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/*
Noah Zhou
CNIT 272 Fall 2023
Lab Time: Thurs 7:30 AM - 9:20 AM
*/

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*************************************************************************
********
--Question 1
/*
A) Code and execute a DDL statement which creates a table named
S23VENDOR,
with five attributes: vendorID, name, city, and phone.
  a. Set the attribute vendorID as the primary key.
  b. Use reasonable datatypes and sizes, except make the vendorID a fixed
character with a length of 3.
B) Using ALTER TABLE, alter the table by adding another attribute –
description.
  Make the description attribute a variable character datatype with a
length of 20.
C) Run a description of the S23VENDOR table (use the DESCRIBE command).
D) Drop the table.
*/

--Question 1-A
CREATE TABLE S23VENDOR
(
vendorID char(3),
Name varchar2(255),
City varchar2(255),
Phone varchar2(255),
CONSTRAINT vendorID_PK PRIMARY KEY(vendorID)
);

--Question 1-B
ALTER TABLE S23VENDOR
ADD Description varchar(20);

--Question 1-C
DESCRIBE S23VENDOR;

--Question 1-D
DROP TABLE S23VENDOR;

/*
Results:
[Question 1-A]
Table S23VENDOR created.

[Question 1-B]
Table S23VENDOR altered.

[Question 1-C]
```

```
Name        Null?    Type
----------- -------- -------------
VENDORID    NOT NULL CHAR(3)
NAME                 VARCHAR2(255)
CITY                 VARCHAR2(255)
PHONE                VARCHAR2(255)
DESCRIPTION          VARCHAR2(20)

[Question 1-D]
Table S23VENDOR dropped.
*/

--
*************************************************************************
********
--Question 2
/*
A) Using one SQL statement, create AND POPULATE a table called S23ZIPCODE
  containing columns ZipCode, and City. ZipCode should be generated.
B) Provide the count of the number of rows in the new S23ZipCode table.
There
  should be a count of 8 rows.

--Question 2-A
CREATE TABLE S23ZIPCODE AS (
  SELECT ROW_NUMBER() OVER(ORDER BY city) AS zipcode, city
  FROM (SELECT city
    FROM worker
    UNION
    SELECT supplier_city
    FROM food_supplier)
    WHERE city IS NOT NULL
);

--Question 2-B
SELECT COUNT (*) FROM S23ZIPCODE;

/*
Results:
[Question 2-A]
Table S23ZIPCODE created.

[Question 2-B]
COUNT(*)
----------
       8
*/

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*************************************************************************
********
--Question 3
/*
A. Create a table named S23PROFESSOR with the following columns and
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  constraints:
B. Do a DESCRIBE on S23PROFESSOR to confirm your DDL was
  successful.
C. To confirm the constraints, list the Constraint_Name, Constraint_Type,
  Status, and Search_Condition from the USER_CONSTRAINTS Oracle
  table where the Table_Name = 'S23PROFESSOR'.
  Display the SQL statement as well as the output.
  You don’t have to write it, but review the difference between a
constraint
  that you have named versus a constraint that is named automatically by
Oracle.
*/
--Question 3-A
CREATE TABLE S23PROFESSOR
(
ProfID char(10),
FirstName varchar2(10),
LastName varchar2(20),
DepartmentID char(4) NOT NULL,
HireDate date,
BirthDate date,
Phone char(10),
Email varchar2(30),
CONSTRAINT S23PROFESSOR_PK PRIMARY KEY (ProfID),
CONSTRAINT S23professor_UQ UNIQUE (Email)
);

--Question 3-B
DESCRIBE S23PROFESSOR;

--Question 3-C
SELECT Constraint_Name, Constraint_Type, Status, Search_Condition
FROM USER_CONSTRAINTS
WHERE Table_Name = 'S23PROFESSOR';

/*
Results:
[Question 3-A]
Table S23PROFESSOR created.

[Question 3-B]
Name         Null?    Type
------------ -------- ------------
PROFID       NOT NULL CHAR(10)
FIRSTNAME             VARCHAR2(10)
LASTNAME              VARCHAR2(20)
DEPARTMENTID NOT NULL CHAR(4)
HIREDATE              DATE
BIRTHDATE             DATE
PHONE                 CHAR(10)
EMAIL                 VARCHAR2(30)

[Question 3-C]
SELECT Constraint_Name, Constraint_Type, Status, Search_Condition
```

```
FROM USER_CONSTRAINTS
WHERE Table_Name = 'S23PROFESSOR';

CONSTRAINT_NAME     C STATUS   SEARCH_CONDITION
--------------------- -------- ------------------------------------------
--------------------------------------
SYS_C00548047       C ENABLED  "DEPARTMENTID" IS NOT NULL
S23PROFESSOR_PK     P ENABLED
S23PROFESSOR_UQ     U ENABLED
*/

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*************************************************************************
********
--Question 4
/*
A) Add a new column named Office to S23PROFESSOR. Use a
  “VarChar2(10)” datatype.
B) Describe S23PROFESSOR. (DESCRIBE to show table structure.)
*/
--Question 4-A
ALTER TABLE S23PROFESSOR
ADD Office varchar2(10);

--Question 4-B
DESCRIBE S23STUDENT;

/*
Results:
[Question 4-A]
Table S23PROFESSOR altered.

[Question 4-B]
Name         Null?    Type
------------ -------- ------------
PROFID       NOT NULL CHAR(10)
FIRSTNAME             VARCHAR2(10)
LASTNAME              VARCHAR2(20)
DEPARTMENTID NOT NULL CHAR(4)
HIREDATE              DATE
BIRTHDATE             DATE
PHONE                 CHAR(10)
EMAIL                 VARCHAR2(30)
OFFICE                VARCHAR2(10)
*/

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*************************************************************************
********
--Question 5
/*
A) Code and execute a DDL statement which creates a table named
  S23COURSE, with five attributes: CourseID, CourseDescription,
  CourseSize, StartDate, and EndDate. Set the CourseID as the primary
  key (pk_S23course). Use reasonable datatypes and sizes, except
  make the CourseID a fixed character with a length of 10.
B) Run a description of the table (use the DESCRIBE command).
*/
--Question 5-A
CREATE TABLE S23COURSE
(
CourseID char(10),
CourseDescription varchar2(255),
CourseSize int,
StartDate date,
EndDate date,
CONSTRAINT S23COURSE_PK Primary Key (CourseID)
);

--Question 5-B
DESCRIBE S23COURSE;

/*
Results:
[Quesiton 5-A]
Table S23OURSE created.

[Quesiton 5-B]
Name              Null?    Type
----------------- -------- -------------
COURSEID          NOT NULL CHAR(10)
COURSEDESCRIPTION          VARCHAR2(255)
COURSESIZE                 NUMBER(38)
STARTDATE                  DATE
ENDDATE                    DATE
*/

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*************************************************************************
********
--Question 6
/*
Add CourseID as a Foreign Key to S23PROFESSOR.
A) First using ALTER TABLE, add CourseID to S23PROFESSOR using
  the same datatype and size as in the parent table (S23COURSE).
B) Second, add a constraint called S23Professor_FK establishing
  referential integrity between the CourseID in the S23PROFESSOR
  (child) table and the S23COURSE (parent) table.
C) Describe S23PROFESSOR.
*/

--Question 6-A
ALTER TABLE S23PROFESSOR
ADD CourseID char(10);

--Question 6-B
ALTER TABLE S23PROFESSOR
```

```
ADD CONSTRAINT S23PROFESSOR_FK FOREIGN KEY (CourseID) REFERENCES
S23COURSE (CourseID);

--Question 6-C
DESCRIBE S23PROFESSOR;

/*
Results:
[Question 6-A]
Table S23PROFESSOR altered.

[Question 6-B]
Table S23PROFESSOR altered.

[Question 6-C]
Name         Null?    Type
------------ -------- ------------
PROFID       NOT NULL CHAR(10)
FIRSTNAME             VARCHAR2(10)
LASTNAME              VARCHAR2(20)
DEPARTMENTID NOT NULL CHAR(4)
HIREDATE              DATE
BIRTHDATE             DATE
PHONE                 CHAR(10)
EMAIL                 VARCHAR2(30)
OFFICE                VARCHAR2(10)
COURSEID              CHAR(10)
*/

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--Question 7
/*
Add a check constraint for the DepartmentID attribute in the
S23PROFESSOR table
A) Use the CHECK clause to limit the options to CNIT, MGMT, AERO, or
CHEM.
Name the constraint: S23PROFESSOR_DEP_CK
B) Copy and execute the following statement to check the constraint for
  Status:
  Then copy and paste the error result as well as the SQL statement that
  you just used. You should have an ORA-02290: check constraint
  violated as an error
*/

--Question 7-A
ALTER TABLE S23PROFESSOR
ADD CONSTRAINT S23PROFESSOR_DEP_CK CHECK (DepartmentID = 'CNIT' OR
DepartmentID = 'MGMT' OR DepartmentID = 'AERO' OR DepartmentID = 'CHEM');

--Question 7-B
INSERT INTO S23professor (profID, DepartmentID) VALUES
```

```
('0123456789','STAT');

/*
Results:
[Question 7-A]
Table S23PROFESSOR altered.

[Question 7-B]
Error starting at line : 1 in command -
INSERT INTO S23professor (profID, DepartmentID) VALUES
('0123456789','STAT')
Error report -
ORA-02290: check constraint (ZHOU1170.S23PROFESSOR_DEP_CK) violated
*/

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********
--Question 8
/*
Run a SQL statement that displays your userID (USER) and the system
time stamp (SYSDATE)
Select the USER and SYSDATE from the DUAL table
*/
SELECT user, sysdate
FROM DUAL;

/*
Results:
USER        SYSDATE
----------- ---------
ZHOU1170    26-OCT-23
*/

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**************************************************************************
********
--Question 9
/*
A) Using the USER_CONSTRAINTS Oracle table, list the
  Constraint_Name, Table_Name and Status from the
  USER_CONSTRAINTS view where the Constraint_Type = 'P' (i.e.,
  Primary Key). Copy and paste the last ten lines to your document.
B) List the Constraint_Name, Table_Name, R_Constraint_Name and
  Status from the USER_CONSTRAINTS view where the
  Constraint_Type = 'R' (i.e., Foreign Key). The R_Constraint_Name is
  the parent’s constraint name. Copy and paste the last ten lines to
  your document.
*/
--Question 9-A
SELECT Constraint_Name, Table_Name, Status
FROM User_Constraints
WHERE Constraint_Type = 'P';
```

```
--Question 9-B
SELECT Constraint_Name, Table_Name, R_Constraint_Name, Status
FROM User_Constraints
WHERE Constraint_Type = 'R';

/*
Results:
[Question 9-A]
DEPARTMENT_PK                  DEPARTMENT           ENABLED
FOOD_PK                        FOOD                 ENABLED
FOOD_SUPPLIER_PK               FOOD_SUPPLIER        ENABLED
LUNCH_ITEM_PK                  LUNCH_ITEM           ENABLED
LUNCH_PK                       LUNCH                ENABLED
S23COURSE_PK                   S23COURSE            ENABLED
S23PROFESSOR_PK                S23PROFESSOR         ENABLED

CONSTRAINT_NAME                TABLE_NAME           STATUS
------------------------------ -------------------- --------
WORKER_PK                      WORKER               ENABLED

23 rows selected.

[Question 9-B]
CONSTRAINT_NAME          TABLE_NAME               R_CONSTRAINT_NAME
STATUS
------------------------ ------------------------ -----------------------
--- --------
DC_FK                    WORKER                   DEPARTMENT_PK
ENABLED
FOOD_FK                  LUNCH_ITEM               FOOD_PK
ENABLED
LUNCH_FK                 LUNCH_ITEM               LUNCH_PK
ENABLED
S23PROFESSOR_FK          S23PROFESSOR             S23COURSE_PK
ENABLED
SUPPLIER_FK              FOOD                     FOOD_SUPPLIER_PK
ENABLED
WORKER_FK                LUNCH                    WORKER_PK
ENABLED

6 rows selected.
*/

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--Question 10
/*
Drop S23ZIPCODE, S23COURSE, and S23PROFESSOR. Cascade the
constraints. Show the SQL statement to drop the 3 tables as well as the
output.
*/
DROP TABLE S23ZIPCODE CASCADE CONSTRAINTS;
DROP TABLE S23COURSE CASCADE CONSTRAINTS;
DROP TABLE S23PROFESSOR CASCADE CONSTRAINTS;

/*
Results:
DROP TABLE S23ZIPCODE CASCADE CONSTRAINTS;
DROP TABLE S23COURSE CASCADE CONSTRAINTS;
DROP TABLE S23PROFESSOR CASCADE CONSTRAINTS;

Table S23ZIPCODE dropped.

Table S23COURSE dropped.

Table S23PROFESSOR dropped.
*/
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************************************************************************
********
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