ------------------------------------------
--
    // ------------------------------------------------------ Main ------------------------------------------
--
```

```
        public static void main(String[] args) {


                idividualProject query = new idividualProject();
            // Creates an object in same class.
                Connection dbConnection = query.dbConnect();
        // Establish the connection


                        boolean myFlag = true;
        // Sets flag if we still need to run the program.
                        Scanner scanOption = new Scanner(System.in);        //
Open a new scanner to read data.
                        int option;
            // Variable declaration for options.
                        while(myFlag){
                                // Prints the menu.
                                System.out.println("\n\nWelcome to the database
system of Future Inc.");
                                System.out.println("Please select one of the following
options (1-20):\n");
                                System.out.println(" 1. Enter a new employee.");
                                System.out.println(" 2. Enter a new product
associated with the person who made the product, repaired the product if it is repaired,
or checked the product.");
                                System.out.println(" 3. Enter a customer associated
with some products.");
                                System.out.println(" 4. Create a new account
associated a product.");
                                System.out.println(" 5. Enter a complain associated
with a customer and product.");
                                System.out.println(" 6. Enter an accident associated
with appropriate employee and product.");
                                System.out.println(" 7. Retrieve the date produced
and time spent to produce a particular product.");
                                System.out.println(" 8. Retrieve all products made by
a particular worker.");
```

```
                                    System.out.println(" 9. Retrieve the total number of
errors a particular quality control made. This is the total number of products certified by
this controller and got some  complaints.");
                                    System.out.println("10. Retrieve the total cost of the
products in the product3 category which were repaired at the request of a particular
quality controller.");
                                    System.out.println("11. Retrieve all customers who
purchased all products of a particular color.");
                                    System.out.println("12. Retrieve the number of work
days lost due to accidents in repairing the products which got complaints.");
                                    System.out.println("13. Retrieve all customers who
are also workers.");
                                    System.out.println("14. Retrieve all the customers
who have purchased the products made or certified or repaired by themselves.");
                                    System.out.println("15. Retrieve the average cost of
all products made in a particular year.");
                                    System.out.println("16. Switch the position between a
technical staff and quality controller.");
                                    System.out.println("17. Delete all accidents whose
dates are in some range.");
                                    System.out.println("18. Import: Enter new customers
from a data file until the file is empty.");
                                    System.out.println("19. Export: Retrieve all customers
(in name order) and output them into a data file instead of screen.");
                                    System.out.println("20. Quit (exit program).");


                                    // Prompts for input option and reads it.
                                    System.out.print("\nEnter your option (1-20): ");
                                    option =  scanOption.nextInt();


                        switch (option){
                        case 1:
                                query.option1(dbConnection);
        // Runs option 1 method.
                                break;
                        case 2:
```

```
                    query.option2(dbConnection);
// Runs option 2 method.
                    break;
                case 3:
                    query.option3(dbConnection);
// Runs option 3 method.
                    break;
                case 4:
                    query.option4(dbConnection);
// Runs option 4 method.
                    break;
                case 5:
                    query.option5(dbConnection);
// Runs option 5 method.
                    break;
                case 6:
                    query.option6(dbConnection);
// Runs option 6 method.
                    break;
                case 7:
                    query.option7(dbConnection);
// Runs option 7 method.
                    break;
                case 8:
                    query.option8(dbConnection);
// Runs option 8 method.
                    break;
                case 9:
                    query.option9(dbConnection);
// Runs option 9 method.
                    break;
                case 10:
                    query.option10(dbConnection);
// Runs option 10 method.
                    break;
```

```
                case 11:
                    query.option11(dbConnection);
// Runs option 11 method.
                    break;
                case 12:
                    query.option12(dbConnection);
// Runs option 12 method.
                    break;
                case 13:
                    query.option13(dbConnection);
// Runs option 13 method.
                    break;
                case 14:
                    query.option14(dbConnection);
// Runs option 14 method.
                    break;
                case 15:
                    query.option15(dbConnection);
// Runs option 15 method.
                    break;
                case 16:
                    query.option16(dbConnection);
// Runs option 16 method.
                    break;
                case 17:
                    query.option17(dbConnection);
// Runs option 17 method.
                    break;
                case 18:
                    query.option18(dbConnection);
// Runs option 18 method.
                    break;
                case 19:
                    query.option19(dbConnection);
// Runs option 19 method.
```

```
                    break;
                case 20:
                    System.out.println("\nProgram is terminated due to your command. Thank you for using the application.");
                    myFlag = !myFlag;
        // Set flag to exit the program.
                    break;
                    default:
                // Options other than offered by menu. Prints a message and back to menu.
                    System.out.print("\nPlease choose a number between 1 and 20.");
                    break;
                }
                    }
                scanOption.close();
                //dbConnection.close();
            }
    }
```

Task 6. Java Program Execution

1.1. Script file showing the testing of query 1

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 1

Choose type of employee:
1. Worker
2. Quality Controller
3. Technical Staff

Enter your choice (1-3): 1
Enter the employee's name: Saied Hosseinipoor
Enter the employee's address: 234 Norman
Enter the worker's maximum production per day: 34

The employee record added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 1
```

```
Choose type of employee:
1. Worker
2. Quality Controller
3. Technical Staff

Enter your choice (1-3): 1
Enter the employee's name: Vahid Hosseinipoor
Enter the employee's address: 756 Lahijan
Enter the worker's maximum production per day: 33

The employee record added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 1

Choose type of employee:
1. Worker
2. Quality Controller
3. Technical Staff

Enter your choice (1-3): 1
Enter the employee's name: Sajjad Hosseinipoor
Enter the employee's address: 88 Astaneh
Enter the worker's maximum production per day: 12

The employee record added to the database.
```

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 1

Choose type of employee:
1. Worker
2. Quality Controller
3. Technical Staff

Enter your choice (1-3): 1
Enter the employee's name: Hamed Khoshboresh
Enter the employee's address: 44 Astaneh
Enter the worker's maximum production per day: 5

The employee record added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 1

Choose type of employee:
1. Worker
2. Quality Controller
3. Technical Staff

Enter your choice (1-3): 2
Enter the employee's name: Vahab Pourkazemi
Enter the employee's address: 55 Lahijan
Enter type of the products checked by this employee. Enter 1, 2, or 3: 2

The employee record added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 1

Choose type of employee:
1. Worker
2. Quality Controller
3. Technical Staff

Enter your choice (1-3): 2
Enter the employee's name: Javad Taghavi
Enter the employee's address: 56 Astaneh
Enter type of the products checked by this employee. Enter 1, 2, or 3: 3

The employee record added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 1

Choose type of employee:
1. Worker
```

```
2. Quality Controller
3. Technical Staff

Enter your choice (1-3): 2
Enter the employee's name: Akbar Abdi
Enter the employee's address: 33 Tabriz
Enter type of the products checked by this employee. Enter 1, 2, or 3: 1

The employee record added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 1

Choose type of employee:
1. Worker
2. Quality Controller
3. Technical Staff

Enter your choice (1-3): 3
Enter the employee's name: Farhad Mohammadi
Enter the employee's address: 56 Tehran
Choose the education:
1. BS (Default)
2. MS
3. PhD
Enter your choice (1-3): 3
Enter technical position: Tech 1
```

```
The employee record added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 1

Choose type of employee:
1. Worker
2. Quality Controller
3. Technical Staff

Enter your choice (1-3): 3
Enter the employee's name: Ramin Ravanavar
Enter the employee's address: 86 Klachai
Choose the education:
1. BS (Default)
2. MS
3. PhD
Enter your choice (1-3): 1
Enter technical position: Tech 2

The employee record added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):
```

```
 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 1

Choose type of employee:
1. Worker
2. Quality Controller
3. Technical Staff

Enter your choice (1-3): 3
Enter the employee's name: Bahman Piroozram
Enter the employee's address: 88 Tehran
Choose the education:
1. BS (Default)
2. MS
3. PhD
Enter your choice (1-3): 2
Enter technical position: Tech 3

The employee record added to the database.
```

1.2. Script file showing the testing of query 2

```
Welcome to the database system of Future Inc.
Please select one of the following options(1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
```

```
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 2

To compelte entering new product, you need to have product ID, Production date, time spent
to make a product, person name who produced the product, person name who controlled the
quality of the product, and the person name who repaired the product if has been repaired.
Enter the product ID: 1234
Enter the production date in format of yyyy-mm-dd:2015-12-01
Enter the production time spent (hours): 33
Enter the production type. Choose 1-3: 1

Choose size of the product:
1. Small
2. Medium
3. Large

Enter your choice (1-3): 1
Enter the software name: Symbian
Enter the producer's name: Saied Hosseinipoor
Enter the quality controller's name: Akbar Abdi
Is the product repaired (Y/N)? n
The product record added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options(1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 2

To compelte entering new product, you need to have product ID, Production date, time spent
to make a product, person name who produced the product, person name who controlled the
quality of the product, and the person name who repaired the product if has been repaired.
Enter the product ID: 1235
Enter the production date in format of yyyy-mm-dd:2016-04-12
Enter the production time spent (hours): 54
Enter the production type. Choose 1-3: 2

Choose size of the product:
1. Small
2. Medium
3. Large

Enter your choice (1-3): 2
Enter the color:Blue
Enter the producer's name: Vahid Hosseinipoor
Enter the quality controller's name: Vahab Pourkazemi
Is the product repaired (Y/N)? Y
Enter the technical staff's name: Farhad Mohammadi
Enter the repairment date in format of yyyy-mm-dd:2016-05-23
The product record added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options(1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 2

To compelte entering new product, you need to have product ID, Production date, time spent
to make a product, person name who produced the product, person name who controlled the
quality of the product, and the person name who repaired the product if has been repaired.
Enter the product ID: 1236
Enter the production date in format of yyyy-mm-dd:2013-04-23
Enter the production time spent (hours): 22
Enter the production type. Choose 1-3: 3

Choose size of the product:
1. Small
2. Medium
3. Large

Enter your choice (1-3): 3
Enter the weight:12
Enter the producer's name: Sajjad Hosseinipoor
Enter the quality controller's name: Javad Taghavi
Is the product repaired (Y/N)? n
The product record added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options(1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 2

To compelte entering new product, you need to have product ID, Production date, time spent
to make a product, person name who produced the product, person name who controlled the
quality of the product, and the person name who repaired the product if has been repaired.
Enter the product ID: 1238
Enter the production date in format of yyyy-mm-dd:2013-05-03
Enter the production time spent (hours): 12
Enter the production type. Choose 1-3: 1

Choose size of the product:
1. Small
2. Medium
3. Large

Enter your choice (1-3): M
For input string: "M"


Welcome to the database system of Future Inc.
Please select one of the following options(1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 2

To compelte entering new product, you need to have product ID, Production date, time spent
to make a product, person name who produced the product, person name who controlled the
quality of the product, and the person name who repaired the product if has been repaired.
Enter the product ID: 1238
Enter the production date in format of yyyy-mm-dd:2016-03-04
Enter the production time spent (hours): 37
Enter the production type. Choose 1-3: 1

Choose size of the product:
1. Small
2. Medium
3. Large

Enter your choice (1-3): 2
Enter the software name: Fotter
Enter the producer's name: Hamed Khoshboresh
Enter the quality controller's name: Vahab Pourkazemi
Is the product repaired (Y/N)? y
Enter the technical staff's name: Bahman Piroozram
Enter the repairment date in format of yyyy-mm-dd:2016-06-3

The product record was added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options(1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 2

To compelte entering new product, you need to have product ID, Production date, time spent
to make a product, person name who produced the product, person name who controlled the
quality of the product, and the person name who repaired the product if has been repaired.
Enter the product ID: 12234
Enter the production date in format of yyyy-mm-dd:2012-04-03
Enter the production time spent (hours): 21
Enter the production type. Choose 1-3: 3

Choose size of the product:
1. Small
2. Medium
3. Large

Enter your choice (1-3): 2
Enter the weight: 20
Enter the producer's name: Saied Hosseinipoor
Enter the quality controller's name: Javad Taghavi
Is the product repaired (Y/N)? n

The product record was added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options(1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
```

```
20. Quit (exit program).

Enter your option (1-20): 2

To compelte entering new product, you need to have product ID, Production date, time spent
to make a product, person name who produced the product, person name who controlled the
quality of the product, and the person name who repaired the product if has been repaired.
Enter the product ID: 11234
Enter the production date in format of yyyy-mm-dd:2015-03-06
Enter the production time spent (hours): 25
Enter the production type. Choose 1-3: 1

Choose size of the product:
1. Small
2. Medium
3. Large

Enter your choice (1-3): 3
Enter the software name: Ghorr
Enter the producer's name: Saied Hosseinipoor
Enter the quality controller's name: Akbar Abdi
Is the product repaired (Y/N)? n

The product record was added to the database.



Welcome to the database system of Future Inc.
Please select one of the following options(1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).
```

```
Enter your option (1-20): 2

To compelte entering new product, you need to have product ID, Production date, time spent
to make a product, person name who produced the product, person name who controlled the
quality of the product, and the person name who repaired the product if has been repaired.
Enter the product ID: 11223
Enter the production date in format of yyyy-mm-dd:2014-04-05
Enter the production time spent (hours): 98
Enter the production type. Choose 1-3: 2

Choose size of the product:
1. Small
2. Medium
3. Large

Enter your choice (1-3): 2
Enter the color: Blue
Enter the producer's name: Vahid Hosseinipoor
Enter the quality controller's name: Vahab Pourkazemi
Is the product repaired (Y/N)? y
Enter the technical staff's name: Ramin Ravanavar
Enter the repairment date in format of yyyy-mm-dd:2015-09-08

The product record was added to the database.



Welcome to the database system of Future Inc.
Please select one of the following options(1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).
```

```
Enter your option (1-20): 2

To compelte entering new product, you need to have product ID, Production date, time spent
to make a product, person name who produced the product, person name who controlled the
quality of the product, and the person name who repaired the product if has been repaired.
Enter the product ID: 112341
Enter the production date in format of yyyy-mm-dd:2015-07-02
Enter the production time spent (hours): 3
Enter the production type. Choose 1-3: 3

Choose size of the product:
1. Small
2. Medium
3. Large

Enter your choice (1-3): 3
Enter the weight: 3
Enter the producer's name: Hamed Khoshboresh
Enter the quality controller's name: Javad Taghavi
Is the product repaired (Y/N)? n

The product record was added to the database.
```

1.3. Script file showing the testing of query 3

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).
```

```
Enter your option (1-20): 3
Enter the customer's name: Saied Hosseinipoor
Enter the customer's address: 23 Norman
Enter the product ID:1234



Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 3
Enter the customer's name: Saied Hosseinipoor
Enter the product ID: 1235

The purchase was added to the database.



Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 3
Enter the customer's name: Saied Hosseinipoor
Enter the product ID: 1236

The purchase was added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 3
Enter the customer's name: Vahid Hosseinipoor
```

```
Enter the customer's address: 34 Astaneh
Enter the product ID: 2231

The purchase was added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 3
Enter the customer's name: Vahid Hosseinipoor
Enter the product ID: 1238

The purchase was added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
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10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 3
Enter the customer's name: Sajjad Hosseinipoor
Enter the customer's address: 44 Tehran
Enter the product ID: 12234

The purchase was added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 3
Enter the customer's name: Saied Hosseinipoor
Enter the product ID: 11234
```

```
The purchase was added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 3
Enter the customer's name: Sajjad Hosseinipoor
Enter the product ID: 11223

The purchase was added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 3
Enter the customer's name: Akbar Abdi
Enter the customer's address: 12 Astaneh
Enter the product ID: 112341

The purchase was added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 3
Enter the customer's name: Akbar Abdi
Enter the product ID: 130862

The purchase was added to the database.
```

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 3
Enter the customer's name: Akbar Abdi
Enter the product ID: 915570

The purchase was added to the database.
```

1.4. Script file showing the testing of query 4

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
```

```
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 4
Enter the product ID:1234
Enter the product cost:23

New account number 1112111 has been created for product 1234


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 4
Enter the product ID: 1235
Enter the product cost:12
```

```
New account number 1112113 has been created for product ID 1235


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 4
Enter the product ID: 1236
Enter the product cost:23

New account number 1112112 has been created for product 1236


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 4
Enter the product ID: 2231
Enter the product cost:23

New account number 1112215 has been created for product 2231

Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 4
Enter the product ID: 1238
Enter the product cost:23

New account number 1112114 has been created for product ID 1238


Welcome to the database system of Future Inc.
```

```
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 4
Enter the product ID: 12234
Enter the product cost:34

New account number 1112115 has been created for product ID 12234


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 4
Enter the product ID: 12223
Enter the product cost:23

New account number 1112213 has been created for product 12223


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 4
Enter the product ID: 11223
Enter the product cost:21

New account number 1112116 has been created for product ID 11223


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):
```

```
 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 4
Enter the product ID: 112341
Enter the product cost:16

New account number 1112117 has been created for product ID 112341


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 4
Enter the product ID: 796110
Enter the product cost:23

New account number 1112121 has been created for product 796110
```

1.5. Script file showing the testing of query 5

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 5
Enter the customer's name: Saied Hosseinipoor
Enter the product ID:1234
Enter complain description: Bad

Choose type of treatment:
1. Get money back
2. Exchange for another product

Enter your choice (1-2): 2
```

```
A complain has been recorded.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 5
Enter the customer's name: Saied Hosseinipoor
Enter the product ID:1235
Enter complain description: Not working

Choose type of treatment:
1. Get money back
2. Exchange for another product

Enter your choice (1-2): 1

A complain has been recorded.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 5
Enter the customer's name: Saied Hosseinipoor
Enter the product ID:1236
Enter complain description: Awefull

Choose type of treatment:
1. Get money back
2. Exchange for another product

Enter your choice (1-2): 1

A complain has been recorded.
```

1.6. Script file showing the testing of query 6

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 6
Enter the product ID: 1234

Choose type of accident:
1. Repair accident
2. Production accident

Enter your choice (1-2): 2
Enter the work days lost: 1

The accident record added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 6
Enter the product ID: 1236
```

```
Choose type of accident:
1. Repair accident
2. Production accident

Enter your choice (1-2): 1
Enter the work days lost: 2

There is no repair record available associated with this product.



Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 6
Enter the product ID: 1235

Choose type of accident:
1. Repair accident
2. Production accident

Enter your choice (1-2): 1
Enter the work days lost: 1

The accident record added to the database.


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):
```

```
 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 6
Enter the product ID: 332463

Choose type of accident:
1. Repair accident
2. Production accident

Enter your choice (1-2): 2
Enter the work days lost: 3

The accident record added to the database
```

1.7. Script file showing the testing of query 7

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
```

```
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 7
Enter the product ID:1234

This product is produced on 2015-12-01
The spent time for this product is 33


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 7
Enter the product ID:1236

This product is produced on 2013-04-23
```

```
The spent time for this product is 22


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 7
Enter the product ID:338508

This product is produced on 2011-06-12
The spent time for this product is 24
```

1.8. Script file showing the testing of query 8

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 8
Enter the worker's name: Saied Hosseinipoor
The product's information produced by Saied Hosseinipoor is:

PID           PRODUCTION_DATE             SPENT_TIME           E_NAME
-------------------------------------------------------------------
1234          2015-12-01                  33            Saied Hosseinipoor
2231          2016-12-01                  22            Saied Hosseinipoor
12234         2012-04-03                  21            Saied Hosseinipoor
11234         2015-03-06                  25            Saied Hosseinipoor


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
```

```
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 8
Enter the worker's name: Hamed Khoshboresh
The product's information produced by Hamed Khoshboresh is:

PID           PRODUCTION_DATE             SPENT_TIME           E_NAME
-------------------------------------------------------------------
1238          2016-03-04                  37            Hamed Khoshboresh
112341        2015-07-02                  3             Hamed Khoshboresh


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 8
Enter the worker's name: Eric Kennedy
The product's information produced by Eric Kennedy is:

PID           PRODUCTION_DATE             SPENT_TIME           E_NAME
-------------------------------------------------------------------
948975        2013-10-15                  8             Eric Kennedy
913973        2011-01-13                  35            Eric Kennedy
143489        2013-06-11                  8             Eric Kennedy
457289        2013-12-10                  6             Eric Kennedy
247412        2013-01-22                  18            Eric Kennedy
371945        2013-08-20                  20            Eric Kennedy
475058        2015-03-05                  6             Eric Kennedy
```

```
311309        2011-11-28                27            Eric Kennedy
539065        2014-02-13                7             Eric Kennedy
655679        2014-02-05                26            Eric Kennedy
986636        2010-11-06                13            Eric Kennedy
133754        2014-01-21                14            Eric Kennedy
634597        2013-12-10                14            Eric Kennedy
```

1.9. Script file showing the testing of query 9

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 9
Enter the quality controller's name: Vahab Poukazemi

Vahab Poukazemi made 0 error(s)!

Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 9
Enter the quality controller's name: Akbar Abdi

Akbar Abdi made 1 error(s)!

Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 9
Enter the quality controller's name: Stephanie Garrett
```

```
Stephanie Garrett made 2 error(s)!
```

1.10. Script file showing the testing of query 10

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 10
Enter the quality controller's name: Akbar Abdi
Total cost is $0.0


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
```

```
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 10
Enter the quality controller's name: Daniel Sims
Total cost is $0.0


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 10
Enter the quality controller's name: Stephanie Garrett
Total cost is $0.0
```

1.11. Script file showing the testing of query 11

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 11
Enter the product's color: Blue

The following customer(s) bought Blue product(s):
Debra Sims
Denise Campbell
Betty Hunter
Ernest White
Amy Gordon
Phyllis Dunn
Michael Patterson
Kathy Gonzales
Paula Gomez
Karen Franklin
Alice Russell
Eric Kennedy
Alan Campbell
Cheryl Dean
Wayne Gutierrez
Helen Hunt
Stephen Schmidt
Margaret Garcia
Saied Hosseinipoor
```

```
Sajjad Hosseinipoor
Raymond Willis
Jesse Ruiz
Kenneth Duncan
Debra Perry


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 11
Enter the product's color: Red

The following customer(s) bought Red product(s):
Larry Martin
David Perkins
Brandon Torres
Beverly Morgan
Bobby Knight
Helen Miller
Tina Rice
Joseph Frazier
Fred Gilbert
Jeffrey Gray
Joan Little
Shirley Hughes
Jeffrey Richards
Diane Pierce
Emily Wheeler
Richard Lane
```

```
Carolyn Bennett
John Price
Julia Ruiz


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 11
Enter the product's color: Khaki
The following customer(s) bought Khaki product(s):
William Murray
Judy Burns
Harold Stanley
Jean Lynch
Paula Rose
Linda Flores
Eric Carroll
Jennifer Bowman
Raymond Cox
Sean Ross
Heather Banks
Paula Fernandez
Douglas Vasquez
Sara Chavez
Angela Cooper
Aaron Gray
Sandra Ray
Jane Gray
Juan Moore
```

1.12. Script file showing the testing of query 12

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 12

Total days of work lost due to complaint(s) is: 3
```

1.13. Script file showing the testing of query 13

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
```

```
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 13
The following customer(s) are also worker(s):
Alan Campbell
Amy Alvarez
Amy Burns
Amy Johnston
Ann Burns
Annie Reid
Arthur Ford
Arthur Stone
Barbara Russell
Benjamin Cole
Beverly Rose
Carolyn Howell
Charles Mitchell
Cheryl Dean
Chris Myers
Christina Sims
Daniel Black
Debra Collins
Doris Green
Earl Perez
Emily Fowler
Eric Kennedy
Ernest Richards
Evelyn Simpson
Frances Hughes
Fred Gilbert
Gary Dixon
Gerald Gordon
Gerald Jacobs
Gregory Lawrence
Gregory Martinez
Helen Hunt
Jeffrey Gray
Jennifer Bowman
Jimmy Griffin
Joan Little
Joan Snyder
John Jenkins
Jonathan Coleman
```

```
Joseph Frazier
Joshua Reyes
Judith Jordan
Julia Parker
Julie Wright
Justin Ray
Katherine Rogers
Kathryn Harper
Kenneth Banks
Lillian Adams
Linda Gordon
Lois Oliver
Louise Hamilton
Marilyn Dixon
Matthew Reyes
Michael Grant
Paula Martin
Phyllis Allen
Rose Chapman
Ryan Ross
Saied Hosseinipoor
Sajjad Hosseinipoor
Sandra Stone
Sean Rose
Theresa Day
Thomas Duncan
Vahid Hosseinipoor
Wanda Grant
Wayne Gutierrez
```

1.14. Script file showing the testing of query 14

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 14

The following customer(s) have bought their own work(s):
Arthur Ford
Ann Burns
Saied Hosseinipoor
Saied Hosseinipoor
```

1.15. Script file showing the testing of query 15

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 15
Enter the year: 2014

The average cost of all products maid in 2014 is $73.33
```

1.16. Script file showing the testing of query 16

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 16
Enter the quality controller's name: Vahab Pourkazemi
Enter the technical staff's name: Farhad Mohammadi

Database has been updated.
```

1.17. Script file showing the testing of query 17

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 17
Enter the beginning date in format of (yyyy-mm-dd): 2013-03-12
Enter the end date in format of (yyyy-mm-dd): 2013-07-21

Database has been updated.
```

1.18. Script file showing the testing of query 18

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).
```

```
Enter your option (1-20): 18
Please enter input filename: test export.csv

test export.csv (No such file or directory)


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 18
Please enter input filename: import customers.csv
1 new customer(s) were added to the database. 572 of given custemr(s) were already in the
list.
```

1.19. Script file showing the testing of query 19

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 19
Please enter output filename: test export.csv

Customers information imported into 'test export.csv' file.
```

1.20. Script file showing the testing of query 20

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).
```

```
Enter your option (1-20): 20

Program is terminated due to your command. Thank you for using the application.
```

1.21. Some errors

```
Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 1

Choose type of employee:
1. Worker
2. Quality Controller
3. Technical Staff

Enter your choice (1-3): 1
Enter the employee's name: Saied Hosseinipoor
Enter the employee's address: 44 Norman
ORA-00001: unique constraint (HOSS5825.EMPLOYEES_PK) violated


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
```

```
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 16
Enter the quality controller's name: Hassan Ali
Enter the technical staff's name: Mohsen Karegar
ORA-00001: unique constraint (HOSS5825.TECH_STAFF_PK) violated


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
20. Quit (exit program).

Enter your option (1-20): 2

To compelte entering new product, you need to have product ID, Production date, time spent
to make a product, person name who produced the product, person name who controlled the
quality of the product, and the person name who repaired the product if has been repaired.
Enter the product ID: 1234
Enter the production date in format of yyyy-mm-dd: 20144-03-23
Enter the production time spent (hours): 22
Enter the production type. Choose 1-3: 1

Choose size of the product:
1. Small
2. Medium
3. Large

Enter your choice (1-3): 2
Enter the software name: Symbian
Enter the producer's name: Mohsen Karegar
Error! The worker name is not existed in database.
Press enter to countinue ...

null


Welcome to the database system of Future Inc.
Please select one of the following options (1-20):

 1. Enter a new employee.
 2. Enter a new product associated with the person who made the product, repaired the
product if it is repaired, or checked the product.
 3. Enter a customer associated with some products.
 4. Create a new account associated a product.
 5. Enter a complain 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 control made. This is the
total number of products certified by this controller and got some  complaints.
10. Retrieve the total cost 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 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 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.
19. Export: Retrieve all customers (in name order) and output them into a data file instead
of screen.
```

```
20. Quit (exit program).

Enter your option (1-20): 2

To compelte entering new product, you need to have product ID, Production date, time spent
to make a product, person name who produced the product, person name who controlled the
quality of the product, and the person name who repaired the product if has been repaired.
Enter the product ID: 8937598
Enter the production date in format of yyyy-mm-dd: 20134-02-12
Enter the production time spent (hours): 22
Enter the production type. Choose 1-3: 2

Choose size of the product:
1. Small
2. Medium
3. Large

Enter your choice (1-3): 2
Enter the color: BLue
Enter the producer's name: Saied Hosseinipoor
Enter the quality controller's name: Javad Taghavi
Is the product repaired (Y/N)? n

ORA-01861: literal does not match format string
```