SQL-THE STRUCTURED QUERY LANGUAGE

1. CREATE DATABASE

CREATE DATABASE <dbname>;
GRANT ALL ON <dbname>.* TO <user>@localhost
IDENTIFIED BY <password>;

2. CREATE TABLE

CREATE TABLE <tablename>
(<column> <datatype> [<attribute constraint>]
{, <column> <datatype> [<attribute constraint>]}
[<table constraint> {, <table constraint>}]);

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Datatypes:

- CHAR(<size>) (size < 255 bytes)
- VARCHAR(<size>) (size < 255 bytes)
- BLOB or TEXT (size < 65,535)
- MEDIUMBLOB or MEDIUMTEXT (size < 16,777,215)
- LONGBLOB or LONGTEXT (size < 4 GigaBytes)
- ENUM(<value1>, <value2>,…<valuen>)
- TINYINT, SMALLINT, MEDIUMINT, INT, BIGINT are integers of 1, 2, 3, 4, and 8 bytes, respectively.
- DECIMAL or NUMERIC(M, D)
- FLOAT
- DOUBLE PRECISION
- DATE (default format YYYY-MM-DD, e.g. "1997-10-04")

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Attribute constraints:

- NOT NULL
- UNIQUE
- PRIMARY KEY
- DEFAULT <value>

Table constraints: [CONSTRAINT <name>]

- PRIMARY KEY (<attribute> {, <attribute>})
- FOREIGN KEY <attribute> REFERENCES <table>(<attribute>) [ON DELETE SET NULL | ON DELETE CASCADE]
- UNIQUE (<attribute> {, <attribute>})

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```
CREATE TABLE STUDENT(SSN numeric(9) primary key,
                     FNAME varchar(20),
                     LNAME varchar(20),
                     SEX enum('M','F'),
                     DBIRTH date,
                     STADDRESS varchar(20),
                     CITY varchar(20),
                     STATE char(2),
                     ZIPCODE char(5),
                     TELEPHONE numeric(10),
                     MAJOR char(4),
                     CLASS tinyint);
```

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```
CREATE TABLE COURSE(CNUM char(7) primary key,
                    CNAME varchar(30),
                    TEXTBOOK varchar(50),
                    UNITS tinyint,
                    DEPARTMENT varchar(30));
CREATE TABLE ENROLL(SNO numeric(9),
                    CNO char(7),
                    GRADE enum('A','B','C','D','F','W'),
                    primary key (SNO, CNO),
                  foreign key (SNO) references STUDENT(SSN),
                  foreign key (CNO) references COURSE(CNUM));
```


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3. DROP

```
DROP DATABASE <dbname>;
DROP TABLE <tablename>;
```

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4. ALTER TABLE

ALTER TABLE <name> ADD
(<column> <datatype> {, <column> <datatype>});
ALTER TABLE <name> MODIFY
(<column> <datatype> {, <column> <datatype>});
ALTER TABLE <name> MODIFY (<column> PRIMARY);
ALTER TABLE <name> MODIFY (<column> UNIQUE);
ALTER TABLE <name> MODIFY (<column> DEFAULT <value>);
ALTER TABLE <name> RENAME TO <newname>;
ALTER TABLE <name> DROP (<column> {, <column>});
ALTER TABLE <name> DROP PRIMARY (<column> {,<column>});
ALTER TABLE <name> DROP UNIQUE (<column> {, <column>});
ALTER TABLE <name> DROP CONSTRAINT <name>;

SQL-THE STRUCTURED QUERY LANGUAGE

5. INSERT tuples

INSERT INTO <table> VALUES(<value1>, …, <valuen>);

<value1>, …, <valuen> are the values for the attributes in exactly the same order when the table was created. You can change the order using the following statement.

INSERT INTO <table>(<attribute1>, <attribute2>, …)
VALUES(<value1>,<value2>, …);

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6. UPDATE

UPDATE <table> SET <attribute>=<value> WHERE <conditions>;

7. DELETE

DELETE FROM <table> WHERE <conditions>;