

SESSION 2: CREATE AND EDIT TABLES USING WIZARD AND SQL COMMANDS

Relevant Knowledge

Data in a relational database management system (RDBMS) is organized in the form of tables.

You will now quickly recap what you learnt in the last session and assimilate more concepts.

Tables:

A table is a set of data elements (values) that is organized using a model of vertical columns (which are identified by their name) and horizontal rows. A table has a defined number of columns, but can have any number of rows. Each row is identified by the values appearing in a particular column identified as a unique key index or the key field.

Columns or Fields or Attributes:

A column is a set of data values of a particular simple type, one for each row of the table.

The columns provide the structure according to which the rows are composed. For example, cFirstName, or cLastName are fields in a row.

Rows or Records or Tuples:

A row also called a Record or Tuple represents a single, data item in a table. In simple terms, a database table can be visualized as consisting of rows and columns or fields. Each row in a table represents a set of related data, and every row in the table has the same structure.

Data types:

Datatypes are used to identify which type of data (value) we are going to store in the database.

Fields themselves can be of different types depending on the data they contain. Data types in OpenOffice base are broadly classified into five categories listed below.

- **Numeric Types**
- **Alphanumeric Types**
- **Binary Types**
- **Date time**
- **Other Variable types**

Numeric Types:

Numeric data types are used for describing numeric values for the field used in the table of a database. Numeric data types in a database can be used for storing information such as mobile number, roll number, door number, year of school admission, true or false statements, statistical values, etc.

The different types of numeric data types available are listed here.

Name	Data type	Description
BOOLEAN	Yes / No	Values as 0 or 1. Example: True or False, Yes or No.
TINYINT	Tiny Integer	Store integer range between 0 to 255
SMALLINT	Small Integer	Store integer range between -2^{15} to $+2^{15}-1$
INTEGER	Integer	Store integer range between -2^{31} to $+2^{31}-1$
BIGINT	Big Integer	Range between -2^{63} to $+2^{63}-1$
NUMERIC	Number	Maximum precision of $e^{(+/-)231}$
DECIMAL	Decimal	Maximum precision of $e^{(+/-)231}$
REAL	Real	2^{-1074} to $(2-2^{-52}) * 2^{1023}$
FLOAT	Float	2^{-1074} to $(2-2^{-52}) * 2^{1023}$
DOUBLE	Double	2^{-1074} to $(2-2^{-52}) * 2^{1023}$

Alphanumeric Types:

Name	Data type	Description
LONGVARCHAR	Memo	Stores up to the max length or number indicated by user. It accepts any UTF 8 Character.
CHAR	Text (fix)	Stores exactly the length specified by user. Pads with trailing spaces for shorter strings. Accepts any UTF 8 Character.
VARCHAR	Text	Stores up to the specified length. No padding (Same as long var char)
VARCHAR_IGNORE CASE	Text	Stores up the specified length. Comparisons are not case sensitive but stores capitals as you type them.

Binary Types:

Binary data types are used for storing data in binary formats. Binary data types in a database can be using for storing photos, music files, etc. In general, files of any format can be stored using the binary data type. The different types of binary data types available are listed here.

Name	Data type	Description
LONGVARBINARY	Image	Stores any array of bytes (images, sounds, etc.). No validation required.
BINARY	Binary (fix)	Stores any array of bytes. No validation required.
VARBINARY	Binary	Stores any array of bytes. No validation required.

Date time:

Date time data types are used for describing date and time values for the field used in the table of a database. Date time data types in a database can be used for storing information such as date of birth, date of admission, date of product sale, etc.

The different types of date time data types available are listed here.

Name	Description	Format
Date	Stores month, day and year information	1/1/99 to 1/1/9999
Time	Stores hour, minute and second information	Seconds since 1/1/1970
Timestamp	Stores date and time information	

Other Data Types:

Name	Description
Other/Object	Stores serialized Java objects “ user application must supply serialization routines

Launching Openoffice

There are a variety of DBMS/RDBMS available; in this exercise, you will learn about OpenOffice Base an OpenSource RDBMS.

- To launch OpenOffice, click Start>Programs>OpenOffice.org 3.4.1 > OpenOffice.org.

Alternatively, you can also double-click on the OpenOffice.org 3.4.1 shortcut on the desktop if available. You should see a Window similar to the one displayed below



Figure 1

Select the option database to launch the base application.

You can also directly launch the OpenOffice Base Application by doing the following:

- Click Start>Programs>OpenOffice.org 3.4.1>OpenOffice.org Base.

You should be guided through the Database Wizard for creating a database.

You will see a dialog box similar to the one displayed below.

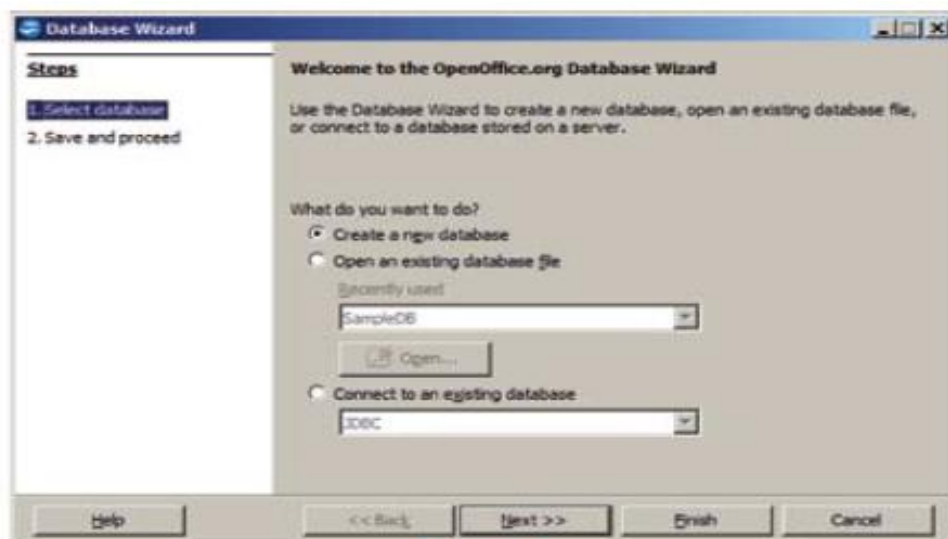


Figure 2

You can create a new database by selecting the option Create a new database.

You can also open an existing database file that you have already created by selecting the option Open an existing database file. Click Next.

A dialog box similar to the one displayed below appears.

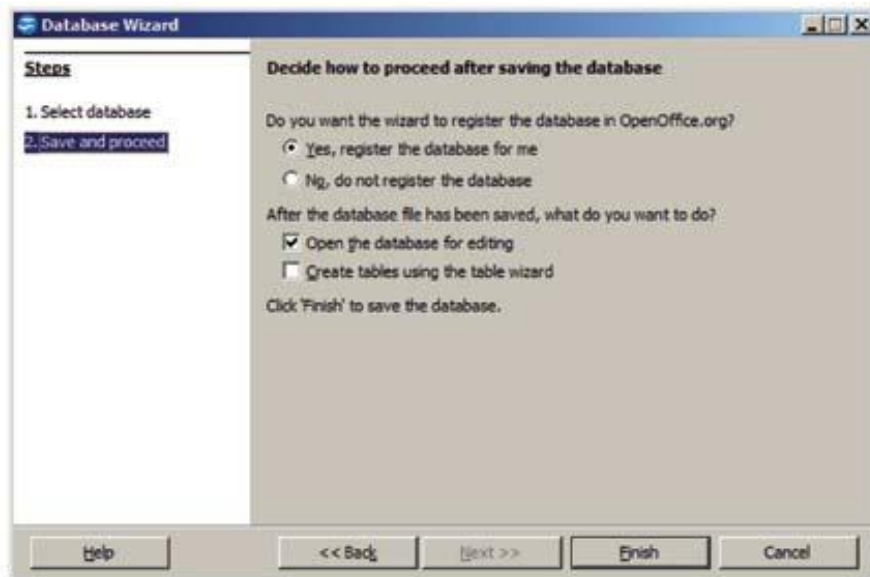


Figure 3

Click Finish. The Save As dialog box appears as shown below.

Specify a name for the database in the File name: field and click Save. A window similar to the one displayed below.

Click Finish. The Save As dialog box appears as shown below.

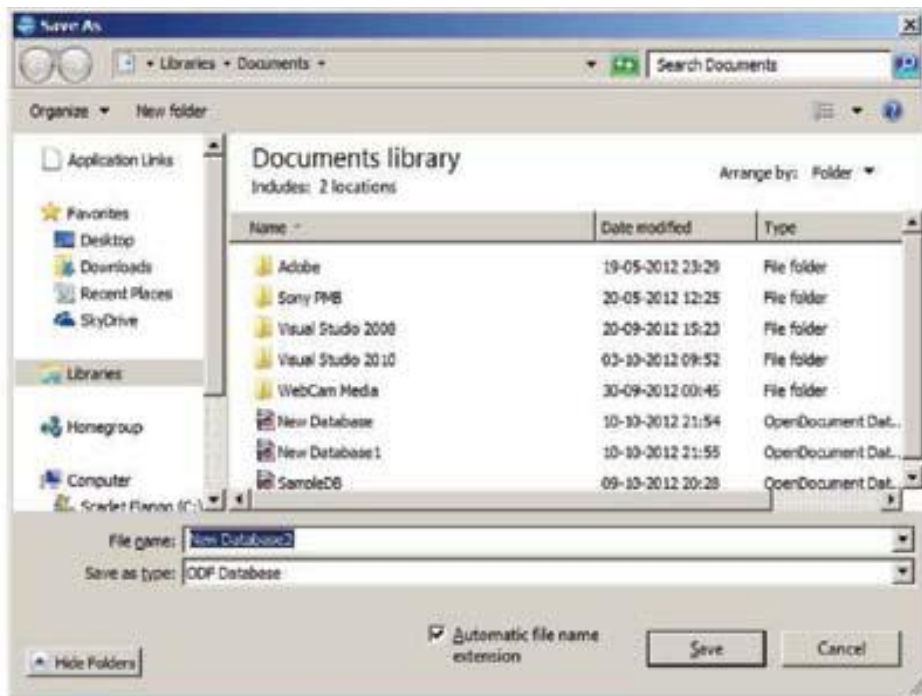


Figure 4

Specify a name for the database in the File name: field and click Save. A window similar to the one displayed below.

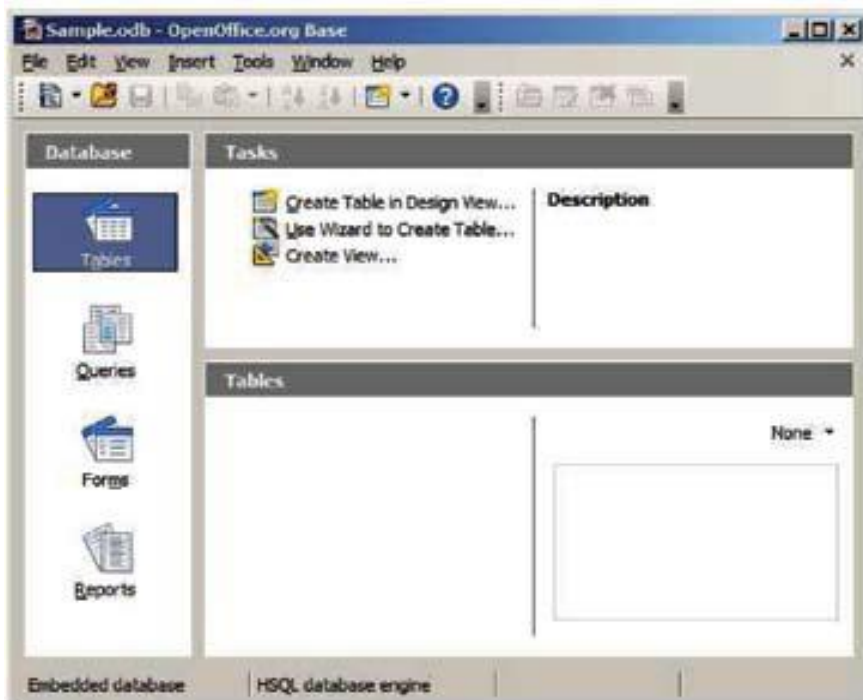


Figure 5

Now that you have created a database, you can work with the database as outlined in the next few sessions.

Tables are the basic building blocks of a database. You store the data in the database in the form of tables. In the previous exercise you have learnt how to create database objects in OpenOffice.

In this exercise you will learn how to create a table in a database. After creating the database, you see a window as shown below.

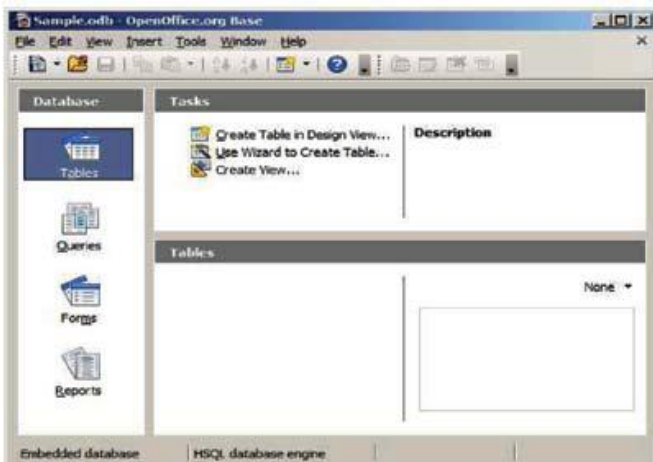


Figure 6

Click on Create Table in Design View... option available under Tasks and a Table Design window appears as shown below.

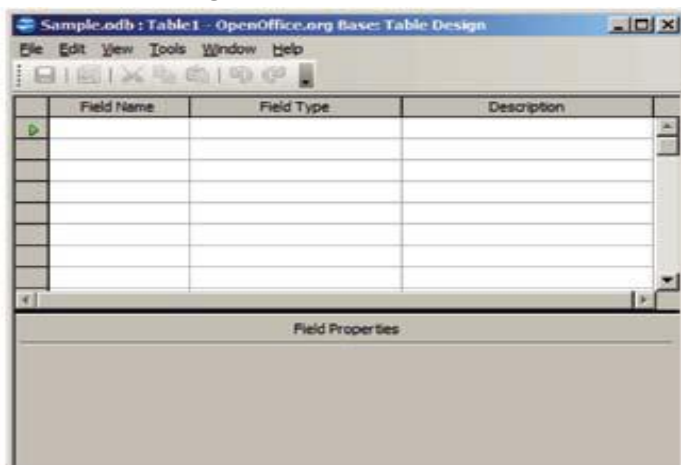


Figure 7

Specify the field name and data type of the field to be created by selecting the appropriate type available under Field type dropdown list.

Now create a table with the following fields displayed below:

Specify the field name and the data type for each field name. For example, the table contains the Name field and the data type of the Name is TEXT [VARCHAR]. You can specify the length of the field value.

Field Name	Data type	Length
Name	VARCHAR	50
Rollno	TINYINT	3
DOB	Date	DD/MM/YY
Class	Char	1
Phone	INTEGER	10
Email	VARCHAR	75
Colour	VARCHAR	15
Location	VARCHAR	30

After specifying the field name and data type for the field variables, save the table by clicking on **File>Save** shown below.

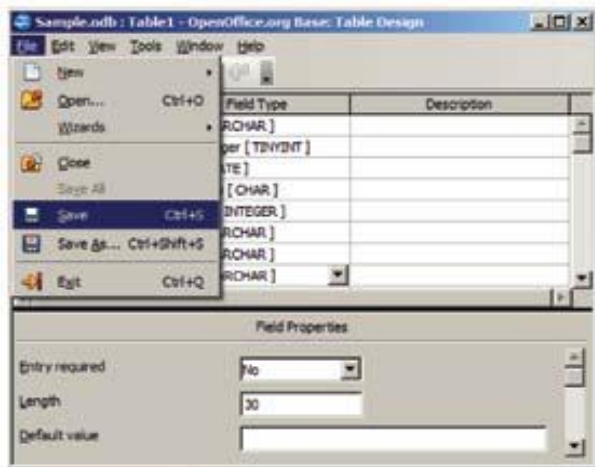


Figure 8

Specify the table name. The default name is Table1. Click OK.



Figure 9

A dialog box appears, similar to the one displayed below.

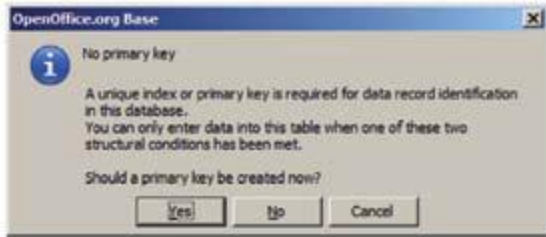


Figure 10

You are asked to set a primary key for the table you just created. You can select the appropriate option to set the primary key or leave the table without a primary key.

If you click Yes, the application will set the primary key for the first field created automatically. If you click No, you should see a window similar to the one displayed below.

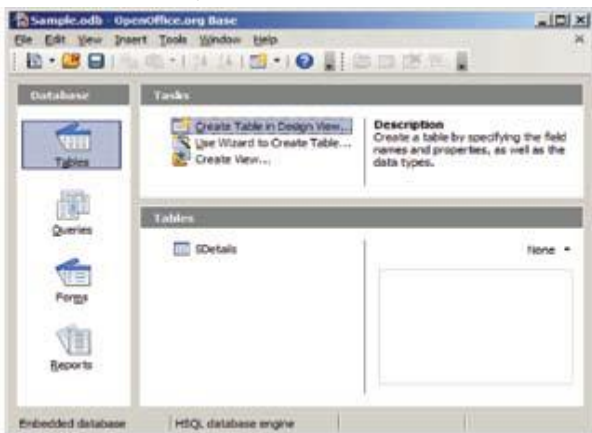


Figure 11

Notice the table by the name SDetails created and visible under Tables section.

Create the following records:

Name	Roll no	DOB	Class	Phone	Email	Color	Location
Ravi Kaul	23	13/08/99	X	123456	ravikaul@gmail.com	Blue	Delhi
Bijendar Dalal	13	15/01/99	X	567889	dalal@gmail.com	Green	Mumbai
Radha swami	7	01/02/00	X	234353	radhasw@gmail.com	Orange	Gujarat
Vikas Maheswari	32	17/11/98	X	233445	vikawari@gmail.com	Blue	Maharashtra
Vimla Rani	14	23/09/99	X	242526	Vimla99@gmail.com	Yellow	Orissa
Sandhya Reddy	26	19/12/98	X	213141	sandhyared@gmail.com	Blue	Delhi

To insert values into the table, just double-click the table name, you should see a window similar to the one displayed below.

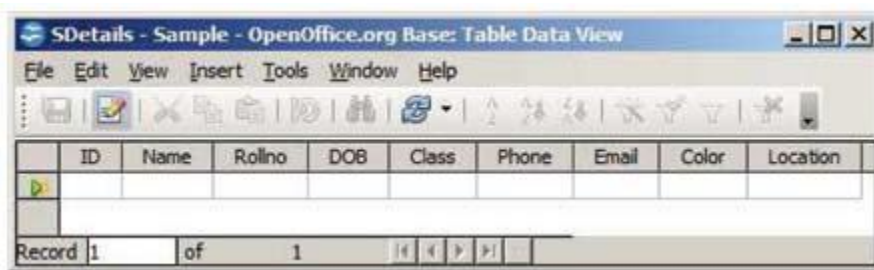


Figure 12

Start typing the records in the table with the data provided in the excel sheet and select **File > Save current record** to save data in the table.

Create table using SQL DDL Command

SQL commands are also used to manage and manipulate data in a database.

The SQL commands are categorized as:

DDL (Data Definition Language)

DML (Data Manipulation Language)

A data definition language or data description language (DDL) is a standard for commands that define the different structures in a database. DDL

statements create, modify, and remove database objects such as tables, indexes, and users. Common DDL statements are CREATE, ALTER, and DROP.

Example:

To create a student table, SQL command used is as follows:

Create table Student

```
(Stud_Id int Primary Key, Stud_Name varchar(20), Stud_Class varchar(3), Stud_Address varchar(30));
```

Activities

1. Create a database for a stationery shop.
Hint: Create fields for items, price, color, vendor, etc.
2. Create a database for a school library.
Hint : Create fields for book title, cost, provider, availability, etc
3. Create a database for maintaining a song collection.
Hint : Create fields for fields such as artist, movie, year released, etc.

ASSESSMENT

Fill in the blanks:

1. A table is a set of data elements that is organized using a model of vertical _____ and horizontal _____.
2. A _____ is a set of data values of a particular type, one for each row of the table.
3. A _____ represents a single, data item in a table.
4. _____ are used to identify which type of data we are going to store in the database.
5. _____ DDL command is used to create a table.
6. Common DDL statements are _____, _____ and _____.

Short Answer Questions

1. In how many ways tables can be created in Base?
2. Why are data types used in DBMS /RDBMS?
3. List datatypes available in Numeric Datatype?
4. List datatypes available in Alphaumeric Datatype?
5. Define the structure of a table.
6. Differentiate between Tuples and Attributes of a table.
7. Name different Binary data types.