

Lab Report-1

Creation of Database And Its's Table Heading



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Subject:DBMS

Structured Query Language (SQL):

SQL is a domain-specific language used in programming and designed for managing data held in a relational database management system, or for stream processing in a relational data stream management system.

Some of The Most Important SQL Commands:

- SELECT- extracts data from a database
- UPDATE - updates data in a database
- DELETE - deletes data from a database
- INSERT INTO- inserts new data into a database
- CREATE DATABASE - creates a new database
- ALTER DATABASE - modifies a database
- CREATE TABLE - creates a new table
- ALTER TABLE - modifies a table
- DROP TABLE- deletes a table
- CREATE INDEX - creates an index (search key)
- DROP INDEX - deletes an index

String Data Types

Data type	Description
CHAR(size)	A FIXED length string (can contain letters, numbers, and special characters). The <i>size</i> parameter specifies the column length in characters - can be from 0 to 255. Default is 1
VARCHAR(size)	A VARIABLE length string (can contain letters, numbers, and special characters). The <i>size</i> parameter specifies the maximum column length in characters - can be from 0 to 65535
BINARY(size)	Equal to CHAR(), but stores binary byte

	strings. The <i>size</i> parameter specifies the column length in bytes. Default is 1
VARBINARY(<i>size</i>)	Equal to VARCHAR(), but stores binary byte strings. The <i>size</i> parameter specifies the maximum column length in bytes.

Numeric Data Types

Data type	Description
BIT(<i>size</i>)	A bit-value type. The number of bits per value is specified in <i>size</i> . The <i>size</i> parameter can hold a value from 1 to 64. The default value for <i>size</i> is 1.
TINYINT(<i>size</i>)	A very small integer. Signed range is from -128 to 127. Unsigned range is from 0 to 255. The <i>size</i> parameter specifies the maximum display width (which is 255)
BOOL	Zero is considered as false, nonzero values are considered as true.
BOOLEAN	Equal to BOOL
SMALLINT(<i>size</i>)	A small integer. Signed range is from -32768 to 32767. Unsigned range is from 0 to 65535. The <i>size</i> parameter specifies the maximum display width (which is 255)
MEDIUMINT(<i>size</i>)	A medium integer. Signed range is from -8388608 to 8388607. Unsigned range is from 0 to 16777215. The <i>size</i> parameter specifies the maximum display width (which is 255)

Date and Time Data Types

Data type	Description
DATE	A date. Format: YYYY-MM-DD. The supported range is from '1000-01-01' to '9999-12-31'
DATETIME(<i>fsp</i>)	A date and time combination. Format: YYYY-MM-DD hh:mm:ss. The supported range is from '1000-01-01 00:00:00' to '9999-12-31 23:59:59'. Adding DEFAULT and ON

	UPDATE in the column definition to get automatic initialization and updating to the current date and time
TIMESTAMP(<i>fsp</i>)	A timestamp. TIMESTAMP values are stored as the number of seconds since the Unix epoch ('1970-01-01 00:00:00' UTC). Format: YYYY-MM-DD hh:mm:ss. The supported range is from '1970-01-01 00:00:01' UTC to '2038-01-09 03:14:07' UTC. Automatic initialization and updating to the current date and time can be specified using DEFAULT CURRENT_TIMESTAMP and ON UPDATE CURRENT_TIMESTAMP in the column definition
TIME(<i>fsp</i>)	A time. Format: hh:mm:ss. The supported range is from '-838:59:59' to '838:59:59'
YEAR	A year in four-digit format. Values allowed in four-digit format: 1901 to 2155, and 0000. MySQL 8.0 does not support year in two-digit format.

Etc.

Operators in SQL

- Arithmetic operators(+,-,*,%)
- Comparison operators(>,<,<=,>=,!=,<>,!<,!>)
- Logical operators(AND,OR,NOT,like,in)
- Operators used to negate conditions

Literals In SQL:

String Literals

String literals are always surrounded by single quotes (').

For example:

```
'TechOnTheNet.com'  
'This is a literal'  
'XYZ'  
'123'
```

These string literal examples contain strings enclosed in single quotes.

Integer Literals

Integer literals can be either positive numbers or negative numbers, but do not contain decimals. If you do not specify a sign, then a positive number is assumed. Here are some examples of valid integer literals:

```
536  
+536  
-536
```

Decimal Literals

Decimal literals can be either positive numbers or negative numbers and contain decimals. If you do not specify a sign, then a positive number is assumed. Here are some examples of valid decimal literals:

```
24.7  
+24.7  
-24.7
```

Datetime Literals

Datetime literals are character representations of datetime values that are enclosed in single quotes. Here are some examples of valid datetime literals:

```
'April 30, 2015'  
'2015/04/30'  
'2015/04/30 08:34:25'
```

Types of SQL Commands

- Data Definition Language (DDL)

- Data Manipulation Language
- Data Control Language
- Transaction Control Language
- Data Query Language.

SQL Keywords

Keyword	Description
<u>ADD</u>	Adds a column in an existing table
<u>ADD CONSTRAINT</u>	Adds a constraint after a table is already created
<u>ALL</u>	Returns true if all of the subquery values meet the condition
<u>ALTER</u>	Adds, deletes, or modifies columns in a table, or changes the data type of a column in a table
<u>ALTER COLUMN</u>	Changes the data type of a column in a table
<u>ALTER TABLE</u>	Adds, deletes, or modifies columns in a table
<u>AND</u>	Only includes rows where both conditions is true
<u>ANY</u>	Returns true if any of the subquery values meet the condition
<u>AS</u>	Renames a column or table with an alias
<u>ASC</u>	Sorts the result set in ascending order
<u>BACKUP DATABASE</u>	Creates a back up of an existing database
<u>BETWEEN</u>	Selects values within a given range
<u>CASE</u>	Creates different outputs based on conditions
<u>CHECK</u>	A constraint that limits the value that can be placed in a column
<u>COLUMN</u>	Changes the data type of a column or deletes a column in a table

<u>CONSTRAINT</u>	Adds or deletes a constraint
<u>CREATE</u>	Creates a database, index, view, table, or procedure
<u>CREATE DATABASE</u>	Creates a new SQL database
<u>CREATE INDEX</u>	Creates an index on a table (allows duplicate values)
<u>CREATE OR REPLACE VIEW</u>	Updates a view
<u>CREATE TABLE</u>	Creates a new table in the database
<u>CREATE PROCEDURE</u>	Creates a stored procedure

Wildcard Characters in SQL Server

Symbol	Description	Example
%	Represents zero or more characters	bl% finds bl, black, blue, and blob
_	Represents a single character	h_t finds hot, hat, and hit
[]	Represents any single character within the brackets	h[oa]t finds hot and hat, but not hit
^	Represents any character not in the brackets	h[^oa]t finds hit, but not hot and hat
-	Represents any single character within the specified range	c[a-b]t finds cat and cbt

1.Ticket_Table

phpMyAdmin

Server: 127.0.0.1 » Database: ticket » Table: ticket_table

Browse Structure SQL Search Insert Export Import Privileges Operations Triggers

Table structure Relation view

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	ticket_num	bigint(20)			Yes	NULL			Change Drop More
<input type="checkbox"/> 2	journey_date	bigint(20)			Yes	NULL			Change Drop More
<input type="checkbox"/> 3	age	int(11)			Yes	NULL			Change Drop More
<input type="checkbox"/> 4	sex	varchar(10)	utf8mb4_general_ci		Yes	NULL			Change Drop More
<input type="checkbox"/> 5	source	varchar(10)	utf8mb4_general_ci		Yes	NULL			Change Drop More
<input type="checkbox"/> 6	Destination	varchar(10)	utf8mb4_general_ci		Yes	NULL			Change Drop More
<input type="checkbox"/> 7	Dep_Time	varchar(10)	utf8mb4_general_ci		Yes	NULL			Change Drop More
<input type="checkbox"/> 8	Bus_No	bigint(20)			Yes	NULL			Change Drop More

☐ Check all
 With selected: [Browse](#) [Change](#) [Drop](#) [Primary](#) [Unique](#) [Index](#) [Spatial](#) [Fulltext](#)

2. Passenger Database Table Code

phpMyAdmin

Server: 127.0.0.1 » Database: pessenger

Structure SQL Search Query Export Import Operations Privileges Routines Events Triggers

Run SQL query/queries on database pessenger:

```

1 CREATE TABLE Pessenger_Info(
2 PNR_No bigint,
3 Ticket_No bigint,
4 Name varchar(20),
5 Age int,
6 Sex char(20),
7 Contact_No bigint);

```

3. Passenger Database Table Records

phpMyAdmin

Server: 127.0.0.1 » Database: passenger » Table: passenger_info

Browse Structure SQL Search Insert Export Import Privileges Operations Triggers

Table structure Relation view

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	PNR_No	bigint(20)			Yes	NULL			Change Drop More
<input type="checkbox"/> 2	Ticket_No	bigint(20)			Yes	NULL			Change Drop More
<input type="checkbox"/> 3	Name	varchar(20)	utf8mb4_general_ci		Yes	NULL			Change Drop More
<input type="checkbox"/> 4	Age	int(11)			Yes	NULL			Change Drop More
<input type="checkbox"/> 5	Sex	char(20)	utf8mb4_general_ci		Yes	NULL			Change Drop More
<input type="checkbox"/> 6	Contact_No	bigint(20)			Yes	NULL			Change Drop More

☐ Check all With selected: Browse Change Drop Primary Unique Index Spatial Fulltext

Print Propose table structure Move columns Normalize

Add 1 column(s) after Contact_No Go

4.Creating Database For Cancellation

phpMyAdmin

Server: 127.0.0.1

Databases SQL Status User accounts Export Import Settings Replication Variables Charsets More

Run SQL query/queries on server "127.0.0.1":

```
1 CREATE DATABASE collection
```

Clear Format Get auto-saved query

5.Database Table for Cancellation

The screenshot shows the phpMyAdmin interface with the 'collection_info' table selected. The table structure is displayed in 'Table structure' view. The table has four columns: PRN_No (bigint(20)), Journey_Date (date), seat_Number (int(11)), and contact_Number (bigint(20)). All columns are nullable and have a default value of NULL. The 'Indexes' section at the bottom indicates that no index is defined for this table.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 PRN_No	bigint(20)			Yes	NULL			Change Drop More
<input type="checkbox"/>	2 Journey_Date	date			Yes	NULL			Change Drop More
<input type="checkbox"/>	3 seat_Number	int(11)			Yes	NULL			Change Drop More
<input type="checkbox"/>	4 contact_Number	bigint(20)			Yes	NULL			Change Drop More

Indexes

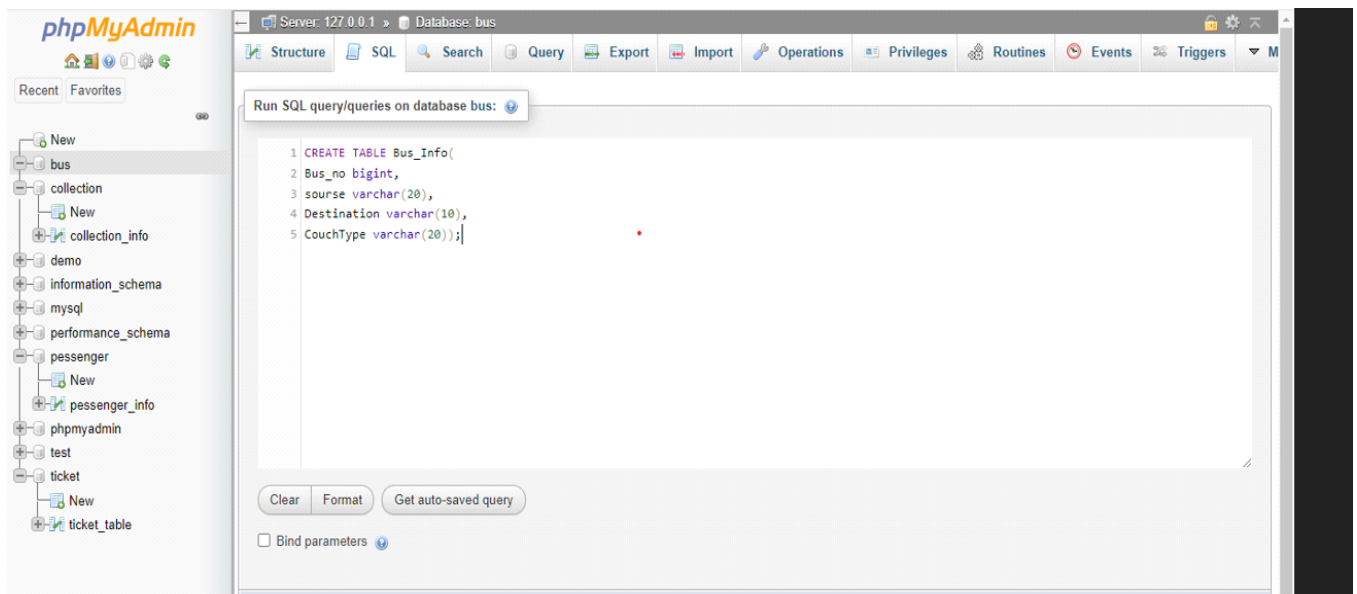
No index defined!

6.Creating Database of Bus

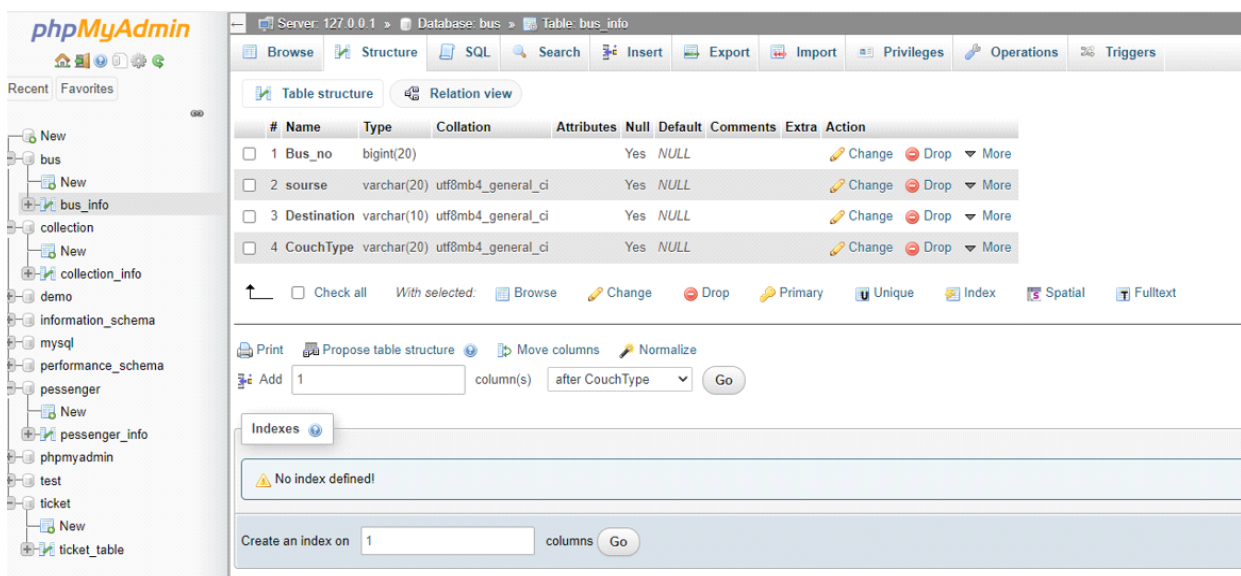
The screenshot shows the phpMyAdmin interface with the SQL query editor open. The query entered is 'CREATE DATABASE Bus;'. The interface includes a sidebar with a database tree and a top navigation bar with various tools like Databases, SQL, Status, User accounts, Export, Import, Settings, Replication, Variables, Charsets, and More.

```
1 CREATE DATABASE Bus;
```

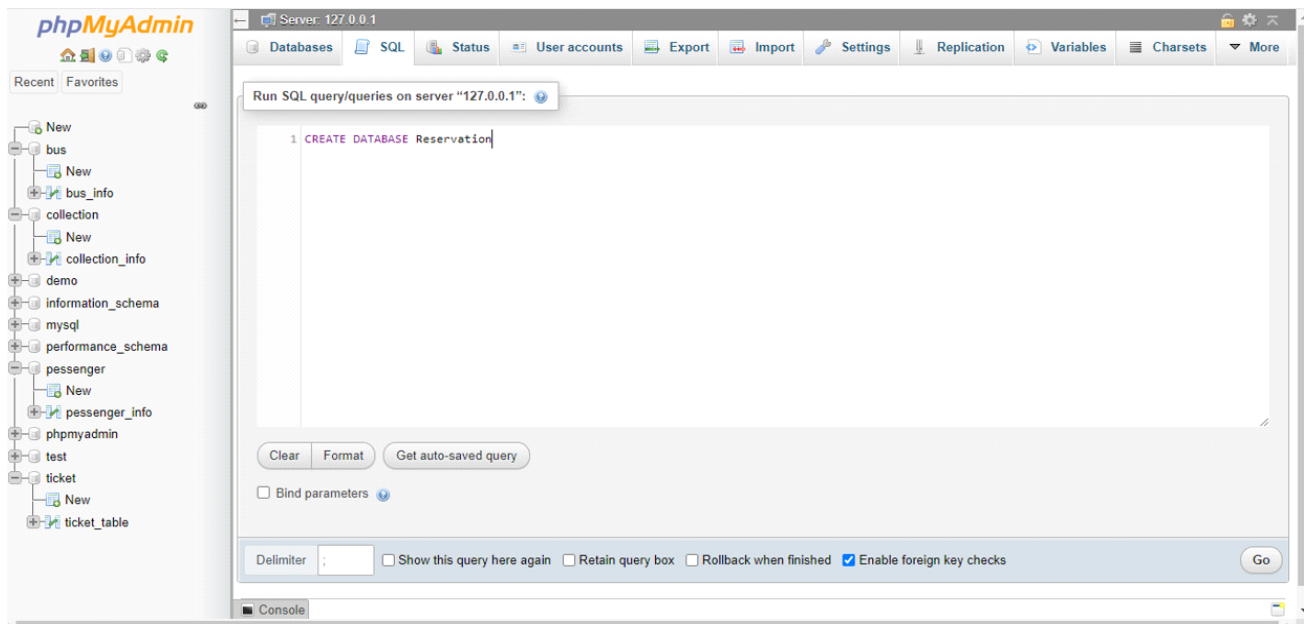
7. Program for Creating Database Table Bus



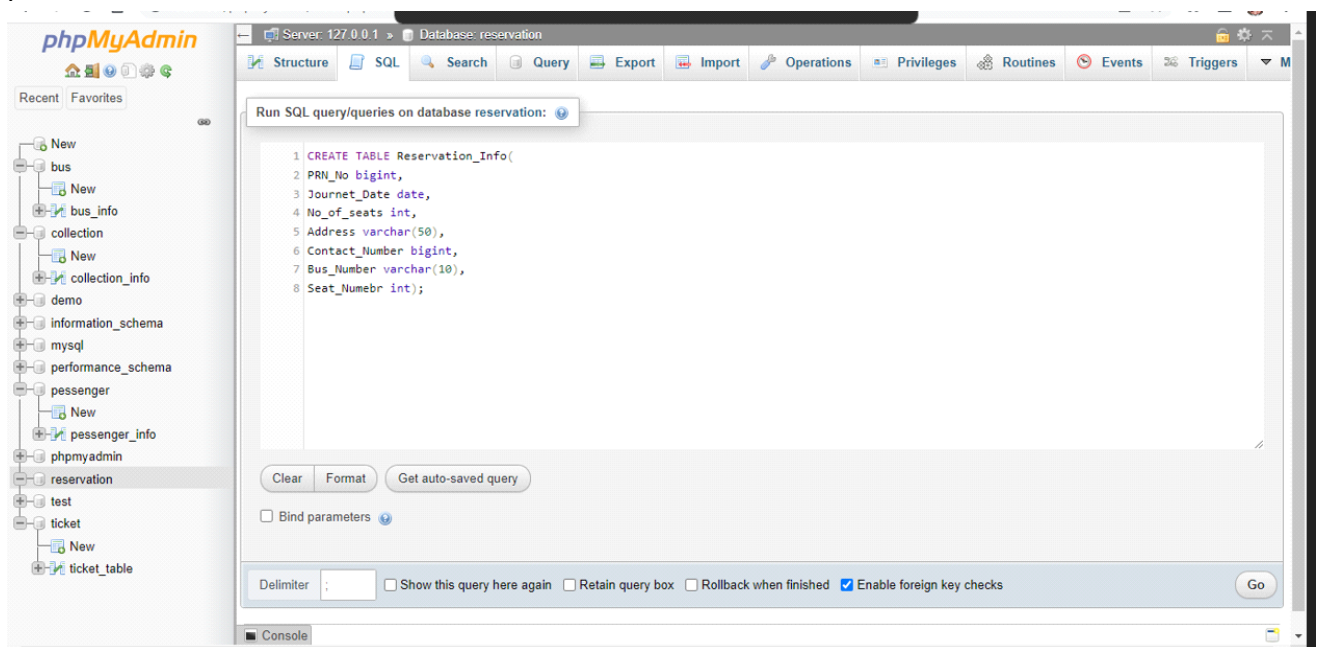
8. Database Table of Bus



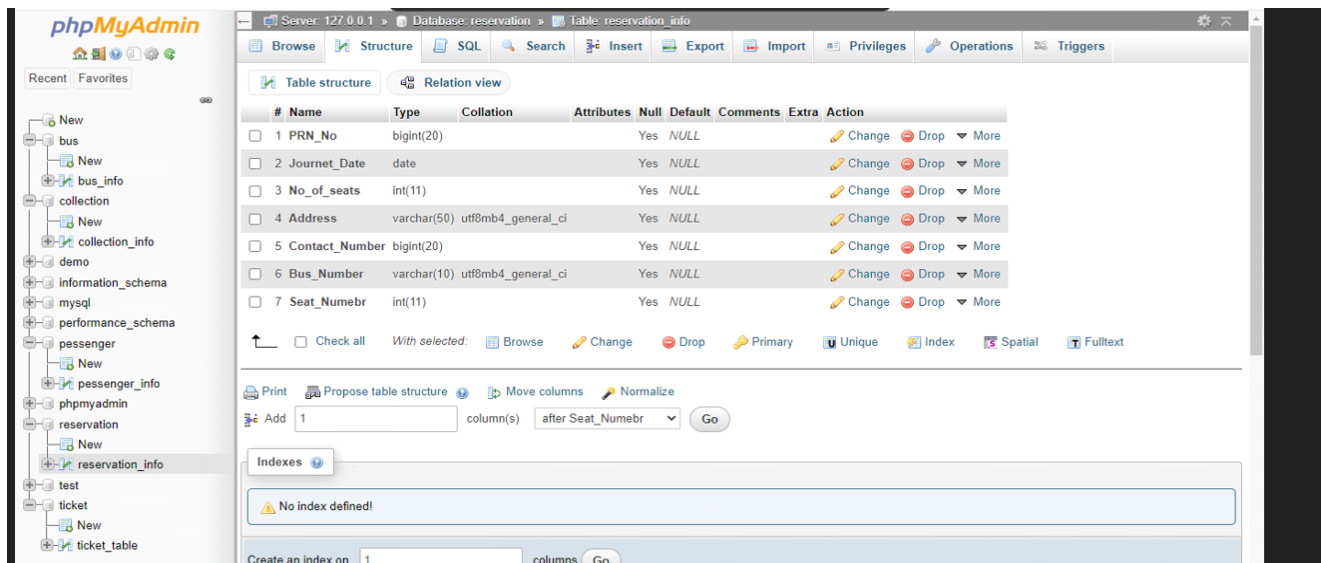
9. Creating Database of Reservation



10.Reservation Database code



11.Database Table of Reservation



12.Database Table Heading of Reservation

