

Introduction to Management Information Systems

Data Definition Language

Data Resource Management

Relational Database Table

today

1. Create Table
2. SQL Select

after

Multiple Tables

Preparation

1. Use your ER diagram
2. Data Types
3. Test Data (you can use ChatGPT)

Database

1. <https://sqlitebrowser.org/dl/>
2. DB Browser for SQLite - Standard installer for 64-bit Windows
3. or in files

Database Design

table	columns	data types	notes
student	student_id	integer	primary key
student	st_firstname	varchar(50)	
lecturer	staff_id	integer	primary key
...	...		...
unit	student_id	integer	foreign key

task #1

Create Table

create table

example create table

- create table
- columns
- data types
- *check*
- keys

table

start with one table

create table

```
CREATE TABLE students (  
    student_id  
    class_no  
    name  
    mark  
);
```

create table

```
CREATE TABLE students (  
    student_id INT,  
    class_no INT,  
    name VARCHAR(255),  
    mark INT  
);
```

- create table
- columns
- data types

create table

```
CREATE TABLE students (  
    student_id INT PRIMARY KEY,  
    class_no INT,  
    name VARCHAR(255),  
    mark INT  
);
```

- create table
- columns
- data types
- keys

create table

```
CREATE TABLE students (  
    student_id INT PRIMARY KEY,  
    class_no INT,  
    name VARCHAR(255),  
    mark INT CHECK (mark >= 0 AND mark <= 100)  
);
```

- create table
- columns
- data types
- keys
- check

examples of create table

```
CREATE TABLE customers (  
    customerid float,  
    firstname varchar ( 255 ),  
    lastname varchar ( 255 ),  
    city varchar ( 255 ),  
    state varchar ( 255 )  
);
```

examples of create table

```
CREATE TABLE customers (  
    customerid float NOT NULL primary key,  
    firstname varchar ( 255 ),  
    lastname varchar ( 255 ) NOT NULL,  
    city varchar ( 255 ),  
    state varchar ( 255 )  
);
```

examples of create table

```
CREATE TABLE myemployee (  
    firstname varchar ( 30 ),  
    lastname varchar ( 50 ),  
    title   varchar ( 30 ),  
    age    number ( 3 ),  
    salary number ( 10 , 2 )  
);
```

examples of create table

```
CREATE TABLE myemployee (  
    ID integer primary key autoincrement,  
    firstname varchar ( 30 ),  
    lastname varchar ( 50 ),  
    title   varchar ( 30 ),  
    age     number ( 3 ) check (age>=18),  
    salary  number ( 10 , 2 ) check (salary >= 10000)  
);
```

examples of create table

```
CREATE TABLE items_ordered (  
    orderid    integer,  
    customerid float,  
    order_date timestamp,  
    item       varchar ( 255 ),  
    quantity   float,  
    price      float  
);
```

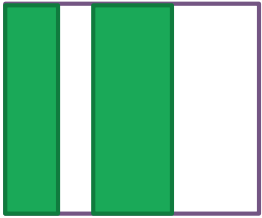
examples of create table

```
CREATE TABLE items_ordered (  
    orderid    integer NOT NULL unique primary key,  
    customerid float,  
    order_date timestamp,  
    item       varchar ( 255 ),  
    quantity   float check (quantity>=18),  
    price      float check (quantity>=0),  
    FOREIGN KEY (customerid) REFERENCES customers(customerid)  
);
```

task #2

See the Data

SQL - DML



SELECT
FROM
WHERE

what you want to see
from where
which rows

SELECT *column*
FROM *tables(s)*
WHERE *age > 22*

select

```
select student_id, name  
from students
```

select *

select *

from students

where =

select *

from students

where class_no = 5

where >

select *

from students

where class_no > 5

like

```
select student_id,name  
from students  
where student_id like '64%'
```

like

```
select class_no,name  
from students  
where class_no like '1_'
```

order by

```
select student_id, name  
from students  
order by student_id, name
```

arithmetic operators + - * /

```
select name, mark, mark*1.1  
from students
```

alias

```
select name, mark, mark*1.1 as new_mark  
from students
```

task #2

Multiples Table

multiple tables

- backup your data
- create tables
- primary keys
- foreign keys

FOREIGN KEY (student_id) REFERENCES student(student_id)

this would be in the other table e.g. unit_registration

- input test data into each table

first 1:- tables e.g. students, units

then tables with foreign keys e.g. unit_registration

- - does it work?
- if not, do you need to change the design?

multiple table

is the design ok ?

test data will tell you (keep a copy!)

student - mark

customer - item - order

customer - item - order - order_line

consider

normalization

- address - 1 field or more
- contact details = myemail@gmail.com, 012345678
 - should be email, phone
- Excel - student, marks
 - should be student, marks

to do

constraints - check, mark 0 to 100

joins

insert, update , delete

select aggregate

excel / access

Thank you!
any questions?