SQL Exercise 1 – Jason Chan

1. Write the command to create a database called **products**.

```
CREATE DATABASE products
ON (
NAME = products_data,
FILENAME = 'C:\Program Files\Microsoft SQL Server\MSSQL\Data\
products_data.mdf'
)
LOG ON (
NAME = products_log,
FILENAME = 'C:\Program Files\Microsoft SQL Server\MSSQL\Data\
products_log.ldf'
)
```

2. What is a user-defined data type? Why is it used?

Is a user custom created data type, this is made so the user could have unique data for the data storage, and it enforces data integrity (allowing data of a certain type be stored).

User-defined data type is used when multiple tables are to store the same type of data in a column, this enforces the data stored in the particular column is the same data type, length, and null ability.

3. When creating or altering a table, what are constraints? List and explain

1. Enforcing data integrity to ensure the same data type on a table, or a column.
2. Limiting the possible values entered/stored into a table, or a column.

NOT NULL - column does not accept NULL as a value.
CHECK - specifies what data can be entered in a column.
UNIQUE - enforces values to be unique in a set of a column.
PRIMARY KEY- identifies the column(s) which values uniquely identity a row in the table
FOREIGN KEY- identifies the relationships between tables
DEFAULT - defines a value the system will automatically insert into a column when a value is not given

4. What is the objective of SQL?

The objective of SQL is to allow users to create the database and relation structures, perform data management tasks, and perform simple and complex queries to transform inputs into required outputs.

5. What is a database?

A database contains the objects used to represent, manage, and access data. It is a collection of tables with data, and other objects, such as views, indexes, stored procedures, and triggers.

6. Within the context of a database, what is a table?

A table is used to store and manipulate data. Each row in the table representing a unique record, and each column a field within the record.
7. What are the 4 items you must define when you create a table?
The 4 items are: column name, data type, required data, and default value.

8. Explain the data type timestamp.

Timestamp is a database wide automatically generated unique binary number which has precision down to the nanosecond.

9. Explain the two major components of SQL.

DDL - for defining database structure and controlling access to the data
DML - for retrieving and updating data

10. Create a table called **BOOKINFO** with the following attributes:

Column Name Data Type Length NULL
TITLE_ID INT No
TITLE VARCHAR 80 No
BOOK_TYPE CHAR 12 No
PUBLISHER_ID CHAR 4 Yes
PRICE MONEY Yes
PUBLISH_DATE DATETIME No
CREATE TABLE BOOKINFO
(
TITLE_ID INT NOT NULL,
TITLE VARCHAR(80) NOT NULL,
BOOK_TYPE CHAR(12) NOT NULL,
PUBLISHER_ID CHAR(4),
PRICE MONEY,
PUBLISH_DATE DATETIME NOT NULL
)

11. Write the command to add a default value of 'unclassified' to the BOOK_TYPE column in the BOOKINFO table created in question 10.

```
ALTER TABLE BOOKINFO
ADD DEFAULT ( 'unclassified' ) FOR BOOK_TYPE
```

12. Write the command to add a default value of **today's date** to the PUBLISHER_DATE column in the BOOKINFO table created in question 10.

```
ALTER TABLE BOOKINFO
ADD DEFAULT ( GETDATE() ) FOR PUBLISHER_DATE
```

13. Write the command to add the column NOTES to the BOOKINFO table created in question 10 with a data type of VARCHAR, length of 200, and allow null values.

```
ALTER TABLE BOOKINFO
ADD NOTES VARCHAR(200)
```

14. Write the command to add the constraint to the TITLE_ID column only allowing values of a number from 0 to 10000.

```
ALTER TABLE BOOKINFO
ADD CHECK ( TITLE_ID >= 0 AND TITLE_ID <= 10000 )
```

15. Write the command to drop the table BOOKINFO. Write the command to drop the database 'products'.

```
DROP TABLE BOOKINFO
DROP DATABASE products
```