

Chapter 4: Database Management Tool-OpenOffice Base

Solutions

Summative Assessment

Multiple-Choice Questions (MCQs)

- The allows you to create various objects of the database, such as tables, queries, forms, and reports.
 - Database Object buttons
 - Title bar
 - Menu bar
 - Toolbar

Ans. a

- The default extension of OpenOffice Base is
 - .odb
 - .obs
 - .oob
 - .obd

Ans. a

- Which of the following columns does not appear when you open the table in the Table Design View?
 - Field Type
 - Description
 - Field Name
 - Field Length

Ans. d

- Which of the following field properties ensures data validation?
 - Decimal places
 - AutoValue
 - Format example
 - Entry required

Ans. d

- Which of the following field properties controls the appearance of the data entered in the field?
 - Decimal places
 - AutoValue
 - Format example
 - Entry required

Ans. c

Very Short Answer Questions

- What do you understand by DBMS?

Ans. DBMS is a program that controls the creation, maintenance, and use of a database.

- Can a table have more than one primary key?

Ans. Yes, a table can have more than one primary key. All such keys are known as candidate keys.

- How can you open an existing database in Base?

Ans. You can open an existing database by using Database Wizard or by using Open dialog box.

Short Answer Questions

- What do you understand by data validation? How can you use data validation in BASE?

Ans. In a database, data validation refers to a process of ensuring that only valid data is entered in a table. You can ensure data validation by setting the field properties of your tables such that only valid data can be entered by the users. For example, if you set the Yes value for the Entry required property, it will ensure that users enter some value in this field during data entry. However, if you specify No as a value for this field, then the user can skip this field.

- How can you move a field in a table in Base?

Ans. Generally, moving a field means changing its position in a table. To move a field, you have to first cut the field from its location in the table by using the Cut command and then paste the field in the desired location by using the Paste command. In BASE, when you move a field, it appears as the last field of the table.

- What is the difference between Text (fix) [CHAR] and Text [VARCHAR]?

Ans. The differences between the Text (fix) [CHAR] and Text [VARCHAR] data types are as follows:

Text (fix) [CHAR]	Text [VARCHAR]
Represents a text data type of fixed length	Represents a text data type of variable length
If the data that you enter is less than the length specified, then the field is completed by trailing spaces	If the data that you enter is less than the length specified then the field is not completed by trailing spaces

Long Answer Questions

- Explain the procedure of launching Base.

Ans. Perform the following steps to start BASE:

- Click the Application menu. A drop-down menu list appears (Figure 1).
- Select the Office option from the drop-down list. A submenu appears (Figure 1).
- Select the OpenOffice 4.1.1 Base option from the submenu list, as shown in Figure 1:

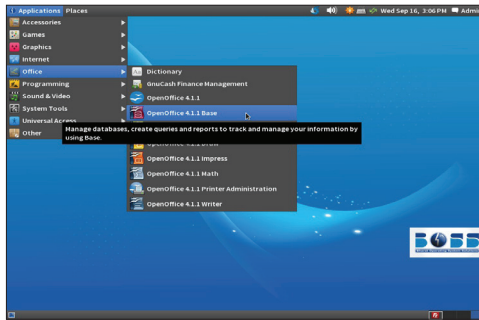


Figure 1: Starting OpenOffice 4.1.1 Base

The Welcome to the OpenOffice Database Wizard page of Database Wizard appears. Using this Wizard, you can create a new database. After creating a database, the BASE window opens, as shown in Figure 2:

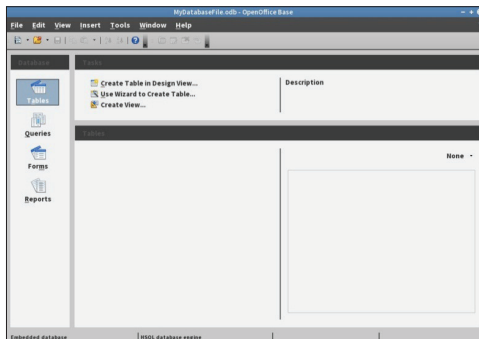


Figure 2: Displaying the Base Window

13. What is the purpose of creating a database?

Ans. A database is a collection of data that is organized so that its content can easily be accessed, managed, and updated. Thus, the main purpose of creating a database is to organize and manage data.

14. Write down all the steps for creating a database in Base.

Ans. You can perform the following steps to create a database in BASE:

1. Select the Create a new database radio button from Database Wizard (Figure 3).
2. Click the Next button to move to the next step, as shown in Figure 3:

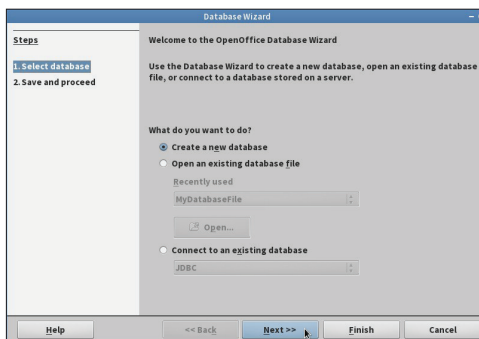


Figure 3: Displaying the Welcome to the OpenOffice Database Wizard Page

The Decide how to proceed after saving the database page appears (Figure 4).

3. Select the Yes, register the database for me radio button to register your database in OpenOffice (Figure 4).
4. Select the Open the database for editing check box to open the database for editing after creating it (Figure 4).
5. Select the Create tables using the Table Wizard check box to create a table (Figure 4).
6. Click the Finish button to save the database, as shown in Figure 4:

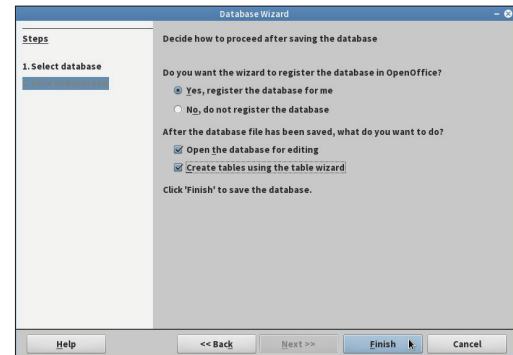


Figure 4: Registering a Database and Deciding What to Do Next

The Save dialog box appears (Figure 5).

7. Type the desired name for the database in the Name textbox. In our case, we have typed Stud_Database (Figure 5).
8. Select the location to save the database in the Save in folder list box. In our case, we have selected /home/DT/Documents (Figure 5).
9. Click the Save button to save the database, as shown in Figure 5:

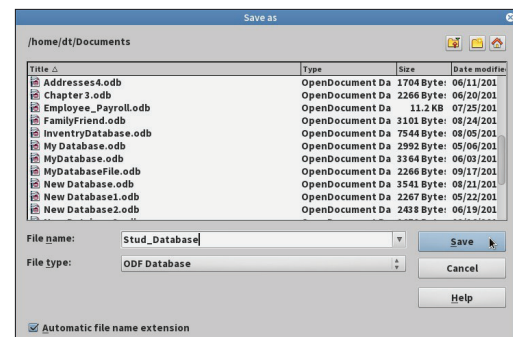


Figure 5: Saving a Database

The Select fields for your table page appears (Figure 6). Perform the following steps to create a table in your database:

10. Select the Business radio button to select the category of your table (Figure 6).
11. Click the up and down arrow button of the Sample tables list box. A drop-down list of table types appears (Figure 6).
12. Select the desired table type from the list. In our case, we have selected Employees (Figure 27). The list of fields related to the Employees type table appears in the Available fields list box.
13. Select the desired field for the Available fields list box.
14. Click the forward arrow button to add the field in the table (Figure 6).

Similarly, you can add more fields in a table by following steps 13 and 14.

15. Click the Next button to move to the next step, as shown in Figure 6:

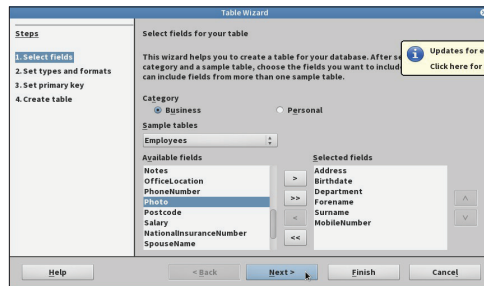


Figure 6: Selecting Fields for a Table

The Set field types and formats page appears (Figure 7). This dialog box enables you to change the selected field properties.

16. Click the Next button, if you want to go with the default settings of selected fields, as shown in Figure 7:

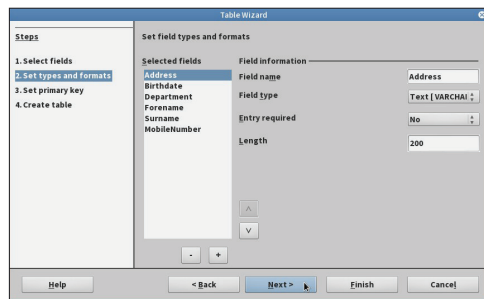


Figure 7: Setting the Field Properties of a Table

The Set primary key page appears (Figure 8).

17. Select the Create a primary key check box to create a primary key for a table (Figure 8).
18. Select the Define primary key as a combination of several fields radio button (Figure 8).
19. Select the field that you want to set as a primary key from the Available fields list box. In our case, we have selected MobileNumber (Figure 8).
20. Click the arrow button to add the selected table as a primary key (Figure 8).
21. Click the Next button to move to the next step, as shown in Figure 8:

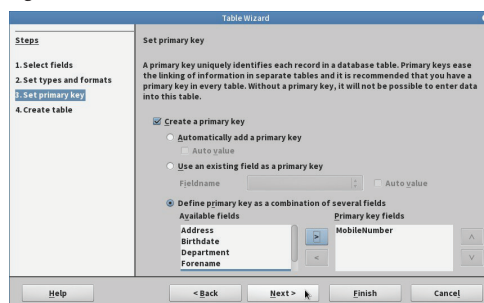


Figure 8: Creating a Primary Key for a Table

The Create table page appears (Figure 9).

22. Type the desired table name for your table in the What do you want to name your table? text box. In our case, we have typed Faculty (Figure 9).
23. Select the Insert data immediately radio box (Figure 9).
24. Click the Finish button to finish the steps of creating a table, as shown in Figure 9:

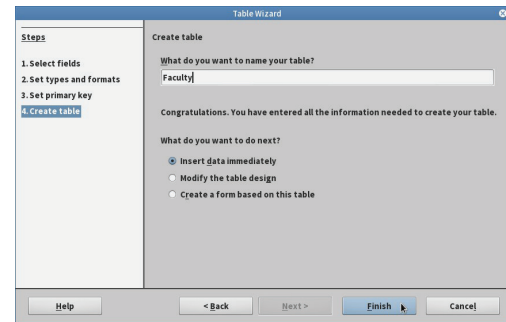


Figure 9: Creating a Table

The BASE window appears with the name of the newly created database (that is, Stud_Database.odb). You can view the table you created for the database in the window, as shown in Figure 10:

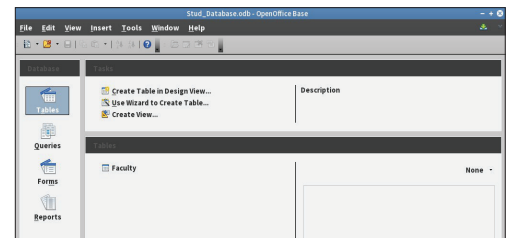


Figure 10: Displaying a Database in the BASE Window

15. Explain fields in a table with the help of a suitable example.

Ans. A field is a column that contains similar type of data. For example, there is a database named Student and it has a table named Student_Details. In the Student_Details table, the St_Name, St_RollNo, St_ContactNo, and St_Address are the names of the fields.

16. Define different field types along with their types in Base.

Ans. The field type allows you to specify the type of data or information that the field contains or stores. In BASE, you can define two types of fields:

- **Fixed length field:** Refers to a type of field length in which the number of characters you can enter is fixed. Fixed length fields can accommodate a fixed number of bytes to store each data element. For example, if we specify the field length as 8, it means that the field can store a maximum of eight characters or 8 bytes of data. It does not mean that the number of characters has to be always eight. The number can vary but it cannot exceed eight. For example, you can type the name Ram in a field that has 8 specified as its field length. However, if you enter Shyam Sharma in the same field, a message appears, informing you that you have exceeded the data length permitted for the field. The main disadvantage of a fixed length field is that there is wastage of space since not all of it is used every time you enter data.

- **Variable length field:** Refers to the type of field length whose value changes according to the length of the data in the field. In this type of field length, the size of each field is different from the other field in the table. The length of the field depends on the number of characters in the field. For example, a field of variable length named Student Name can store names of different lengths, such as Kavya Sharma (12 characters) or Himanshu Gupta (14 characters). In other words, the upper limit of characters that you can store in a variable field length is not specified. The field takes the number of characters of the data that you want to store. Therefore, there is no wastage of space.

17. Explain field length with the help of an example.

Ans. Field length helps you specify the size of the field in a table. For example, if you specify 2 as the field length for a numeric field, it means that the field can store values from 1 to 99, which is the maximum value that can be written in two digits.

18. Explain the various types of text data types in Base.

Ans. The text data types enable you to store textual data in fields. Table 1 provides a brief description of the various text data types:

Table 1: Text Data Types	
Data Type	Description
Text [VARCHAR]	Allows you to store textual data of variable length. It is the default field type when you create a field in a table. The field length of this data type is also set to 50, by default, which can be changed using the Length property.
Text [VARCHAR-IGNORECASE]	Works similar to Text [VARCHAR], but converts every letter into capital letter by ignoring the specific casing of letters.
Memo [LONGVARCHAR]	Helps to store a large volume of field information of up to 2 GB, such as the bibliographical details of a book in a library database. The records in the Memo fields are not arranged in any particular order.

19. How can we navigate in a table?

Ans. You can navigate to any record in a table using the Record Navigation buttons provided in BASE. The Record Navigation buttons are located at the bottom of the table when it is opened in Table Data View.

20. Explain the procedure of creating the Student table in Base.

Ans. Perform the following steps to create a table, named Student, in Base:

1. Select the Tables button.
2. Select the Create Table in Design View option, as shown in Figure 11:

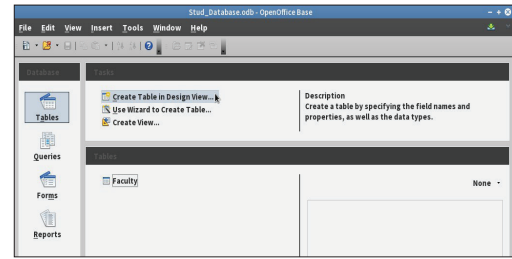


Figure 11: Creating a Table for a Database

The Table Design window appears (Figure 12).

3. Type Stud_RollNo in the Field Name column and press the ENTER key to move to the Field Type column. In this column, the Text [VARCHAR] field type is selected by default.
4. Click the arrow button. A drop-down list appears from which you can select the desired field type.
5. Select the Number [NUMERIC] field type from the drop-down list, as shown in Figure 12:

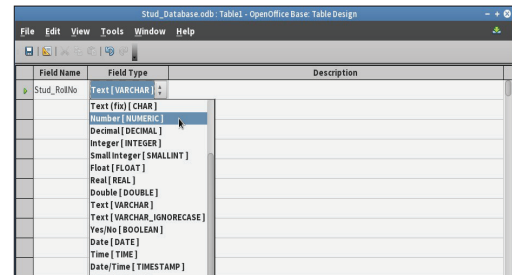


Figure 12: Defining the First Field and its Type

Similarly, you can create the other fields of the table and define their properties in the Table Design window (Figure 13).

Now, perform the following steps to save the table:

6. Click the Save button in the Table Design window, as shown in Figure 13:

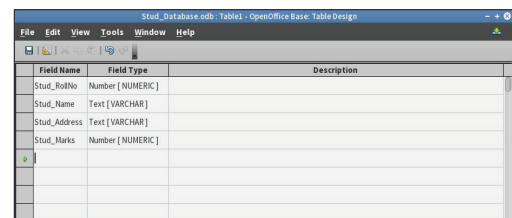


Figure 13: Defining Fields and their Types

The Save As dialog box appears (Figure 14).

7. Type the desired name for the table in the Table Name text box. In our case, we have typed Student (Figure 14).
8. Click the OK button, as shown in Figure 14:

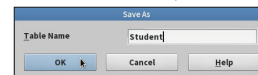


Figure 14: Saving a Table

The OpenOffice Base message box appears (Figure 15).

9. Click the Yes button if you want a primary key to be automatically created for the table. In our case, we have clicked the No button as we want to create the primary key of our choice, as shown in Figure 15:

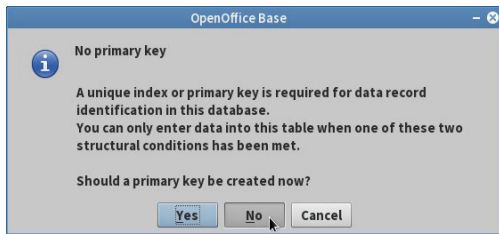


Figure 15: Displaying the OpenOffice Base Message Box
The table named Student is created. You can see the table in the Database window, as shown in Figure 16:

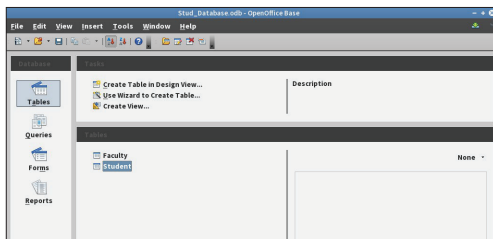


Figure 16: Displaying the Student Table in the Database Window

21. What do you understand by field properties in Base? Explain the various types of field properties available in Base.

Ans. In a database, field properties play an important role in controlling the behavior of a field. In BASE, you can assign the following types of field properties:

- **Entry Required:** Specifies whether the entry of data in the selected field is mandatory or not. For example, in case you set the value as Yes in the field property of a selected field, it means that you must enter data in the field. On the other hand, if the value is set as No, then you need not enter any data in the field. In other words, you can skip this field.
- **Length:** Specifies the field length, that is, the size of the field.
- **Decimal Places:** Specifies the place of the decimal point from the right side of a numeric value. For example, if you specify the value 3 in the Decimal Places field property, it means that the decimal point is placed at the fourth position from the right side of the numeric value, for example, 1.234.
- **Default Value:** Specifies the value that is added automatically in a field. You can change this value with a value of your own.
- **Format Example:** Allows you to control the appearance of the data in a table. You can use the built-in formats available in BASE or define your own formats.

22. How can you set the primary key for a table in Base?

Ans. In this question, we are using the Stud_Database database that contains Student and Faculty tables. Perform the following steps to set the primary key in the Student table:

1. Right-click the field of the table in which you want to set a primary key. In our case, we have right-clicked the Stud_RollNo field. A context menu appears (Figure 17)
2. Select the Primary Key check box from the context menu, as shown in Figure 17:

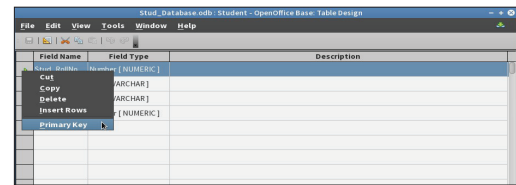


Figure 17: Setting the Primary Key in a Table

The primary key is set for the selected field in the table, as shown in Figure 18:

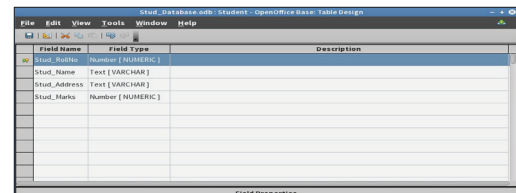


Figure 18: Displaying a Table with a Primary Key

23. Enlist various numeral data types with their desired field range and length.

Ans. The field range and length of different numeral data types is shown as follows:

Field Data Type	Field Range	Field Length or Field Size
Tiny Integer	Fixed length: 3 Stores numbers in the range: -128 to +127	1 byte
Small Integer	Fixed length: 5 Stores numbers in the range: -32768 to +32767	2 bytes
Integer	Fixed length: 10 Stores numbers in the range: -231 to +231-1	4 bytes
Big Integer	Fixed length: 19 Stores numbers in the range: -263 to +263-1	8 bytes
Float, Real, and Double	-----	4 bytes
Numeric and Decimal	No limit	No limit (are limited according to the computer's re-source limits)

24. What do you understand by the Entry required field property? Explain with a suitable example.

Ans. The Entry required specifies whether the entry of data in the selected field is mandatory or not. For example, in case you set the value as Yes in the field property of a selected field, it means that you must enter data in the field. On the other hand, if the value is set as No, then you need not enter any data in the field. In other words, you can skip this field.

25. Explain the procedure of deleting a field from a table in Base.

Ans. In BASE, you can delete the fields that you do not require from a table, by using the Delete command. To delete a field, first you need to open the table in Table Design View.

In this question, we are using the Stud_Database database that contains Student and Faculty tables. Perform the following steps to delete a field from the Student table in BASE:

1. Open the Student table in the Table Design view (Figure 19).
2. Select the field that you want to delete. In our case, we have selected the field named Stud_Marks in Science (Figure 19).
3. Right-click the grey button beside the field name. A context menu appears (Figure 19).
4. Select the Delete option from the context menu, as shown in Figure 19:

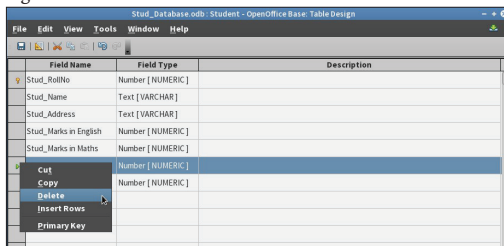


Figure 19: Deleting a Field from a Table

The selected field is deleted from the table, as shown in Figure 20:

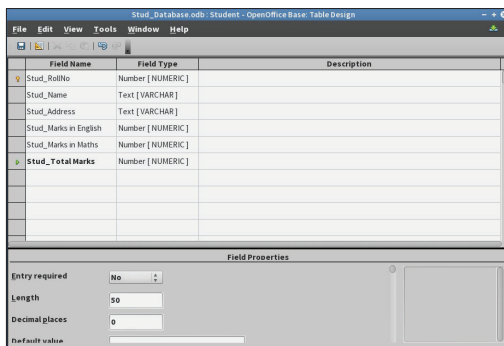


Figure 20: Displaying a Table after Deleting a Field

26. What is the difference between the fixed and variable field lengths?

Ans. In a fixed length field, the number of characters you can enter in the field remains fixed. On the other hand, in variable length field, the length of the field changes according to the data entered.

27. How can you insert multiple fields in a table?

Ans. In this question, we are using the Stud_Database database that has two tables named Faculty and Student. Let's assume that you want to add additional fields in the Student table. For this, you first need to open the Student table in the Table Design view. After this, perform the following steps to add fields in the Student table:

1. Right-click the Student table to add fields in it. A context menu appears (Figure 21).
2. Select the Edit option from the context menu, as shown in Figure 21:

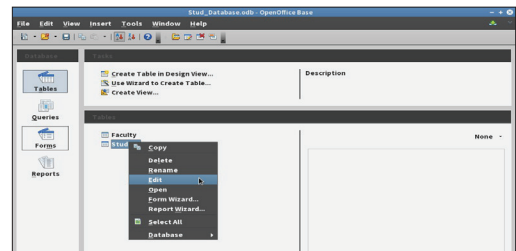


Figure 21: Opening a Table in Design View to Add Fields

The Table Design window appears (Figure 22).

3. Type the desired field name in the Field Name column to add the field in the Student table. In our case, we have typed Stud_Marks in Science (Figure 22).
4. Press the ENTER key to move to the Field Type column to define the field type (Figure 22).
5. Select the Number [NUMERIC] field type for the Stud_Marks in the Maths field from the Field Type column (Figure 22).
6. Click the Save button to save data in the table, as shown in Figure 22:

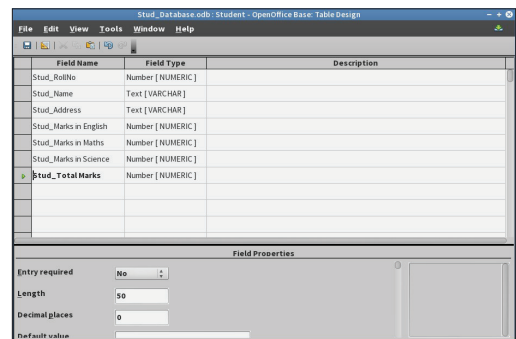


Figure 22: Adding Fields in a Table

The required fields are now added in the Student table. To view the modifications, open the table in Table Data View by double-clicking the name of the table in the BASE window. The table appears in Table Data View with the required changes, as shown in Figure 23:

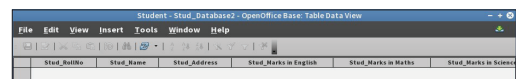


Figure 23: Displaying the Student Table in Table Data View

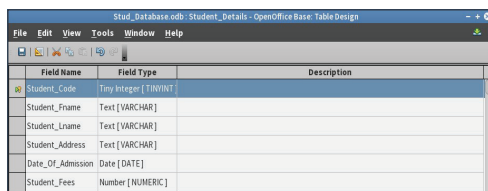
28. Explain the importance of the primary key in a table with the help of a suitable example.

Ans. In a database, a primary key is very useful for uniquely identifying the data in a field. A table must contain at least one primary key, and each field with the primary key must contain a value. Further, the primary key field cannot contain NULL value. If you assign a primary key to the column of a table, it means that each field in the column contains a unique value. Suppose, you have created a table named Student, which contains the fields Stud_Rollno, Stud_Name, Stud_Marks in Maths, Stud_Marks in English, Stud_Marks in Science, and Stud_Total Marks. Now, you want to add a primary key in the Stud_Rollno column. In that case, each value in the column must be unique. You must also remember that a primary key column cannot have a NULL value.

29. Create a table named Student_Details in Base having the following fields and data types:

Field Name	Data Type
Student_Code	TINYINT
Student_Fname	Text (20)
Student_Lname	Text (20)
Student_Address	Text (30)
Date_of_Admission	Date
Student_Fees	Number

Ans. The fields of the Student_Details table along with their data types and length is shown in Figure 24:



Field Name	Field Type	Description
Student_Code	tiny integer [TINYINT]	
Student_Fname	Text [VARCHAR]	
Student_Lname	Text [VARCHAR]	
Student_Address	Text [VARCHAR]	
Date_of_Admission	Date [DATE]	
Student_Fees	Number [NUMERIC]	

Figure 24: Defining Fields and their Types

30. After creating the Student_Details table, enter the following records in it:

Student_Code	Student_Fname	Student_Lname	Student_Address	Date of Admission	Student_Fees
001	Kavya	Sharma	Laxmi Nagar	25/05/2015	15000
002	Dhruv	Upreti	Preet Vihar	12/05/2015	14000
003	Aashi	Sharma	Shalimar Bagh	15/05/2015	18000
004	Lakshita	Sati	Laxmi Nagar	25/05/2015	12000
005	Tanisha	Bhat	Preet Vihar	02/05/2015	17000
006	Ambar	Sharma	Kamla Nagar	15/05/2015	20000
007	Anamika	Sharma	Lado Sarai	04/05/2015	22000

Ans. Before entering records in a table, you first need to set the primary key field. After setting the primary key field, perform the following steps to add data in the table:

- Right-click the Student_Details table to add data. A context menu appears (Figure 25).
- Select the Open option from the context menu to open the table in Table Data View, as shown in Figure 25:

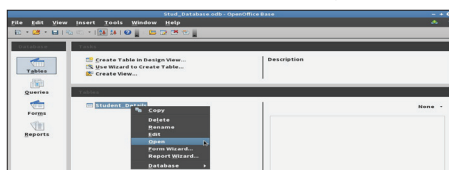
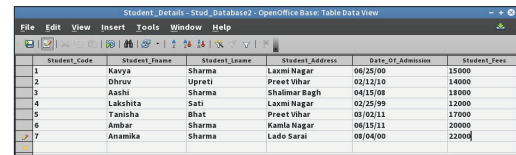


Figure 25: Opening a Table in Table Data View to Add Data

The selected table opens in the Table Data View window (Figure 26).

- Type the data in the different fields of the table according to your requirements (Figure 26).

- Click the Save current record button to save the changes, as shown in Figure 26:



Student_Code	Student_Fname	Student_Lname	Student_Address	Date_of_Admission	Student_Fees
1	Kavya	Sharma	Laxmi Nagar	06/25/00	15000
2	Dhruv	Upreti	Preet Vihar	02/12/00	14000
3	Aashi	Sharma	Shalimar Bagh	04/15/08	18000
4	Lakshita	Sati	Laxmi Nagar	02/25/99	12000
5	Tanisha	Bhat	Preet Vihar	03/02/11	17000
6	Ambar	Sharma	Kamla Nagar	06/15/11	20000
7	Anamika	Sharma	Lado Sarai	08/04/00	22000

Figure 26: Adding Data in a Table

31. What are the special data types available in Base?

Ans. Special data types allow you to store special type of information, such as Yes/No data. The special data type is categorized in the following types:

- Yes/No [Boolean]
- Image [LONGVARBINARY]
- Binary [VARBINARY]
- Binary (fix) [BINARY]
- Other [OTHER]

32. How can you select multiple fields randomly from a table in Base?

Ans. In BASE, you can randomly select multiple fields in a table by pressing the CTRL key from the keyboard and then click the row selector button to select the field that you want. In this way, you can randomly select multiple fields in a table.

Formative Assessment

Application-Oriented Questions

- Consider the following Passenger table:

Passenger_ID	Passenger_Name	Passport_Number	Ship_Name	Ticket_Cost	Departure_Date	Departure_Time
A11B2	Kirti	J1112U2	Star Blue	120000	11/07/2011	10:00 AM
A121C	Souvik	KL132HD	Knock Nevis	135000	15/07/2011	4:00 PM
K124D	Saurabh	PJK222U2	OCEANIC	110000	17/07/2011	2:00 PM
A092F	Akhil	MN112W2	Blue Shark	150000	21/07/2011	11:00 PM
Q123T	Tamara	HJ1512ND	IT Interceptor	150000	28/07/2011	1:00 AM

Answer the following questions:

- Why do we need to add, edit, and delete records from a table?
- How many fields are there in the Passenger table?
- Give the data type of the Departure_Date, Departure_Time, Passport_Number, and Ticket_Cost fields.
- Which field is eligible for being a primary key field? What is the purpose of setting the primary key?
- Sort the table in the descending order as per the Ticket_Cost field. After sorting the table, state two records of the Passenger_Name and Ship_Name fields.

Ans. a In a database, tables are created to organize and manage data in an efficient and effective manner so that one can easily get or understand the information. To update the information or data in a table, you need to add, edit, or delete records.

- b. Seven
c.

Field Name	Data type
Departure Date	Date [DATE]
Departure Time	Time [TIME]
Passport Number	Number [NUMERIC]
Ticket Cost	Float [FLOAT]

- d. The Passenger ID field is eligible for being a primary key. In addition, the Passport Number field is also eligible as we know that the passport number of each person is different. The main purpose of setting a primary key is that it is used to uniquely identify each record.
e. The Passenger table is sorted in the descending order as per the Ticket Cost field, as shown in Figure 27:

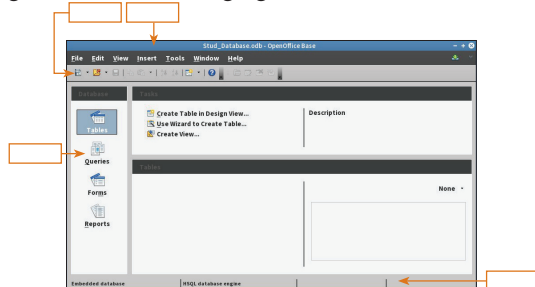
Passenger_ID	Passenger_Name	Passport_Number	Ship_Name	Ticket_Cost	Departure_Date	Departure_Time
Q133T	Tamana	HJ1312ND	IT Interceptor	150000	12/3/99	01:00:00
A003P	Akhil	MN112W2	Blue Shark	150000	12/3/99	11:00:00
A131C	Sourabh	KL1312ND	Penack News	135000	12/3/99	04:00:00
A118Z	Kirti	HJ1312U	Star Blue	120000	11/07/11	10:00:00
K124D	Saurabh	PJK222U2	OCEANIC	110000	12/3/99	02:00:00

Figure 27: Showing the Passenger Table Sorting in Descending Order

The first two records of the Passenger Name and Ship Name fields are given in the following table :

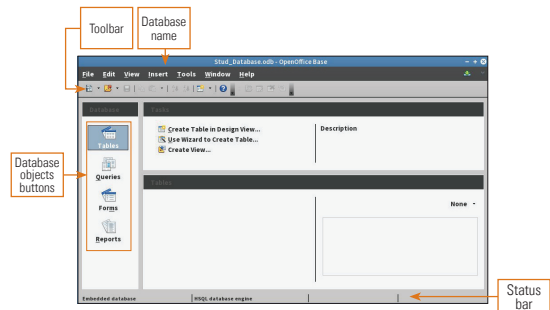
Passenger Name	Ship Name
Tamana	IT Interceptor
Akhil	Blue Shark

2. The blank callouts of the various user interface components of the OpenOffice BASE window are given in the following figure:



Write the names of various user interface components of BASE in the given blank callouts.

Ans.



3. Create a database in BASE and apply data validation using the Entry required field property.

Ans. In this question, we are using the Passenger table. Perform the following steps to set the field properties named Entry required in the Passport number field in a table in BASE:

1. Right-click the Passenger table in the database window. A context menu appears (Figure 28).
2. Select the Edit option from the context menu to open the table in the Table Design view, as shown in Figure 28:

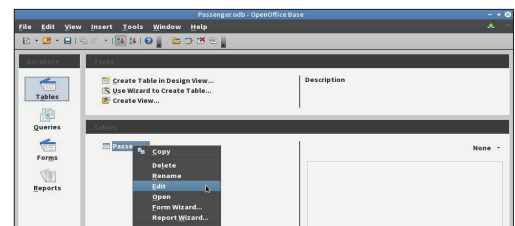


Figure 28: Displaying the Database Window

The Table Design window of the selected table appears (Figure 29).

3. Select the Passport_Number field name (Figure 29).
4. Click the up and down arrow button of the list box beside the Entry required field property. A drop-down list appears (Figure 29).
5. Select the Yes option from the drop down list (Figure 29).
6. Click the Save button to save the changes, as shown in Figure 29:

Field Name	Field Type	Description
Passenger_ID	Text [VARCHAR]	
Passenger_Name	Text [VARCHAR]	
Passport_Number	Text [VARCHAR]	
Ship_Name	Text [VARCHAR]	
Ticket_Cost	Number [NUMERIC]	
Departure_Date	Date [DATE]	
Departure_Time	Time [TIME]	

Figure 29: Settings Fields Properties

The data validation is applied to the Passport_Number field. If you leave this field blank, a message appears, as shown in Figure 30:

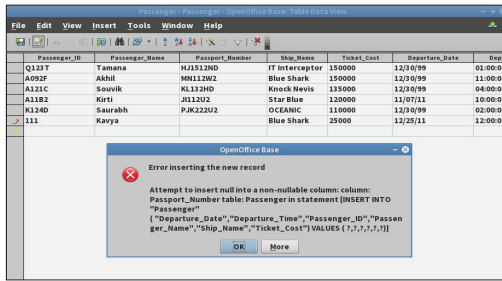


Figure 30: Showing the Data Validation

4. Consider the following table named Patient:

Patient Name	Patient Age (Year)	Patient Address	Patient Contact Number	Gender	Disease	Date of Admission
Shradha	20	Shalimar Bagh	9877777111	F	Malaria	12/06/2011
Sudhir	15	Preet Vihar	8777718253	M	Pneumonia	02/03/2011
Parth	18	Surajmal Vi-har	9856432123	M	Asthma	15/05/2011
Geeta	25	Janak Puri	8675643255	F	Pneumonia	20/04/2011
Anita	20	Dwarka	9711777382	F	Whooping cough	08/06/2011
Adarsh	19	Anand Vihar	9811665432	M	Pneumonia	25/06/2011

Answer the following questions:

- Identify the primary key field.
- Identify the disease that most people suffer from.
- How many records does the Patient table contain?
- Identify the fields that have the same data types.
- Write down the field length of each field in the Patient table.
- Why do we need to edit the Patient table? Give reasons to support your answer.

- Ans.
- The Patient Contact Number field
 - Pneumonia
 - Six
 - The Patient Age (Year) and Patient Contact Number fields have the same data types as Number [Numeric]. The Patient Name, Gender, Patient Address, and Disease fields have the same data types as Text [VARCHAR].
 -

Field Name	Length
Patient Name	30
Patient Code	5
Patient Age (Year)	5
Patient Address	50
Patient Contact Number	10
Gender	1
Disease	50
Date of Admitting	Not Applicable

- To update your information or data, we need to edit the Patient table.

5. Consider the following table named Customer:

Answer the following questions:

- How many fields does the Customer table contain?
- What is the size of a single record in the Customer table?
- If the Customer table contains 2000 records, determine the bytes required to store these records.
- What do you understand by the field description for the Customer_ID field?

Field Name	Field Data Type	Field Length	Field Description
Customer ID	Number	5	Must contain some value
First Name	Text	20	-----
Last Name	Text	20	-----
House Number	Number	3	-----
Street Number	Number	3	-----
Street Name	Text	30	-----
City	Text	20	-----
State	Text	20	-----
Contact Number	Number	15	-----

- Ans.
- Nine
 - Total size of a single record = Sum of all fields length = $5 + 20 + 20 + 3 + 3 + 30 + 20 + 20 + 15 = 136$
 - Total no. of records = 2000
Size of one record = 136 bytes
Total size of the database = (2000 X size of one record) Bytes = (2000 X 136) Bytes = 272000 Bytes
 - The Customer ID field is a primary key field; therefore it cannot have a NULL value.

6. Dr. Akhilesh Sharma (the head of the hospital) appoints two doctors, whose details are given as follows:

- Dr. Vedant Srivastava is appointed as an assistant doctor. Born on February 15, 1982, Dr. Srivastava did his MS in Orthopedics from Safdarjung Hospital, New Delhi, and has over 5 years of experience in the field. His address is 105/A, Pharma Apartment and his contact number is 8667645766.
- Dr. Kartik Sachdeva is appointed as a senior surgeon. He did his MS in Orthopedics from

Rajendra Medical College, Ranchi, Jharkhand, and has over 10 years of experience. Dr. Sachdeva was born on May 1, 1972. His address is 19/1, Rohini and his contact number is 9864544756.

Add the preceding details in the relevant table.

Ans. Perform the following steps to add data in the Doctor_Details table:

1. Right-click the Doctor_Details table to add data in it. A context menu appears (Figure 31).
2. Select the Open option from the context menu to open the table in Table Data View, as shown in Figure 31:

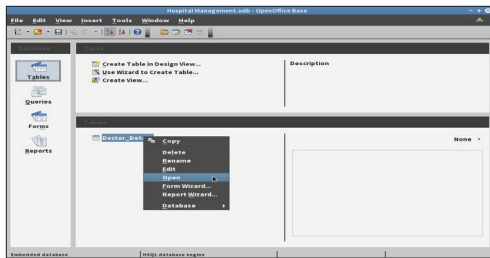


Figure 31: Opening a Table in Table Data View to Add Data

The Doctor_Details table opens in the Table Data View window (Figure 32).

3. Type the data in different fields of the table (Figure 32).
4. Click the Save current record button to save the changes, as shown in Figure 32:

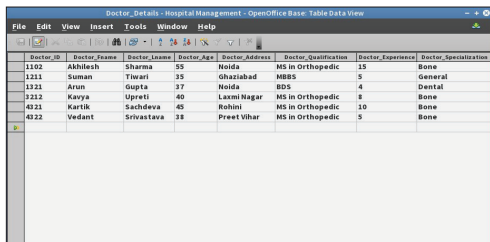


Figure 32: Adding Data in a Table

7. There are three tables named Hospital_Management, Doctor_Details, and Patient_Details.

The Hospital_Management Table

Field Name

Patient_ID

Patient_FirstName

Patient_LastName

Patient_Age

Patient_Address

Patient_ContactNumber

Patient_Disease

Date_of_Admission

Handle_By(Doctor_Name)

Date_of_Discharge

Total_Expenses

The Doctor_Details Table

Field Name

Doctor_ID

Doctor_FirstName

Doctor_LastName

Doctor_Age

Doctor_Address

Doctor_Qualification

Doctor_Experience

Doctor_Specialization

The Patient_Details Table

Field Name

Patient_ID

Patient_FirstName

Patient_LastName

Patient_Age

Patient_Address

Patient_ContactNumber

Patient_Disease

A patient named Mr. Sidharth Sinha wants to leave the hospital and go to another hospital for better treatment. Therefore, remove his records from the Hospital_Management and Patient_Details tables.

Ans. Perform the following steps to remove the record of Sidharth Sinha from the Patient_Details table:

1. Right-click the Patient_Details table in the database window. A context menu appears (Figure 33).
2. Select the Open option from the context menu to open the table in Table Data View, as shown in Figure 33:

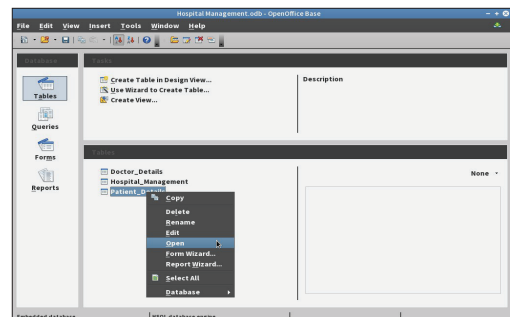


Figure 33: Opening a Table in Table Data View to Edit Data

The Patient_Details table opens in Table Data View, as shown in Figure 34:

Patient_ID	Patient_FirstName	Patient_LastName	Patient_Age	Patient_Address	Patient_ContactNumber
112	Pratibha	Sharma	24	Rohini	98877799
113	Sidharth	Sinha	31	Preet Vihar	877656565
114	Sumita	Tiwari	20	Pandav Nagar	23144455
115	Gitanjali	Saxena	45	Laxmi Nagar	844455567

Figure 34: Showing the Patient_Details Table

3. Right-click the grey colored button beside the Sidharth Sinha record to delete it from the table. A context menu appears (Figure 35).
4. Select the Delete Rows option from the context menu, as shown in Figure 35:

Patient_ID	Patient_FirstName	Patient_LastName	Patient_Age	Patient_Address	Patient_ContactNumber
112	Pratibha	Sharma	24	Rohini	98877799
113	Sidharth	Sinha	31	Preet Vihar	877656565
114	Sumita	Tiwari	20	Pandav Nagar	23144455
115	Gitanjali	Saxena	45	Laxmi Nagar	844455567

Figure 35: Deleting the Record from a Table

The OpenOffice 4.1.1 message box appears, asking you to confirm the deletion (Figure 36).

5. Click the Yes button to delete the selected record, as shown in Figure 36:

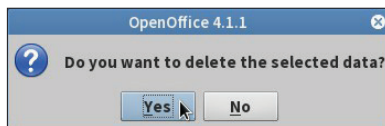


Figure 36: Displaying the Message Dialog Box

The Sidharth Sinha record is deleted, as shown in Figure 37:

Patient_ID	Patient_FirstName	Patient_LastName	Patient_Age	Patient_Address	Patient_ContactNumber
112	Pratibha	Sharma	24	Rohini	98877799
114	Sumita	Tiwari	20	Pandav Nagar	23144455
115	Gitanjali	Saxena	45	Laxmi Nagar	844455567

Figure 37: Showing the Patient Details Table after Deleting the Record

After deleting the Sidharth Sinha record from the Patient Details table, delete the same record from the Hospital management table by following all the above mentioned steps.

8. Dr. Akhilesh Sharma wants the administrative department to provide a list of doctors sorted in the alphabetic order. Therefore, sort the list of doctors according to their first name in the Doctor_Details table and take a printout of this list.

Ans. Perform the following steps to sort the Doctor Details table as per the Doctor_First Name field in the alphabetic order:

1. Right-click the Doctor_Details table in the database window. A context menu appears (Figure 38).
2. Select the Open option from the context menu to open the table in Table Data View, as shown in Figure 38:

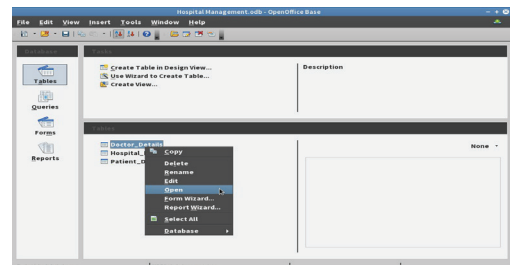


Figure 38: Opening Table in Table Data View

3. Select the Doctor_First Name column by clicking the column selector button to select the entire records in it (Figure 39).
4. Click the Sort Ascending button to sort records in ascending order, as shown in Figure 39:

Doctor_ID	Doctor_FirstName	Doctor_LastName	Doctor_Age	Doctor_Address	Doctor_Qualification	Doctor_Experience
1102	Akhilesh	Sharma	35	Noida	MS in Orthopedic	15
1211	Suman	Tiwari	35	Ghaziabad	MBBS	5
1212	Arjun	Gupta	37	Noida	BDS	4
1213	Kanya	Upreti	40	Laxmi Nagar	MS in Orthopedic	8
4021	Kartik	Sachdeva	45	Rohini	MS in Orthopedic	10
1211	Suman	Tiwari	35	Ghaziabad	MBBS	5
4022	Vedant	Srivastava	38	Preet Vihar	MS in Orthopedic	5

Figure 39: Sorting Records

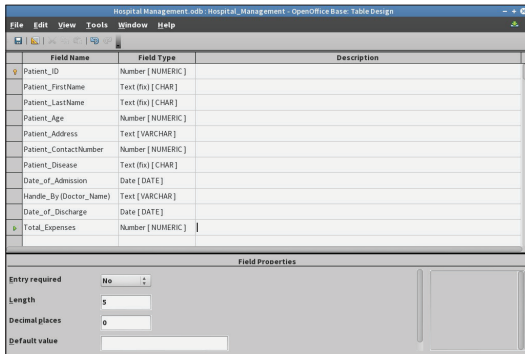
Now, the data in the Doctor_Details table is sorted as per the Doctor_First Name field in ascending order, as shown in Figure 40:

Doctor_ID	Doctor_FirstName	Doctor_LastName	Doctor_Age	Doctor_Address	Doctor_Qualification	Doctor_Experience
1102	Akhilesh	Sharma	35	Noida	MS in Orthopedic	15
1211	Suman	Tiwari	35	Ghaziabad	MBBS	5
1212	Arjun	Gupta	37	Noida	BDS	4
4021	Kartik	Sachdeva	45	Rohini	MS in Orthopedic	10
1213	Kanya	Upreti	40	Laxmi Nagar	MS in Orthopedic	8
1211	Suman	Tiwari	35	Ghaziabad	MBBS	5
4022	Vedant	Srivastava	38	Preet Vihar	MS in Orthopedic	5

Figure 40: Showing the Doctor_Details Table after Sorting

9. Create the correct structure for the tables (Hospital_Management, Doctor_Details, and Patient_Details) listed in question 7 and add relevant information or data in them.

Ans. The structure of the Hospital_Management table is shown in Figure 41:



Field Name	Field Type	Description
Patient_ID	Number [NUMERIC]	
Patient_FirstName	Text (No) [CHAR]	
Patient_LastName	Text (No) [CHAR]	
Patient_Age	Number [NUMERIC]	
Patient_Address	Text [VARCHAR]	
Patient_ContactNumber	Number [NUMERIC]	
Patient_Disease	Text (No) [CHAR]	
Date_of_Admission	Date [DATE]	
Handle_By (Doctor_Name)	Text [VARCHAR]	
Date_of_Discharge	Date [DATE]	
Total_Expenses	Number [NUMERIC]	

Field Properties

Entry required: No

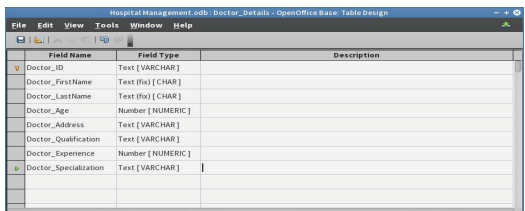
Length: 5

Decimal places: 0

Default value:

Figure 41: Showing the Structure of the Hospital_Management Table

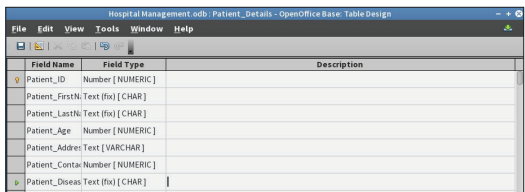
The structure of the Doctor_Details table is shown in Figure 42:



Field Name	Field Type	Description
Doctor_ID	Text [VARCHAR]	
Doctor_FirstName	Text (No) [CHAR]	
Doctor_LastName	Text (No) [CHAR]	
Doctor_Age	Number [NUMERIC]	
Doctor_Address	Text [VARCHAR]	
Doctor_Qualification	Text [VARCHAR]	
Doctor_Experience	Number [NUMERIC]	
Doctor_Specialization	Text [VARCHAR]	

Figure 42: Showing the Structure of the Doctor_Details Table

The structure of the Patient_Details table is shown in Figure 43:



Field Name	Field Type	Description
Patient_ID	Number [NUMERIC]	
Patient_FirstName	Text (No) [CHAR]	
Patient_LastName	Text (No) [CHAR]	
Patient_Age	Number [NUMERIC]	
Patient_Address	Text [VARCHAR]	
Patient_ContactNumber	Number [NUMERIC]	
Patient_Disease	Text (No) [CHAR]	

Figure 43: Showing the Structure of the Patient_Details Table

Perform the following steps to add data in the Doctor_Details table:

1. Right-click the Doctor_Details table to add data in it. A context menu appears (Figure 44)
2. Select the Open option from the context menu to open the table in Table Data View, as shown in Figure 44:

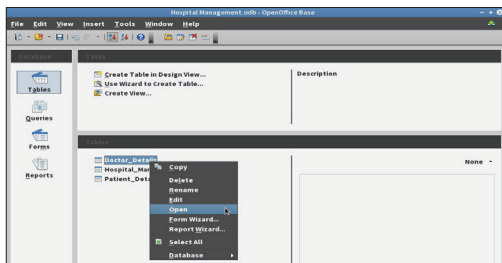
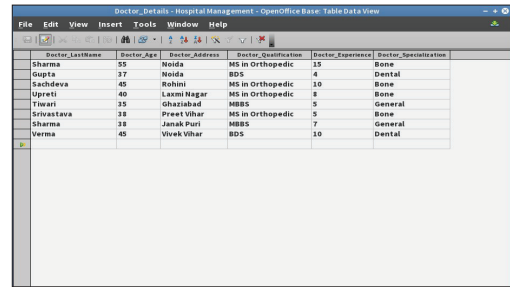


Figure 44: Opening a Table in Table Data View to Add Data

The Doctor_Details table opens in the Table Data View window (Figure 45).

3. Type the data in the different fields of the table (Figure 45).
4. Click the Save current record button to save the changes, as shown in Figure 45:



Doctor_LastName	Doctor_Age	Doctor_Address	Doctor_Qualification	Doctor_Experience	Doctor_Specialization
Sharma	55	Noida	MS in Orthopedic	15	Bone
Gupta	37	Noida	BDS	4	Dental
Sachdeva	45	Rohini	MS in Orthopedic	10	Bone
Upreti	40	Luxmi Nagar	MS in Orthopedic	8	Bone
Tiwari	35	Ghaziabad	MBBS	5	General
Srivastava	38	Preet Vihar	MS in Orthopedic	5	Bone
Sharma	38	Janak Puri	MBBS	7	General
Verma	40	Vivek Vihar	BDS	10	Dental

Figure 45: Adding Data in a Table

Similarly, add data in other databases named Hospital_Management and Patient_Details by following above mentioned steps.

10. A table named Employee has the following fields:

Field Name

Emp_ID

Emp_Name

Emp_Address

Emp_ContactNumber

Emp_DateofBirth

Emp_DateofJoining

Emp_Designation

Emp_Salary

Create an Employee table in BASE and add the given fields in it.

Ans. Perform the following steps to create the Employee table in BASE:

1. Select the Tables button from the database window (Figure 46).
2. Select the Create Table in Design View option, as shown in Figure 46:

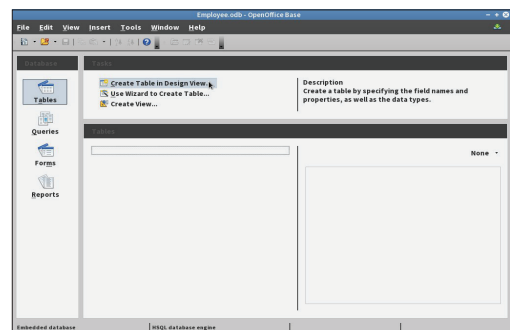


Figure 46: Creating a Table for a Database

The Table Design window appears (Figure 47).

3. Type Emp_ID in the Field Name column and press the ENTER key to move to the Field Type column (Figure 47).
4. Click the arrow button. A drop-down list appears from which you can select the desired field type (Figure 47).
5. Select the Number [NUMERIC] field type from the drop-down list, as shown in Figure 47:

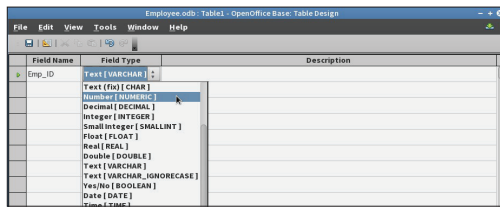


Figure 47: Defining the First Field and its Type

Similarly, you can create other fields of the table and define their properties in the Table Design window by performing the following steps:

6. Type Emp_Name in the Field Name column (Figure 48).
7. Select the Text (fix) [CHAR] field type for the Emp_Name field (Figure 48).
8. Type Emp_Address in the Field Name column (Figure 48).
9. Select the Text [VARCHAR] field type for the Emp_Address field (Figure 48).
10. Type Emp_ContactNo in the Field Name column (Figure 48).
11. Select the Number [NUMERIC] field type for the Emp_ContactNo field (Figure 48).
12. Type Emp_DOB in the Field Name column (Figure 48).
13. Select the Date [DATE] field type for the Emp_DOB field (Figure 48).
14. Type Emp_DOJ in the Field Name column (Figure 48).
15. Select the Date [DATE] field type for the Emp_DOJ field (Figure 48).
16. Type Emp_Designation in the Field Name column (Figure 48).
17. Select the Text (fix) [CHAR] field type for the Emp_Designation field (Figure 48).
18. Type Emp_Salary in the Field Name column (Figure 48).
19. Select the Number [NUMERIC] field type for the Emp_Salary field (Figure 48).
20. Click the Save button in the Table Design window, as shown in Figure 48:



Figure 48: Defining Fields and their Types

The Save As dialog box appears (Figure 49).

21. Type the desired table name in the Table Name text box. In our case, we have typed Employee (Figure 49).
22. Click the OK button to save the table, as shown in Figure 49:

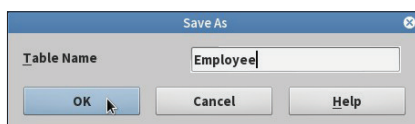


Figure 49: Saving a Table

The OpenOffice Base message box appears (Figure 50).

23. Click the Yes button if you want a primary key to be automatically created for the table. In our case, we have clicked the No button as we want to create the primary key of our choice, as shown in Figure 50:

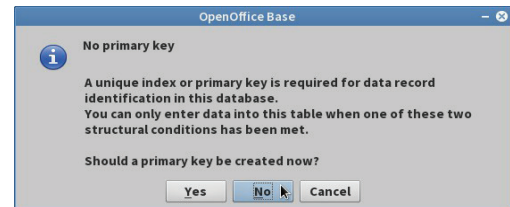


Figure 50: Displaying the OpenOffice Base Message Box

The table named Employee is created. You can see the table in the Database window, as shown in Figure 51:

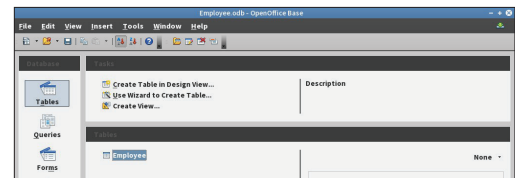


Figure 51: Displaying the Employee Table in the Database Window

11. Identify the field in the Employee table that you want to make the primary key field and give reasons for your choice.

Ans. The Emp_ID field is capable of being a primary key as all the values in this field are unique. The main purpose of creating a primary key field is that it is used to uniquely identify the data in a field.

12. Sort the Employee table according to the Emp_DateofJoining field. After sorting the database, write first two records of the Emp_Name field.

Ans. Perform the following steps to sort the Employee database:

1. Right-click the Employee table in the database window. A context menu appears (Figure 52).
2. Select the Open option from the context menu to open the table in Table Data View, as shown in Figure 52:

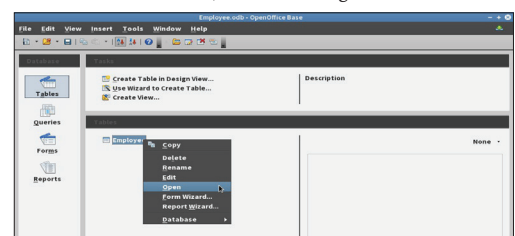


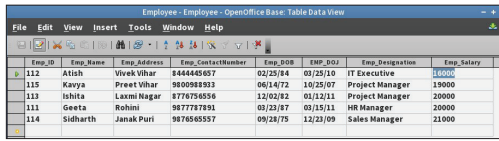
Figure 52: Opening Table in Table Data View

3. Select the Emp_Salary column by clicking the column selector button to select the entire records in it (Figure 53).
4. Click the Sort Ascending button to sort records in ascending order, as shown in Figure 53:

Emp_ID	Emp_Name	Emp_Address	Emp_ContactNo	Emp_DOB	Emp_DOJ	Emp_Designation	Emp_Salary
111	Gaveta	Rohini	844444555	02/23/87	03/15/11	HR Manager	20000
112	Atish	Vivek Vihar	844444555	02/23/84	03/25/10	IT Executive	10000
113	Schita	Laxmi Nagar	8776756556	12/02/85	01/12/11	Project Manager	20000
114	Sidharth	Janak Puri	987654321	09/28/79	12/23/09	Sales Manager	11000
115	Kavya	Preet Vihar	980098953	08/14/72	10/25/07	Project Manager	15000

Figure 53: Sorting Records

The data in the Employee table is sorted as per the Emp_Salary field in ascending order, as shown in Figure 54:



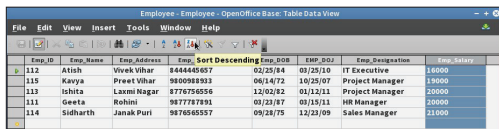
Emp_ID	Emp_Name	Emp_Address	Emp_ContactNumber	Emp_DOB	EMP_DOJ	Emp_Designation	Emp_Salary
112	Atish	Vivek Vihar	8444448567	02/25/84	03/25/10	IT Executive	18000
115	Kavya	Preet Vihar	980098983	06/14/72	10/25/07	Project Manager	19000
113	Ishita	Laxmi Nagar	8776756556	12/02/82	03/12/11	Project Manager	20000
111	Geeta	Rohini	9877787891	03/23/87	03/15/11	HR Manager	20000
114	Sidharth	Janak Puri	9876565557	09/28/75	12/23/09	Sales Manager	21000

Figure 54: Showing the Employee Table after Sorting
After sorting the records of the Employee database, the first two records in the Emp_Name field are Atish and Kavya.

13. Mrs. Parul, the head of the HR department, wants a list of the higher paid employees in the Employee table. For this, sort the Employee table in the descending order based on the Emp_Salary field and print the list.

Ans. Perform the following steps to sort the Emp_Salary field in descending order:

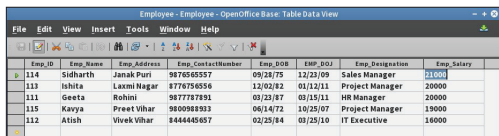
1. Right-click the Employee table in the database window. A context menu appears (Figure 55).
2. Select the Open option from the context menu to open the table in Table Data View (Figure 55).
3. Select the Emp_Salary column by clicking the column selector button to select the entire records in it (Figure 55).
4. Click the Sort Descending button to sort records in the ascending order, as shown in Figure 55:



Emp_ID	Emp_Name	Emp_Address	Emp_ContactNumber	Emp_DOB	EMP_DOJ	Emp_Designation	Emp_Salary
114	Sidharth	Janak Puri	9876565557	09/28/75	12/23/09	Sales Manager	21000
111	Geeta	Rohini	9877787891	03/23/87	03/15/11	HR Manager	20000
113	Ishita	Laxmi Nagar	8776756556	12/02/82	03/12/11	Project Manager	20000
115	Kavya	Preet Vihar	980098983	06/14/72	10/25/07	Project Manager	19000
112	Atish	Vivek Vihar	8444448567	02/25/84	03/25/10	IT Executive	18000

Figure 55: Sorting Records

Now, the data in the Employee table is sorted as per the Emp_Salary field in descending order, as shown in Figure 56:



Emp_ID	Emp_Name	Emp_Address	Emp_ContactNumber	Emp_DOB	EMP_DOJ	Emp_Designation	Emp_Salary
114	Sidharth	Janak Puri	9876565557	09/28/75	12/23/09	Sales Manager	21000
111	Geeta	Rohini	9877787891	03/23/87	03/15/11	HR Manager	20000
113	Ishita	Laxmi Nagar	8776756556	12/02/82	03/12/11	Project Manager	20000
115	Kavya	Preet Vihar	980098983	06/14/72	10/25/07	Project Manager	19000
112	Atish	Vivek Vihar	8444448567	02/25/84	03/25/10	IT Executive	18000

Figure 56: Showing Employee Table After Sorting Records in Descending

Unsolved Examination Questions

1. a. For which type of field is “Default value” property not applicable?

Ans. In case of OpenOffice Base, the “Default value” property is not applicable for Binary [VARBINARY] and Binary (fix) [BINARY] data type fields.

- b. Name the data type that should be used to store Student’s Admission numbers. Examples of Admission numbers: S100, S101, S102]

Ans. The data type that should be used to store Student’s Admission numbers is Text[VARCHAR].

- c. What is meant by data validation? Give an example. (Outside Delhi 2005 [1 mark each])

Ans. Data validation defines the validation rules that help the database users to enter proper type of data. For example, if you set the data type of a field as numeric then you will not be able to enter textual data in that field.

2. a. What is the default extension of the Base database?

Ans. The default extension of Base database is .odb.

- b. How do we set a primary key in Base?

Ans. A primary key is a key that is used to uniquely identify data in a column of a table. It states that the column to which the primary key is applied cannot have duplicate entries. It means that each value in the column must be unique. You must also remember that a primary key column cannot have a NULL value. Perform the following steps to set a primary key in a table:

1. Right-click the name of the table in the OpenOffice Base window. A context menu appears.
2. Select the Edit option from the context menu. The Table Design window of the selected table appears.
3. Select the field that you want to make as the primary key and right-click it. A context menu appears.
4. Select the Primary Key option from the context menu. The selected field is set as the primary key.

- c. Write one example each of fields for which you would use (i) Text data type and (ii) Memo data type.

Ans. Text data type can be used to set name of a student whereas Memo data type helps you store a large volume (up to 2GB) of field information, such as the bibliographical details of a book in a library database.

- d. What is the purpose of the “Default value” field property?

Ans. “Default value” field property specifies that the value is added automatically in a field. You can change this value with a value of your own.

- e. Which field property specifies whether the field can be left empty while entering data in a record? (Outside Delhi 2005 [1 mark each])

Ans. The Entry required property specifies whether the entry of data in the selected field is mandatory or not. For example, in case you set the value as Yes in the field property of a selected field, it means that you must enter data in the field. On the other hand, if the value is set as No, you need not enter data in the field. In other words, you can skip this field.

3. a. Define the primary key with an example.

Ans. In a database, a primary key is used to uniquely identify each record in a table. A table must contain at least one primary key, and each field with the primary key must contain a value. In other words, the primary key field cannot contain NULL value. If you assign a primary key to a column of a table, it means that each field in that column contains a unique value. The column to which a primary key is assigned is known as the primary key column.

- b. What happens when text is entered in a Number type field? (Delhi 2005 [1 mark each])

Ans. In case of OpenOffice Base, the text entered in Number type field becomes 0.

4. a. What is a primary key? How do we set the primary key?

Ans. A primary key is a key that is used to uniquely identify data in a column of a table. It states that the column to which

the primary key is applied cannot have duplicate entries. It means that each value in the column must be unique. You must also remember that a primary key column cannot have a NULL value. Perform the following steps to set a primary key in a table:

1. Right-click the name of the table in the OpenOffice Base window. A context menu appears.
2. Select the Edit option from the context menu. The Table Design window of the selected table appears.
3. Select the field that you want to make as the primary key and right-click it. A context menu appears.
4. Select the Primary Key option from the context menu. The selected field is set as the primary key.

b. What is the extension of the Base database by default? (Delhi 2004 [1 mark each])

Ans. The default extension of Base database is .odb.

5. How are the Number and Date type fields different in Base? Give any one difference. (Delhi 2003 [1 mark])

Ans. Number [NUMERIC] data type allows you to handle data in the number format, the decimal format, and fractions. On the other hand, Date and Time data types allow you to store information related to date and time.

6. Write down the steps of inserting a new row in a table. (Delhi 2003 [2 marks])

Ans. Perform the following steps to add data or new row in a table:

1. Right-click the table in the OpenOffice Base window in which you want to add data.
A context menu appears.
2. Select the Open option from the context menu.
The selected table opens in the Table Data View window with a row.
3. Type the required data in the various fields of the table. When you start typing the data in a row, a new row gets appeared.
4. Click the Save current record icon to save the changes.