

**ICT Curriculum Elective Module A - Teaching database concepts using MySQL Environment**

**高中資訊及通訊科技修訂課程選修單元A - 使用MySQL 教授數據庫工作坊**

**Date : 23 Feb 2024 (Friday)**

**Time : 2:30 p.m. - 5:15 p.m.**

**Venue : City University of Hong Kong  
LI4109**

**Ng Tsz Kit**

**Hong Kong Chinese Women's Club College**

**Programme Rundown 程序**

Time 時間	Talk / Arrangement 講題 / 安排	Speaker 講者
2:30pm - 2:45pm	Registration 登記	
2:45pm - 3:00 pm	Inrtoduction 簡介	Curriculum Development Officer (Technology Education), EDB 教育局 課程發展主任(科技教育)  Mr NG Tsz Kit, ICT Panel Head, Hong Kong Chinese Women's Club   College 香港中國婦女會中學, 電腦科科主任, 吳子傑先生
3:00 pm - 4:30 pm	〈Keynote Speech〉 MySQL Basic  〈專題演講〉 MySQL 基礎工作坊	Mr. Ivan Ma Principal Sales Consultant & MySQL User Group Lead at Oracle Oracle 首席技術顧問馬楚成先生
4:30 pm - 4:40 pm	Break 小休	
4:40 pm - 5:15 pm	〈Teacher Workshop〉 SQL: From theory to practical  〈教師工作坊〉 SQL: 從理論到實踐	Mr. WEN Hua Yan, ICT Panel Head, Christian Alliance Cheng Wing Gee College  香港九龍塘基督教中華宣道會鄭榮 之中學, 電腦科科主任, 溫華恩 先生

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- Tasks
- Your Submissions

## SELECT: Library collection ☆

Q201 Column Names: Must Match Column Order: Any Row Order: Any

You are working as a librarian in the school library. The teacher-in-charge asks you to gather some information about the collection in the library.

Write 3 SQL statements:

- Retrieve all the information in the `book` table, including all records and columns.
- Retrieve the title of all books. Do not include other information.
- Retrieve the genre, title and number of pages of all books.

### DATABASE SCHEMA Show SQL statements

Table book

Field name	Type	Description
isbn	Integer	ISBN-13 identifier of the book
title	Character	Title
author	Character	Author
genre	Character	Genre
num_pages	Integer	Number of pages

Primary Key: isbn

### DATABASE SCHEMA Show SQL statements

```
CREATE TABLE `book` (
  `isbn`      INTEGER NOT NULL, -- ISBN-13 identifier of the book
  `title`     TEXT     NOT NULL, -- Title
  `author`    TEXT     NOT NULL, -- Author
  `genre`     TEXT     NOT NULL, -- Genre
  `num_pages` INTEGER NOT NULL, -- Number of pages
  PRIMARY KEY (`isbn`)
) STRICT;
```

### SAMPLE - DATA Show SQL statements

Table book

isbn	title	author	genre	num_pages
9781118823774	C++ For Dummies 7th Edition	Stephen R. Davis	Technology	480
9781974715466	SPY x FAMILY Volume 1	Tatsuya Endo	Manga	220
9780345535528	A Game of Thrones 5-Book Boxed Set	George R. R. Martin	Fiction	5216
9780201896831	The Art of Computer Programming Volume 1	Donald Knuth	Technology	672
9780201896848	The Art of Computer Programming Volume 2	Donald Knuth	Technology	784

```
1 SELECT * From Book;
2 SELECT title From Book;
3 SELECT genre, title, num_pages From Book;
```

» Close

SQL Submit Saved Last saved 16:21:18

Example data Run Query Result OK (0.006s)

isbn	title	author	genre	num_pages
9780345535528	A Game of Thrones 5-Book Boxed Set	George R. R. Martin	Fiction	5216
9781118823774	C++ For Dummies 7th Edition	Stephen R. Davis	Technology	480
9781421541952	Fullmetal Alchemist Complete Box Set	Hiromu Arakawa	Manga	5248
9781974715466	SPY x FAMILY Volume 1	Tatsuya Endo	Manga	220
9781974725953	Demon Slayer Complete Box Set	Koyoharu Gotouge	Manga	4496

Statement #2 SELECT title From Book;

title
The Art of Computer Programming Volume 1
The Art of Computer Programming Volume 2
A Game of Thrones 5-Book Boxed Set
C++ For Dummies 7th Edition

- Tasks
- Your Submissions
- School Submissions
- Judge Status
- Code
- Contests
- Leaderboard

Date / Time	User	Task	Language	Result	Time
2024-02-22 16:28:08	<input type="checkbox"/> ywgs209 - O Hoi Ying	Q201 - SELECT: Library collection	SQL	Accepted	0.004
2024-02-22 16:28:02	<input type="checkbox"/> ywgs216 - Chau Ho Ching Ch...	Q201 - SELECT: Library collection	SQL	Accepted	0.004
2024-02-22 16:27:27	<input type="checkbox"/> ywgs232 - So Yan Kay	Q201 - SELECT: Library collection	SQL	Accepted	0.003
2024-02-22 16:26:56	<input type="checkbox"/> ywgs224 - Wong Ka Yan	Q201 - SELECT: Library collection	SQL	Accepted	0.004

## Leaderboard

- [Leaderboard](#)
[All Users](#)
[School](#)
[Friends](#)
[Chart](#)
[School](#)
[Friends](#)

Rank	User	School	Tasks Solved
1	WYK19X17 - trampled	Wah Yan College, Kowloon	980
2	ryanjz2024 - IG: @c8kbf LIKE MY POST	Chinese International School	925
3	dbsic - IB要>=43	Diocesan Boys' School	903
4	s20192 - sub-3 when	La Salle College	883
5	s19198 - 0 tasks per day	La Salle College	808
6	dbslomien - pb attendance when ?	Diocesan Boys' School	803
7	wy_gitlun - もう一回	Wah Yan College, Hong Kong	673
8	s19141 - ぼっち。ざ。リタード！	La Salle College	661

# Oracle live sql

<https://livesql.oracle.com/apex/f?p=590:1000>

A screenshot of the Oracle account sign in page. It features a white background with a dark header. The main content area has a white background with a dark border. It includes a 'Username' field with the text 'MyEmail@gmail.com', a 'Password' field with masked characters, and a green 'Sign in' button. Below the sign in button is a 'Need help?' link. At the bottom, there is a 'Don't have an Oracle Account?' section with a 'Create Account' button and a footer with '© Oracle | Terms of Use | Privacy Policy'.

A screenshot of the 'Application Disclaimer for use of Oracle Live SQL' page. The page has a light gray header with 'Feedback', 'Help', and a user profile icon labeled 'ngtk@hkcwcc.edu.hk'. A blue information icon is centered above the title. The main content area is white and contains several paragraphs of text regarding the rights granted by Oracle and the user's acknowledgment of Oracle's obligations. At the bottom, there is a checked checkbox labeled 'I Agree' and two buttons: 'Decline' and 'Accept'.

Before start working you should create an account for future use. When you create a user, you can save your scripts and share it with other users. To create a user, click sign in or create account. You can use your current account if you already have one.



## Learn and share SQL

Running on Oracle Database 19c

Search scripts and tutorials



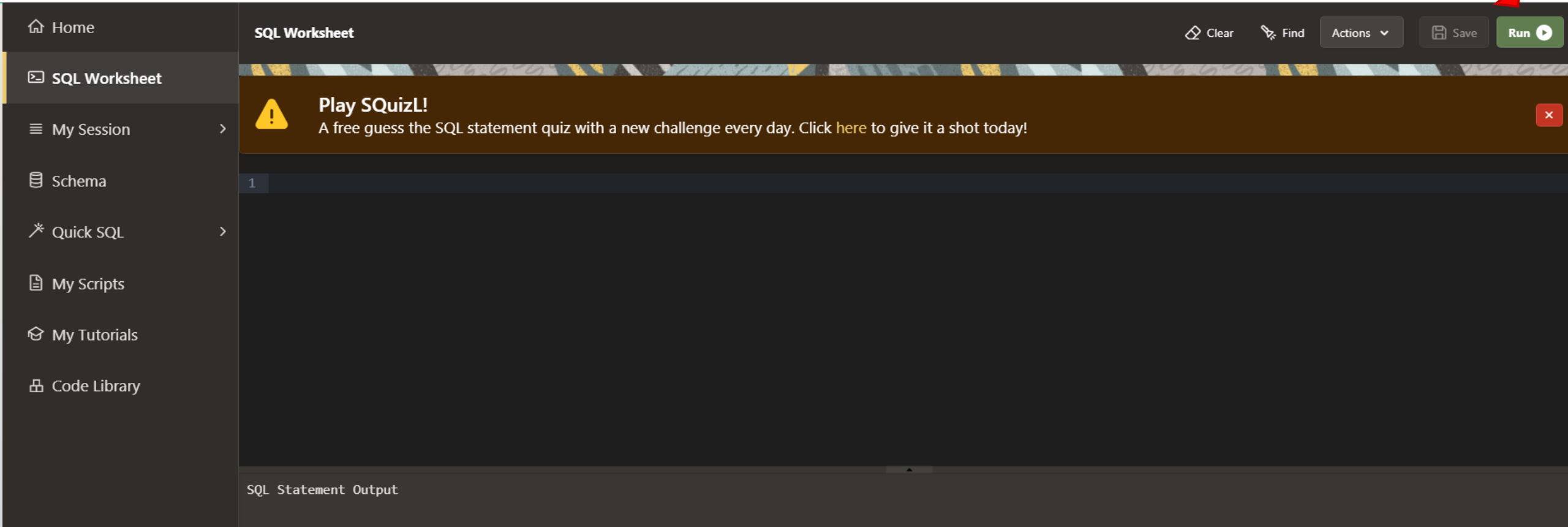
[Start Coding](#)

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[Instructor's Guide](#)

To write a query or any commands use the SQL Worksheet.

# SQL Worksheet



The screenshot shows the SQL Worksheet interface. On the left is a dark sidebar with navigation options: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area has a dark header with 'SQL Worksheet' and buttons for 'Clear', 'Find', 'Actions', 'Save', and 'Run'. A red arrow points to the 'Run' button. Below the header is a notification banner for 'Play SQuizL!' with a yellow warning icon and a close button. The main workspace is a dark editor with a line number '1' on the left. At the bottom, there is a section labeled 'SQL Statement Output'.

### Table/View Finder



You have read-only access to the **AD** sample schema.

Schema  
Academic (AD) ▾

Reset Search

Name	Type
AD_ACADEMIC_SESSION	Table
AD_DEPARTMENTS	Table
AD_EXAM_TYPE	Table
AD_FACULTY_DETAILS	Table
AD_JOBS	Table
AD_PARENT_INFORMATION	Table
AD_STUDENT_COURSE_DETAILS	Table
AD_STUDENT_DETAILS	Table

1

2



Use pre-defined scheme to run SQL.

Table/View Finder

You have read-only access to the AD sam

Copied to clipboard

Table **AD\_JOBS**

Column	Type	Length	Precision	Scale	Nullable
JOB_ID	VARCHAR2	10			No
JOB_TITLE	VARCHAR2	35			No
MIN_SALARY	NUMBER	22	6	0	Yes
MAX_SALARY	NUMBER	22	6	0	Yes

< All Objects

Copy Query

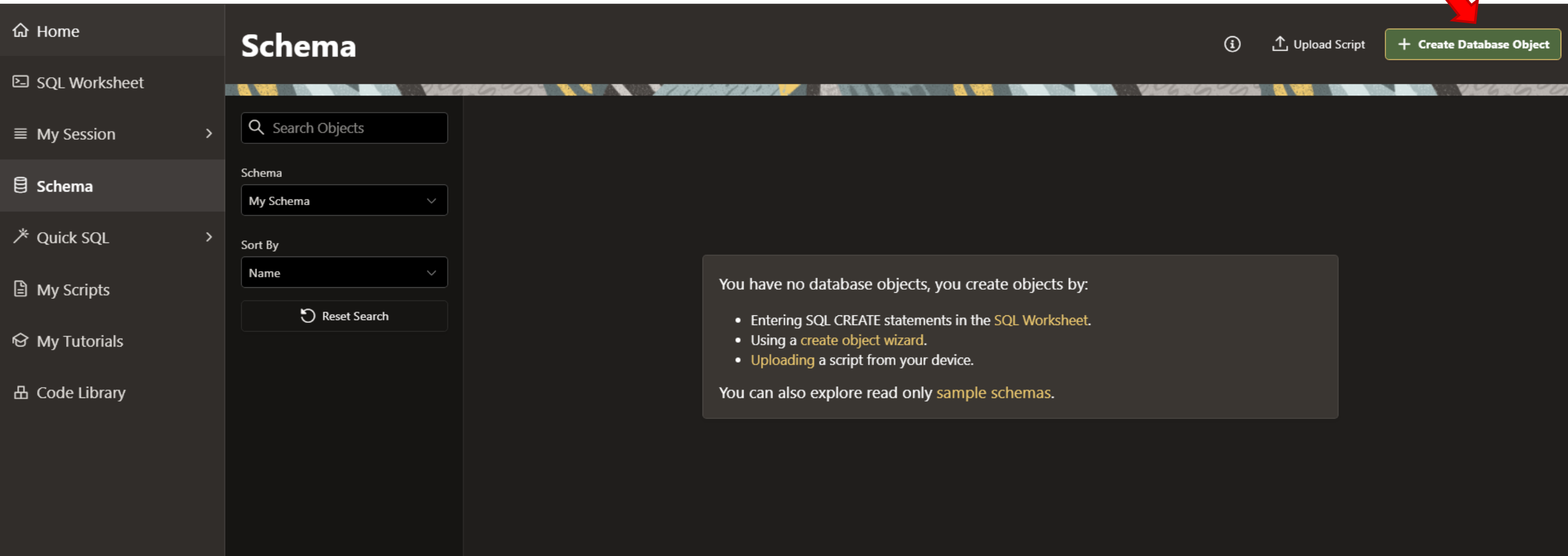
```
select
  "JOB_ID",
  "JOB_TITLE",
  "MIN_SALARY",
  "MAX_SALARY"
from
AD."AD_JOBS";
```

Copy to SQL worksheet, then  
run it!

```
1 v select
2     "JOB_ID",
3     "JOB_TITLE",
4     "MIN_SALARY",
5     "MAX_SALARY"
6 from AD."AD_JOBS";
```

JOB_ID	JOB_TITLE	MIN_SALARY	MAX_SALARY
FA_ST	Staff Faculty	3000	6000
FA_SF	Senior Faculty	4200	9000
FA_AF	Associate Faculty	8200	16000

If you want to design your own tables, go to Schema



The screenshot shows the 'Schema' management interface. On the left is a sidebar with navigation options: Home, SQL Worksheet, My Session, Schema (selected), Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'Schema' and contains a search bar for objects, a dropdown menu for the current schema (set to 'My Schema'), and a dropdown for sorting objects by 'Name'. A 'Reset Search' button is also present. In the top right corner, there are three buttons: an information icon, an 'Upload Script' button, and a green '+ Create Database Object' button. A red arrow points to this button. A central message box states: 'You have no database objects, you create objects by: • Entering SQL CREATE statements in the SQL Worksheet. • Using a create object wizard. • Uploading a script from your device. You can also explore read only sample schemas.'


# Creating table

Create Table

Table Name   Add a Trigger

Column Name	Data Type	Length	Nullable?	Primary Key?	Unique?
SID	NUMBER	22	Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Name	VARCHAR2	50	Yes	<input type="checkbox"/>	<input type="checkbox"/>
Book	VARCHAR2	50	Yes	<input type="checkbox"/>	<input type="checkbox"/>
PENALTY	NUMBER	100	Yes	<input type="checkbox"/>	<input type="checkbox"/>
Column Name				<input type="checkbox"/>	<input type="checkbox"/>
Column Name				<input type="checkbox"/>	<input type="checkbox"/>
Column Name				<input type="checkbox"/>	<input type="checkbox"/>
Column Name				<input type="checkbox"/>	<input type="checkbox"/>

```
1 create table TABLE_1 (  
2     SID number constraint table_1_pk primary key,  
3     Name varchar2(50),  
4     Book varchar2(50),  
5     PENALTY number  
6 );  
7 /  
8
```





# Learn and share SQL

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# Introduction to SQL

1

For example:

```
create table DEPARTMENTS (  
  deptno      number,  
  name        varchar2(50) not null,  
  location    varchar2(50),  
  constraint pk_departments primary key (deptno)  
);
```

 Insert into Editor

Close Tutorial

## Introduction to SQL


This tutorial provides an introduction to the Structured Query Language (SQL), learn how to create tables with primary keys, columns, constraints, indexes, and foreign keys.

### Modules

1. Creating Tables
2. Creating Triggers
3. Inserting Data
4. Indexing Columns
5. Querying Data
6. Adding Columns
7. Querying the Oracle Data Dictionary
8. Updating Data
9. Aggregate Queries
10. Compressing Data
11. Deleting Data
12. Dropping Tables
13. Un-dropping Tables

*To run code examples click the code in the tutorial side bar.*

SQL Statement Output



create a child table of the DEPARTMENTS table by including a foreign key in the EMPLOYEES table that references the DEPARTMENTS table

```
1
2 v create table DEPARTMENTS (
3   deptno      number,
4   name        varchar2(50) not null,
5   location    varchar2(50),
6   constraint pk_departments primary key (deptno)
7 );
8
```

Table created.



```
1
2 v create table EMPLOYEES (
3   empno       number,
4   name        varchar2(50) not null,
5   job         varchar2(50),
6   manager     number,
7   hiredate    date,
8   salary      number(7,2),
9   commission  number(7,2),
10  deptno      number,
11  constraint pk_employees primary key (empno),
12  constraint fk_employees_deptno foreign key (deptno)
13           references DEPARTMENTS (deptno)
14 );
15
```


Table created.

### 3. Inserting Data

Now that we have tables created, and we have triggers to automatically populate our primary keys, we can add data to our tables. Because we have a parent child relationship, with the DEPARTMENTS table as the parent table, and the EMPLOYEES table as the child we will first INSERT a row into the DEPARTMENTS table.


```
insert into departments (name, location) values
('Finance','New York');

insert into departments (name, location) values
('Development','San Jose');
```

 Insert into Editor


Lets verify that the insert was successful by running a SQL SELECT statement to query all columns and all rows of our table.

```
select * from departments;
```

 Insert into Editor

You can see that an ID will have been automatically generated. You can now insert into the EMPLOYEES table a new row but you will need to put the generated DEPTID value into your SQL INSERT statement. The examples below show how we can do this using a SQL query, but you could simply enter the department number directly.

```
1
2  select * from departments;
3
```



DEPTNO	NAME	LOCATION
23871632929026474560032165963692515135	Development	San Jose
23871632929024056708392936705343102783	Finance	New York



Home

SQL Worksheet

My Session

**Previous Sessions**

Previously Viewed

Utilization

NLS

Schema

Quick SQL

My Scripts

My Session \

# Previous Sessions

Action	Created
<a href="#">View Session</a>	9 minutes ago
<a href="#">View Session</a>	20 minutes ago
<a href="#">View Session</a>	22 minutes ago
<a href="#">View Session</a>	24 minutes ago
<a href="#">View Session</a>	60 minutes ago
<a href="#">View Session</a>	71 minutes ago
<a href="#">View Session</a>	75 minutes ago
<a href="#">View Session</a>	78 minutes ago
<a href="#">View Session</a>	82 minutes ago

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- Oracle Database Foundations | 1Z0-006

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
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OUTLINE NOTES  ADS\_S1 

## Creating Tables – Library Database Example

 **Creating Tables** →

```
CREATE TABLE authors (
  id          NUMBER (3) ,
  name       VARCHAR2 (60)
);
```

```
CREATE TABLE members (
  id          NUMBER (4) ,
  first_name  VARCHAR2 (50) ,
  last_name   VARCHAR2 (50) ,
  street_address VARCHAR2 (50) ,
  city        VARCHAR2 (20) ,
  state       VARCHAR2 (2) ,
  zip         VARCHAR2 (10)
);
```

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