4 Working with Forms and Reports

Introduction

We covered database design and fundamental table operations using Table Datasheet View, as well as information retrieval via Query View in previous chapter. While effective, the standard row and column format of Datasheet View, with its spreadsheet-like data entry, can be visually unappealing and monotonous for users. This often 'black and white' presentation can make data interaction feel unengaging and tedious.We often use initials or abbreviated names when designing tables due to database management system naming conventions. However, these shorthand field names can sometimes lack clarity and are not always self-explanatory.

This chapter introduces an alternative and more user-friendly approach to entering and displaying database information: Forms and Reports. We will explore how to present your data in a formatted and intuitive manner using reports. Just like tables and queries, forms and reports are objects that appear in the left pane of the Database Window.

Forms

You have likely encountered many forms, like school admission forms, order forms or inquiry forms. These demonstrate how forms make it easy to collect data from users. In a database, a *Form* is an element that lets us interact with our data stored in table. Imagine it as a user-friendly window into our database, making it much simpler to view, enter, edit and delete the data. Instead of directly manipulating tables, forms present data in a more organized, visually appealing and intuitive way. Fields are often labelled clearly and the layout can be designed to mirror real-world documents or processes. In database terms, a form acts as the front-end for data entry and editing. You can design forms with different styles, colours, headings, names and even logos, making the process quite engaging.

Most forms are built upon one or more underlying tables. When we enter or edit data in a form, the changes are reflected in the corresponding table(s). Forms can also be based on queries. This is useful when we want to display, enter, or edit a subset of data or data combined from multiple tables. There are two primary ways to create a form:Using *Form Wizard* and using *Design view*.

Using a Form Wizard to create forms is both easier and quicker. The wizard automates much of the creation process, cutting down on manual effort by guiding you through a series of step-by-step questions. Let us create a form using the *Form Wizard*, based on a table we have already built. Open LibreOffice Base and then open the database we created in the second chapter. Now follow these steps to create a form based on Student table:

- Right click on *Student* table and click *Form Wizard* from the context menu as shown in figure 4.1. This will open a *Form Wizard* which offers eight steps to create a form.
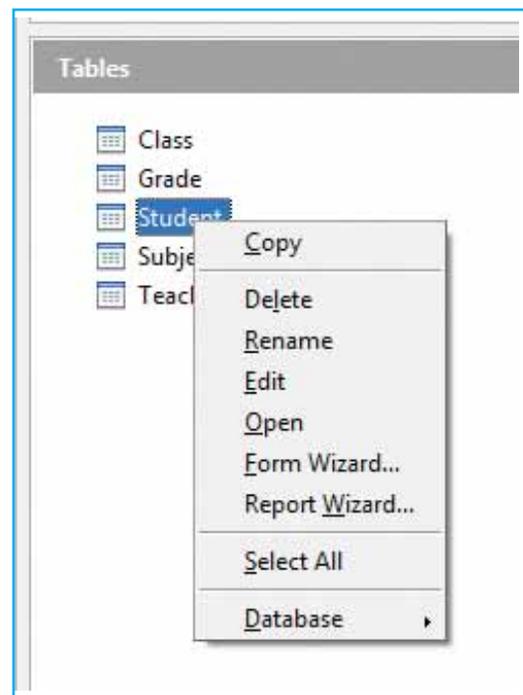

Figure 4.1 : Context Menu with Form Wizard

- Alternatively, we can open the *Form* section from left panel of Base interface and click *Use Wizard to create a Form* link as shown in figure 4.2.
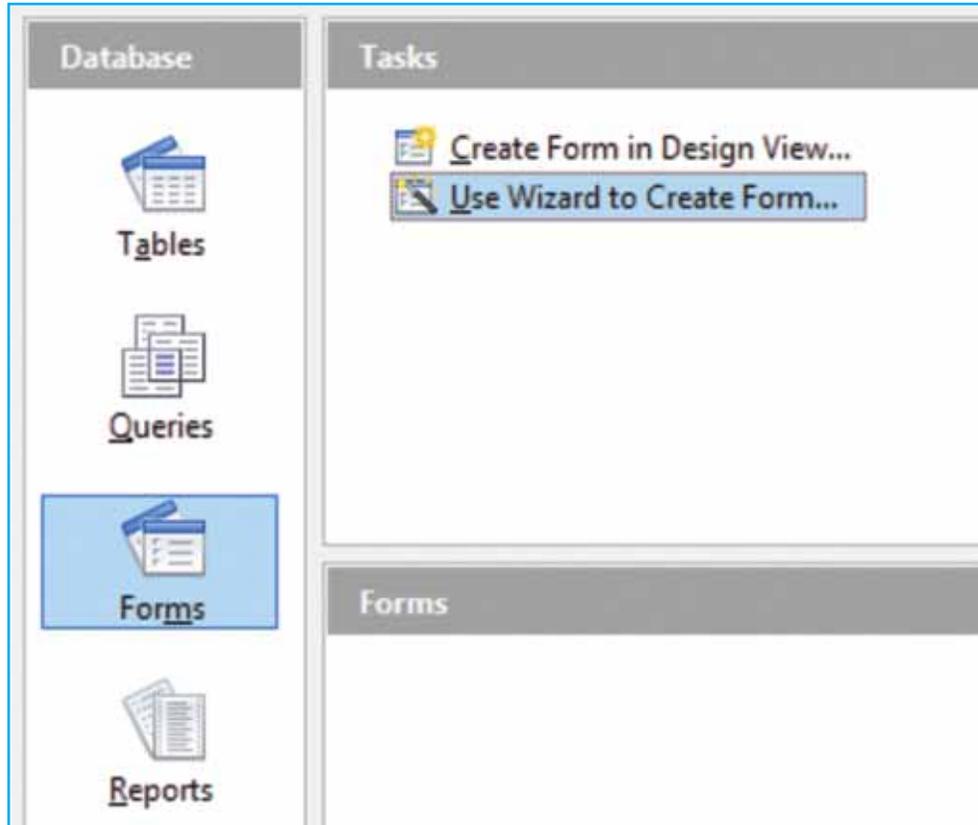

Figure 4.2 : Tasks Section Showing Form Wizard

- This action will open the *Form Wizard* as shown in figure 4.3, which guides us through eight steps to create our form.
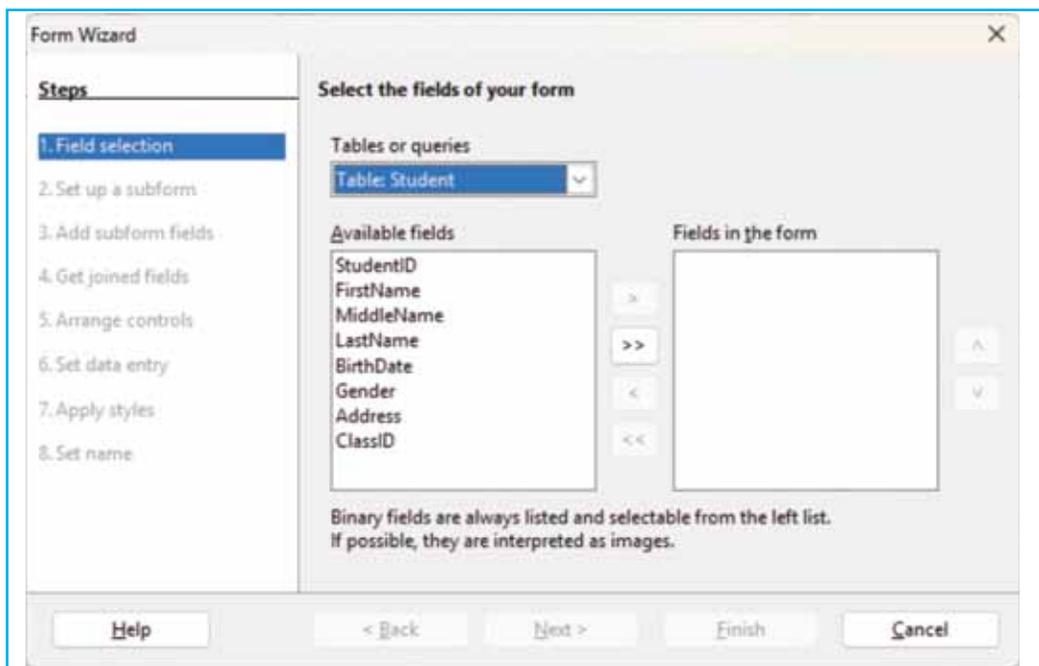

Figure 4.3 : First Step of Form Wizard – Selecting Table and Fields for Form

- First, we will need to choose the table we want to base our form on. From the *Tables or queries* dropdown menu, select the *Student* table. Once we do, all the fields from the *Student* table will appear in the *Available Fields* list.

- To add a specific field to our form, simply select its name in the *Available Fields* list and click the > button. This moves the selected field to the *Fields in the form* list.

- If we want to include all the fields from the table, we can click the >> button.

- To remove a single selected field from our form, use the < button and to remove all fields from the *Fields in the form* list, click the << button.

- We can also customize the order of our fields. Use the *Up* and *Down* arrow buttons to rearrange the fields in the *Fields in the form* list to our preferred sequence.

Once we have selected our table and fields, click the *Next* button to move on to the second step of the Form Wizard.

- The second step of the *Form Wizard* lets you create a sub form, but we will skip that for now. Just click *Next* to proceed directly to the fifth step as shown in figure 4.4.
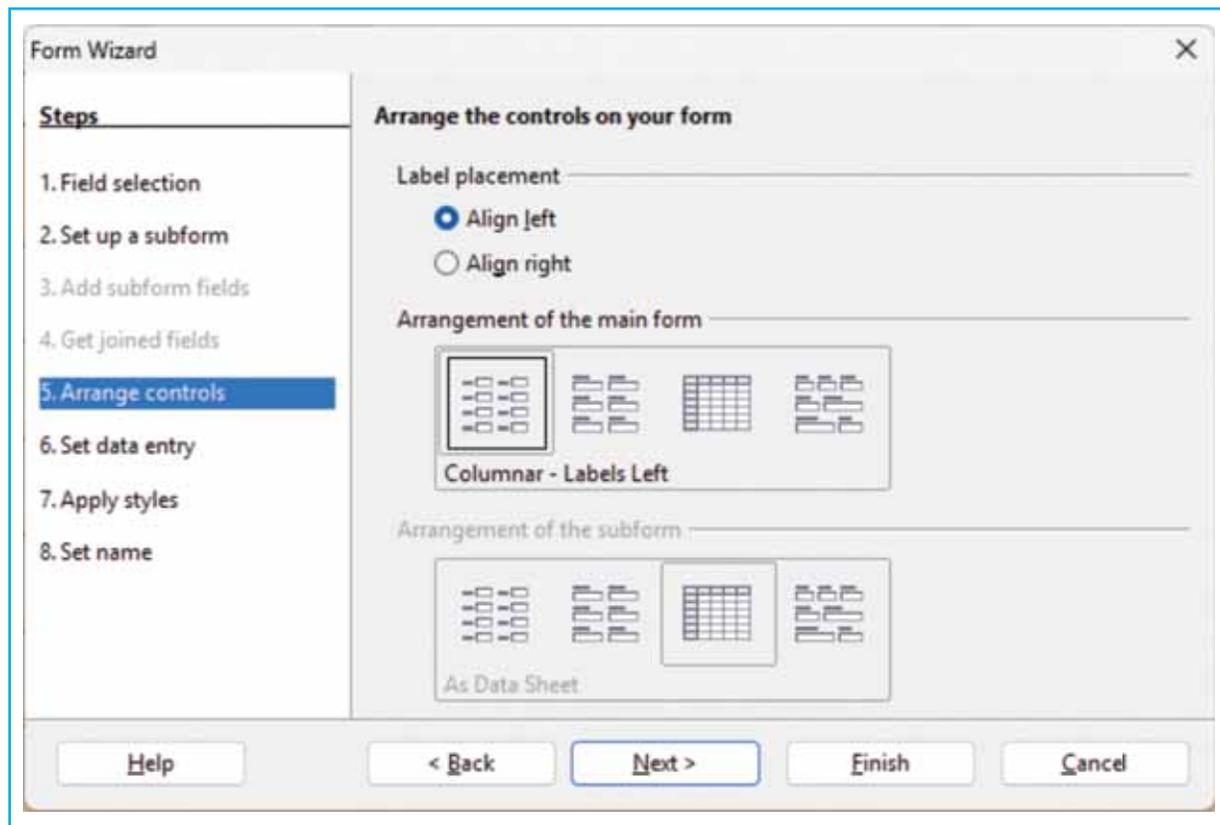

Figure 4.4 : Fifth step of Form Wizard – Arranging Controls in Form

- In the fifth step of the *Form Wizard,* we primarily focused on choosing the layout or arrangement of your main form. This step presents with different options for how our selected fields will be displayed on the form. The common layouts we will typically see are:

- **Columnar:** This is a very common choice for data entry forms. Each field appears on its own line, with the field label to the left and the input box to the right. This layout is excellent for displaying one record at a time, making it easy for users to focus on individual entries.

- **Tabular**: This layout arranges our fields in a row, like a spreadsheet. Labels usually appear as column headings, and each record occupies a new row. This is useful when you want to view or enter multiple records simultaneously, much like working directly in a table.

- **Datasheet**: This option creates a form that looks and behaves exactly like a table in Datasheet view. It displays multiple records at once in a grid format, allowing for quick data entry and review.

- **Justified**: This layout attempts to fill the available space on the form by arranging fields in a more compact multi-column format. Labels might appear above the text boxes, and fields are packed together.

- Pick your preferred layout from the options, and we will see it instantly applied to our form elements in the background. Click *Next* to proceed to the sixth step as shown in figure 4.5.
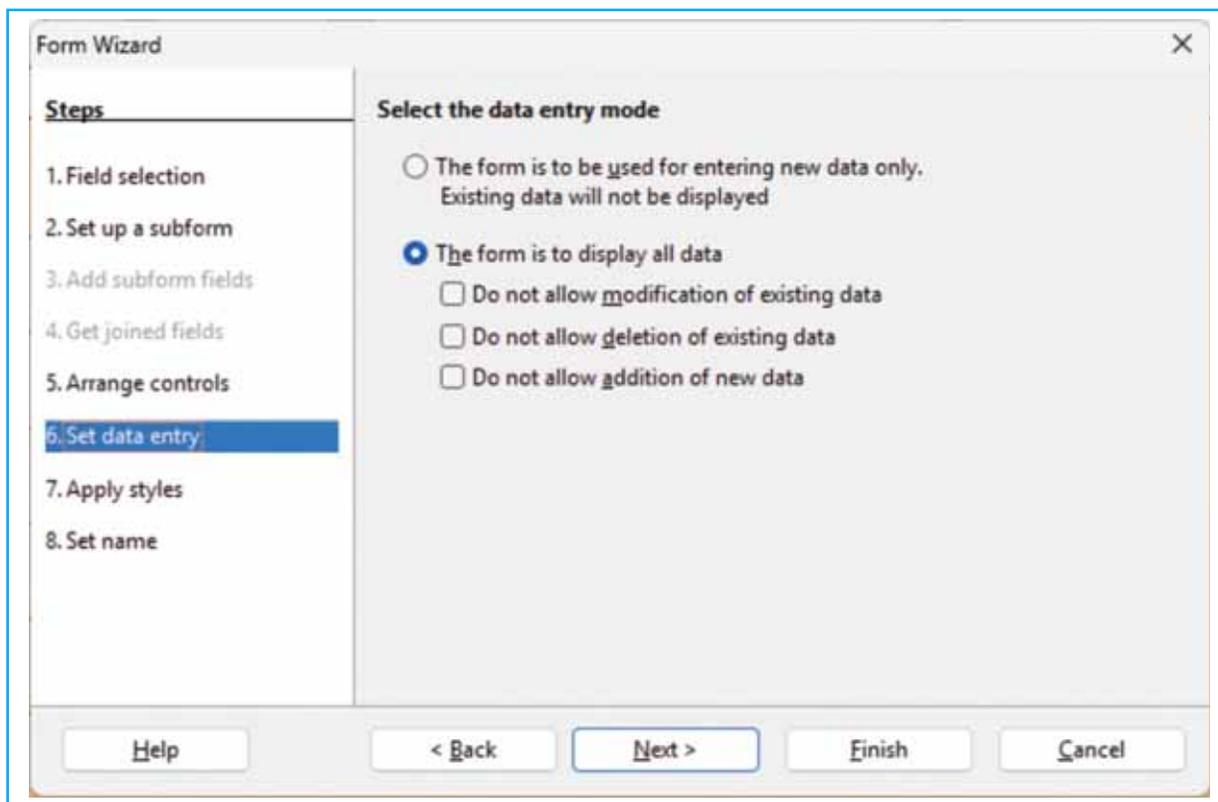

Figure 4.5 : Sixth step of Form Wizard - Setting Data Entry Mode

- The *Set Data Entry* step is where we define the behaviour and permissions for the data interaction within the form we are creating. This step decides how users will be able to view, add, modify and delete records through this form. Set Data Entry step offers two options:

- ○ **The form is to be used for entering new data only. Existing data will not be displayed:** This creates a form that is exclusively for adding new records. Any existing data will not be shown.
  - ○ **The form is to display all data:** This creates a more general purpose form that allows users to interact with both existing and new data. Additionally, we can use some checkboxes that allow us to fine-tune what users can do with the existing data.
- Leave the default settings as they are and click *Next* to move to the next step of the *Form Wizard* as shown in figure 4.6.
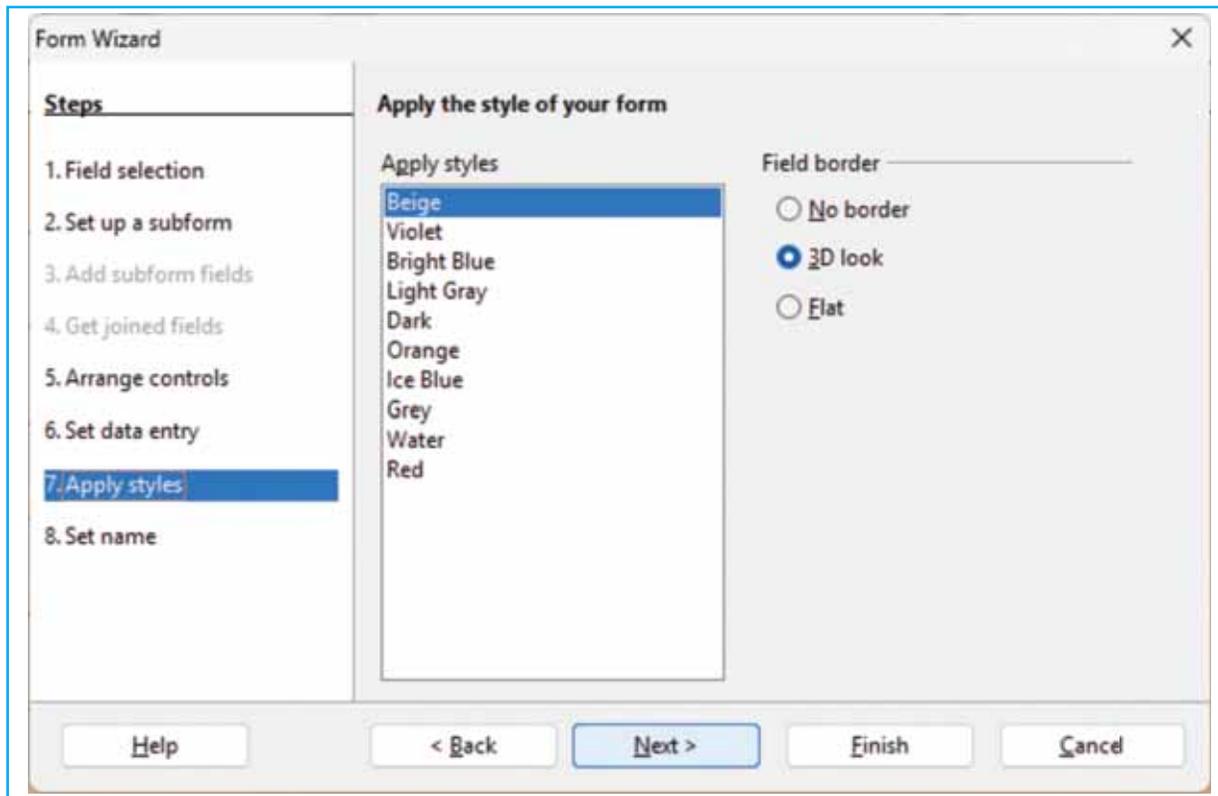

Figure : 4.6 : Seventh step of Form Wizard – Applying Styles to the Form

- This step is used to modify the visual presentation of our form. This is where we get to customize the look and feel of our form, making it more visually appealing and user-friendly. This offers mainly two options:
  - ○ **Apply Styles:** This provides a selection of pre-defined colour options for our form.
  - ○ **Field Border:** This option controls the appearance of the borders around our data entry fields. Following choices are available:
    - ▪ **No Border:** The fields appear without any visible outline.
    - ▪ **3D Look:** This gives the fields a raised or sunken appearance.
    - ▪ **Flat:** The fields have a simple, flat border.
- Choose your preferred options, then click *Next* to proceed to the final step of the *Form Wizard* as shown in figure 4.7.
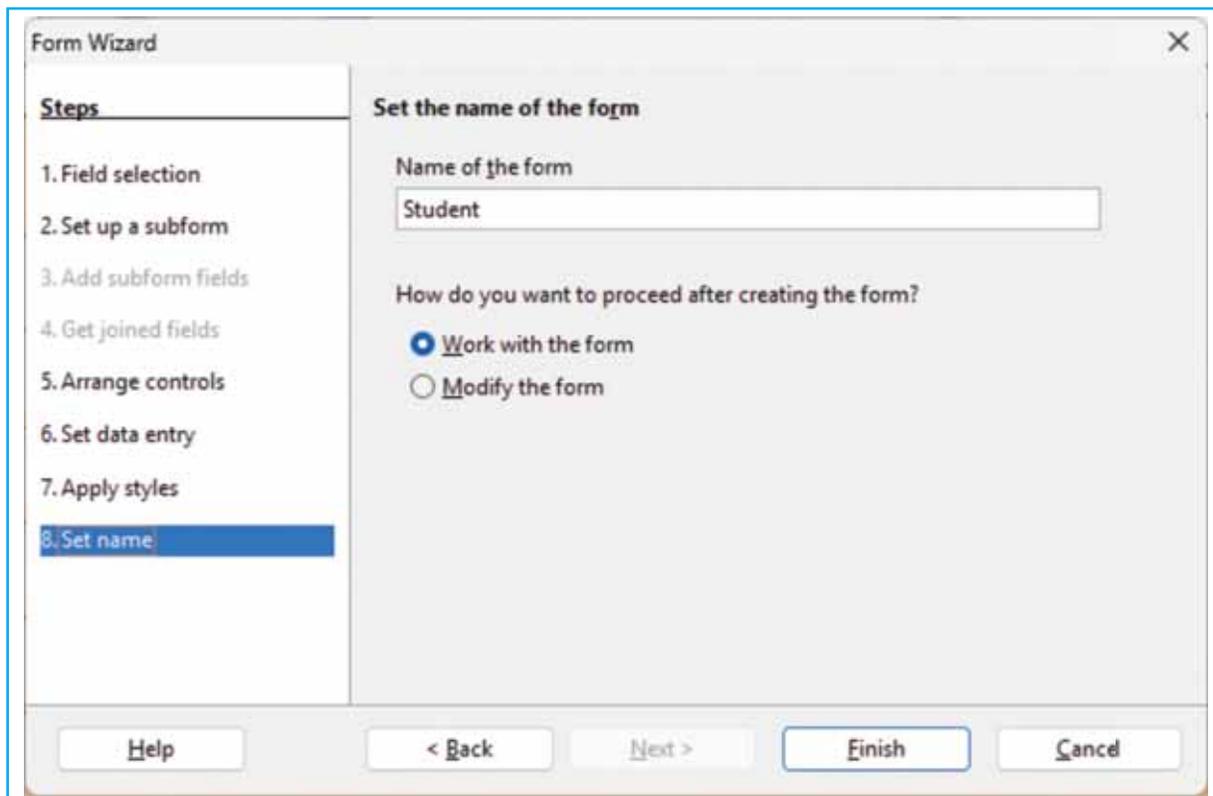
Figure 4.7 : Eighth step of Form Wizard – Setting a Name of Form

- The *Set name* step is the final stage of the *Form Wizard.* This is where we finalize our form creation by giving it a unique identifier and deciding what we want to do immediately after the wizard closes.

- This step also offers following two options:

  ○ **Work with the form:** If we select this, the wizard will close, and our newly created form will open immediately in *Form View.*

  ○ **Modify the form:** If we select this, the wizard will close, and our form will open in *Design View.*

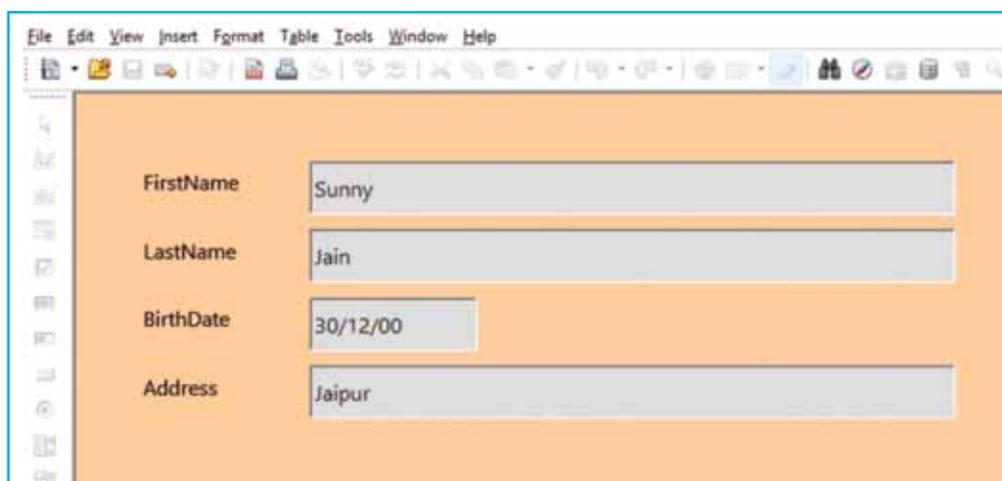A *Form View* for student table is shown in figure 4.8.

Figure 4.8 : Form View for Student table

Modifying Form

Once our form is created, we can easily modify its design to adjust the various parameters of its controls. To modify our form's design, right-click on the form name (Student) and select the *Edit* option. This will open the form in *Design View* as shown in figure 4.9.
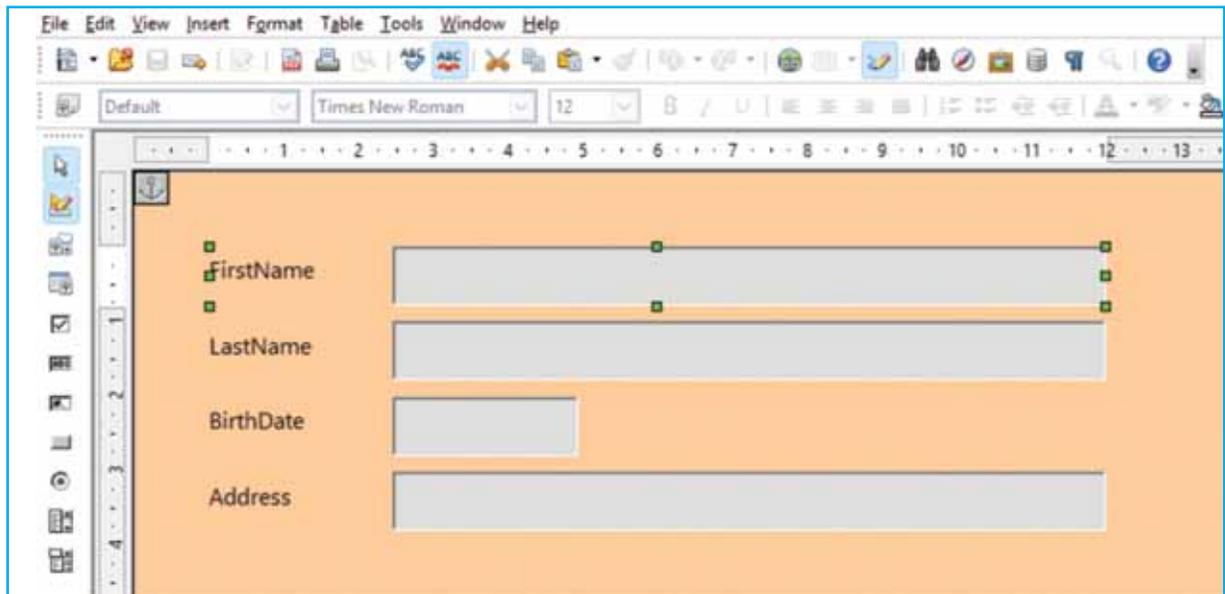

Figure 4.9 : Form Design View

Selecting Label and Textbox

In *Form Design View*, a control is typically composed of two parts: a Label and a Textbox. You can select a control by simply clicking on it. Once selected, small green squares, also known as edit points, will appear around the control as shown in figure 4.10.
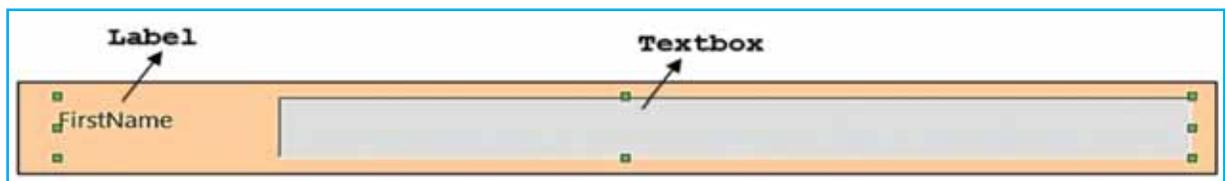

Figure 4.10 : Selecting Control in Form Design View

To select either the label or the text box independently, hold down the Control key while clicking on the desired individual element. This action will select just the label or just the text box, as depicted in figure 4.11.

Figure 4.11 : Selecting Individual Element of Control

Once we have selected an individual element of a control (like the label or text box), we can easily move or resize it. To move the element, simply drag it. To resize, drag the edit points (the small green squares) around that specific element.

To modify a control's properties in *Form Design View*, begin by selecting the specific text box. We can achieve this by holding down the Control key and clicking on the textbox. Then, right-click on the selected textbox and choose the *Control…* option from the context menu that appears. This action will open the *Properties* dialog box as shown in figure 4.12, which displays various configurable properties for that text box.
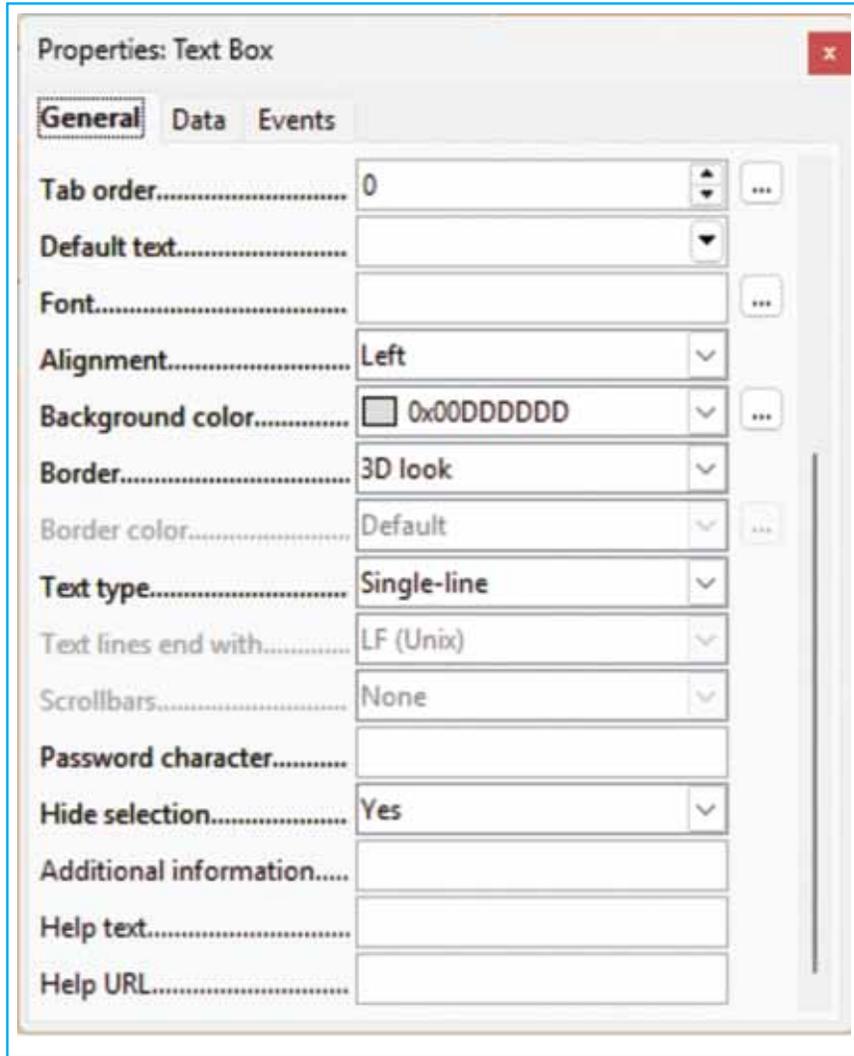

Figure 4.12 : Properties Dialog Box of Text box

Let us go ahead and change a property for this text box. Scroll down through the list of properties until you find the *Help Text* property. In the text box next to it, type "*Enter first name of student.*" This property adds a handy tooltip to the control.

Once we are done, close the *Properties* dialog box, save form design, and then open the form. When we hover mouse pointer over the *FirstName* field's text box, we will see the tooltip appear as shown in figure 4.13.
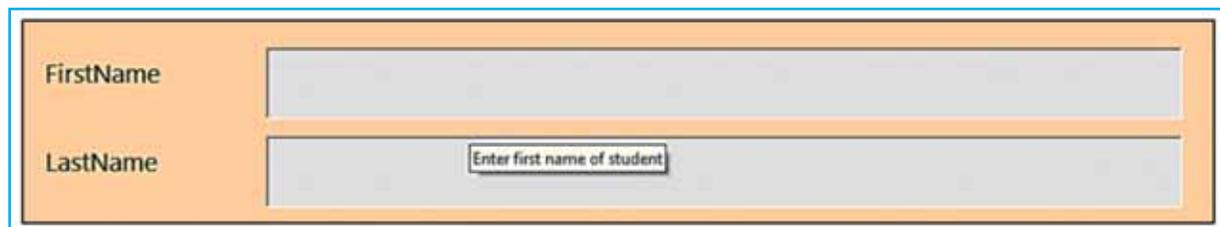

Figure 4.13 : Help Text Property Showing the Tooltip for Text box

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Now, we will change the another property of form element. Select and right click on *BirthDate* text box and click *Control…* option to open *Properties* of *BirthDate* field as shown in figure 4.14. Change the value of *Dropdown* property from *'no'* to *'yes'*.

This will represent the calendar to the user while entering the birthdate of student in Form view. Close the *Property* dialog box, save the design view of form and open the form to check the data entry of date in *BirthDate* field. Output of this property is shown in figure 4.15.
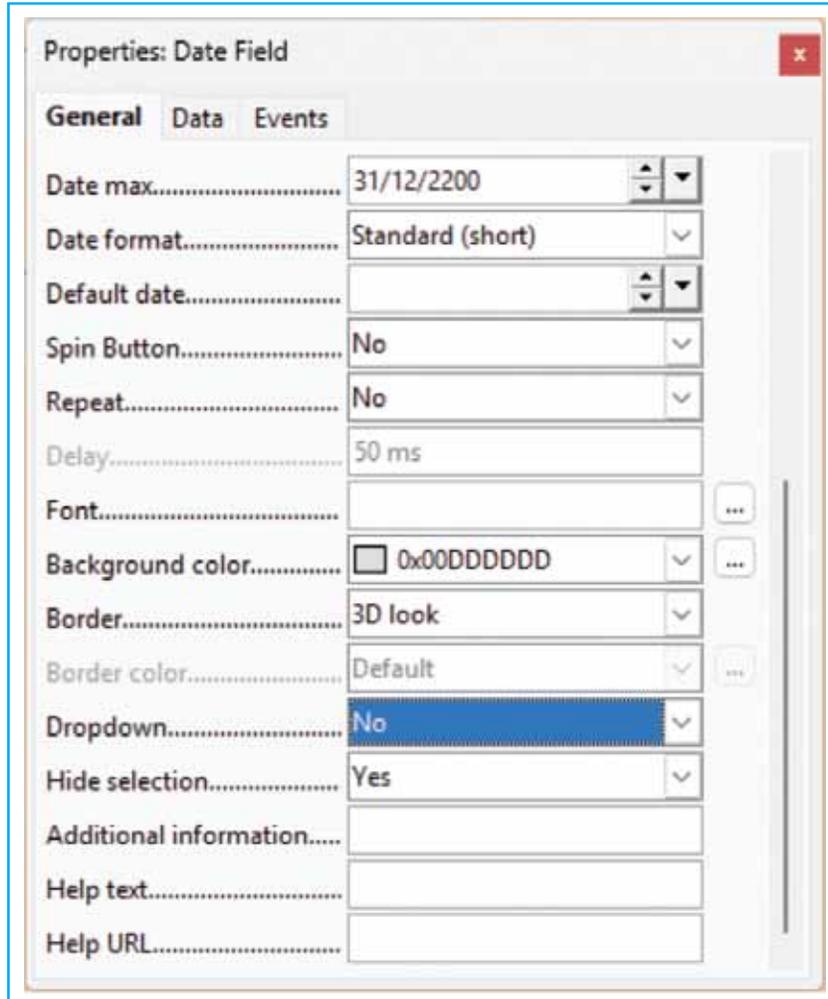

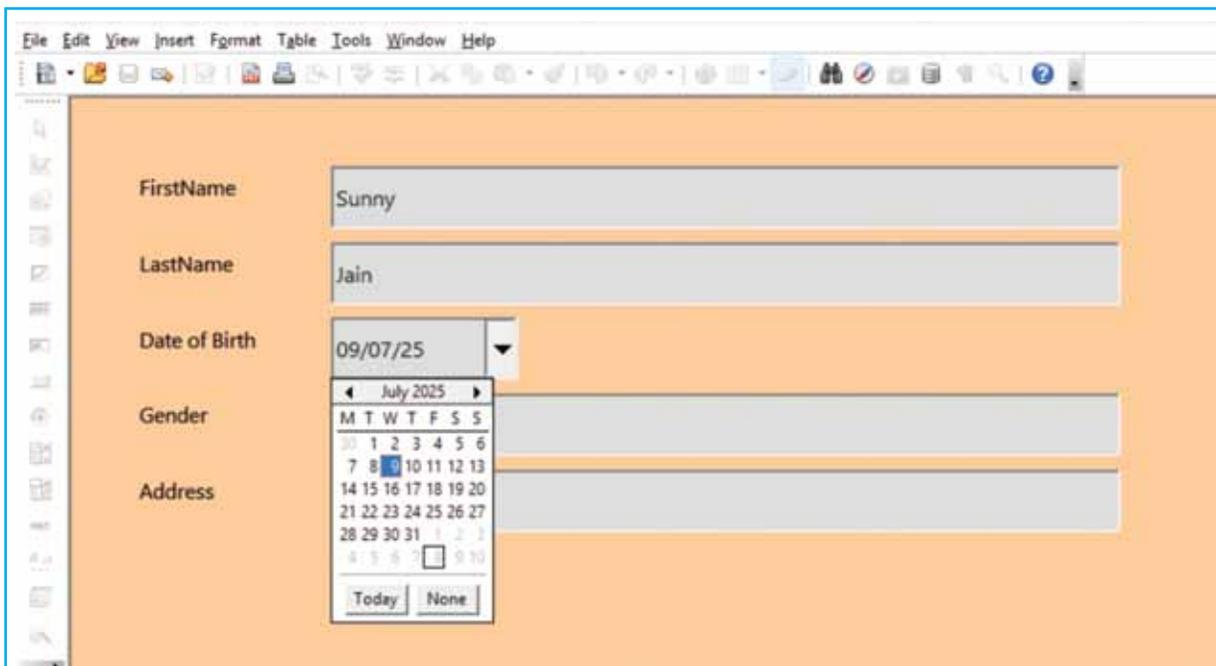**Figure 4.14 : Dropdown Property of Birthdate Field**

Figure 4.15 : Birthdate Field Showing Calendar

We can also change the text of a label, which is typically the field name displayed in the label box. To do this for the *BirthDate* label, right-click on it and open its *Properties* dialog box by selecting the *Control...* option.

In the *Properties* dialog box, locate the *Label* property and replace *BirthDate* with *Date of Birth* as shown in figure 4.16. After making this change, view the output to see the corrected text as the label for the *BirthDate* field.
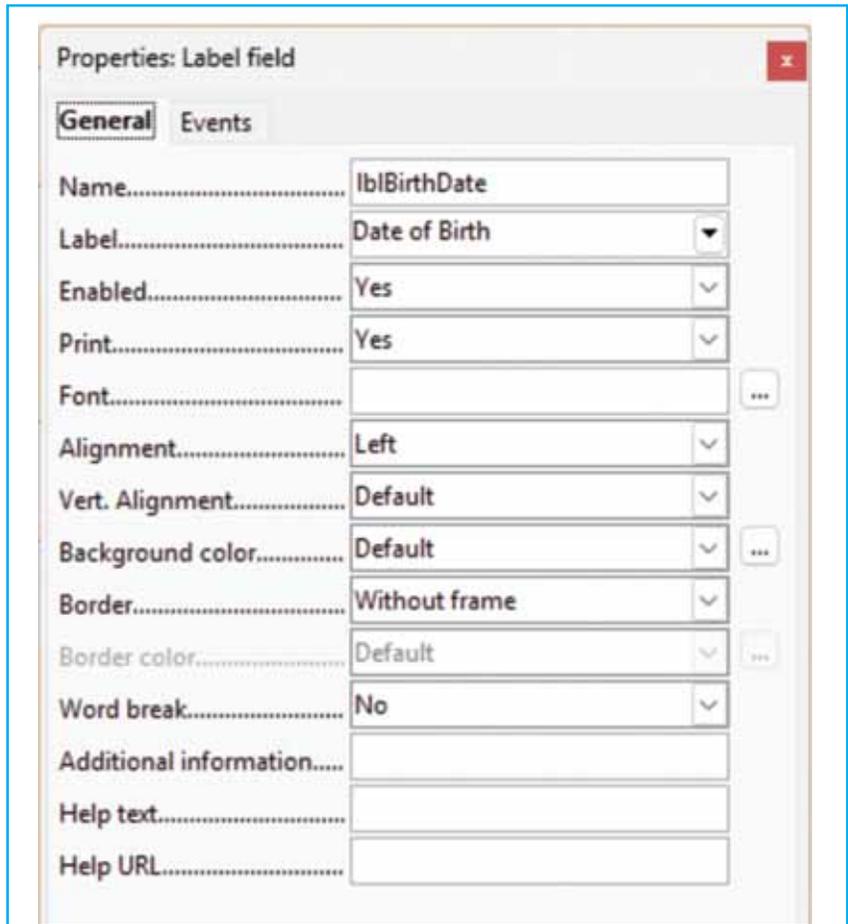

Figure 4.16 : Editing Label of Birthdate Field

We can also change the background of our form in *Form Design View*. Right-click on any blank space within the form. From the context menu, select *Page*. This will open the *Page Style* dialog box as shown in figure 4.17. Go to the *Background* tab. To apply a solid colour, simply choose from the various colours offered and click *OK*. Your Form's background will update immediately.
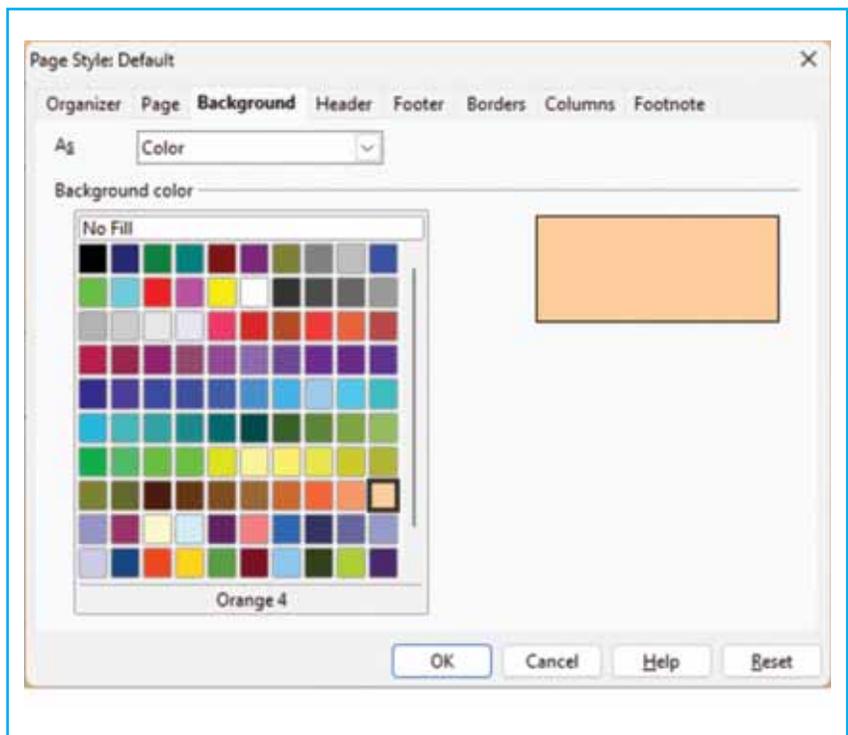

Figure 4.17 : Changing Background Colour of Form

To use an image as form background, select *Graphic* in the *As* dropdown menu. Click the *Browse* button and choose the desired image file. The form will then display selected image as the background.

With teacher's guidance, we may explore and modify more field properties in the *Properties* dialog box by ourselves.

Inserting and Deleting Records using Form

As we know, forms are primarily used for entering data into tables. When we open a form in *Form View*, we will see a navigation bar at the bottom of our screen as shown in figure 4.18. This bar has buttons that let us easily move through the records in our table.
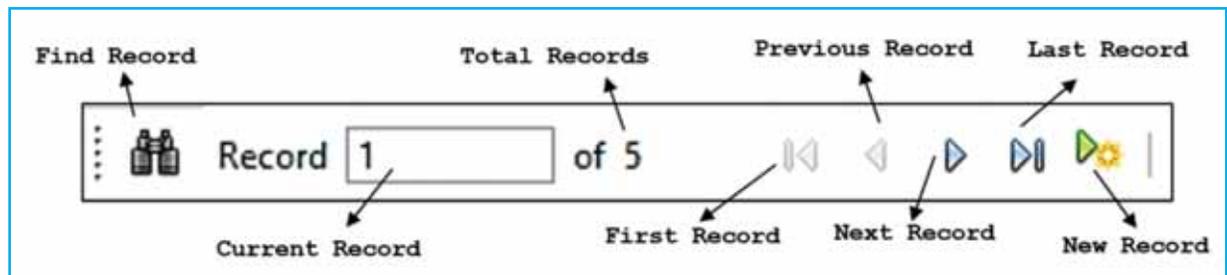

Figure 4.18 : Navigation Bar in Form View

To add a new record to our table using a form, just click the *New Record* button on the navigation bar. A blank record will appear, and we can then enter the values into the field text boxes.

To delete a record from our table, first locate the record we want to remove. Then, simply click the *Delete Record* button, which is located next to the navigation bar. A warning message will pop up asking you to confirm the deletion. Clicking *Yes* will permanently remove the record from the table.

Searching Record using Form

Often, we will need to locate a particular record within our form. Fortunately, Base includes a built-in search feature to help you find records directly from our table.

Here are the steps to search for a record in your form:

● Click the *Find Record* button on the navigation bar. This will open the *Record Search* dialog box as shown in figure 4.19.

● Enter the search term in the *Search for* box.

● In the *Where to search* section, we have two options: To search a specific field, select *Single field* and choose the field name from the dropdown menu. To search all fields in the table, select *All Fields*.

● We can also specify where the search term should appear within the record by using the *Position* dropdown menu.

● Click the *Search* button to begin. Base will then display any record containing the search term.
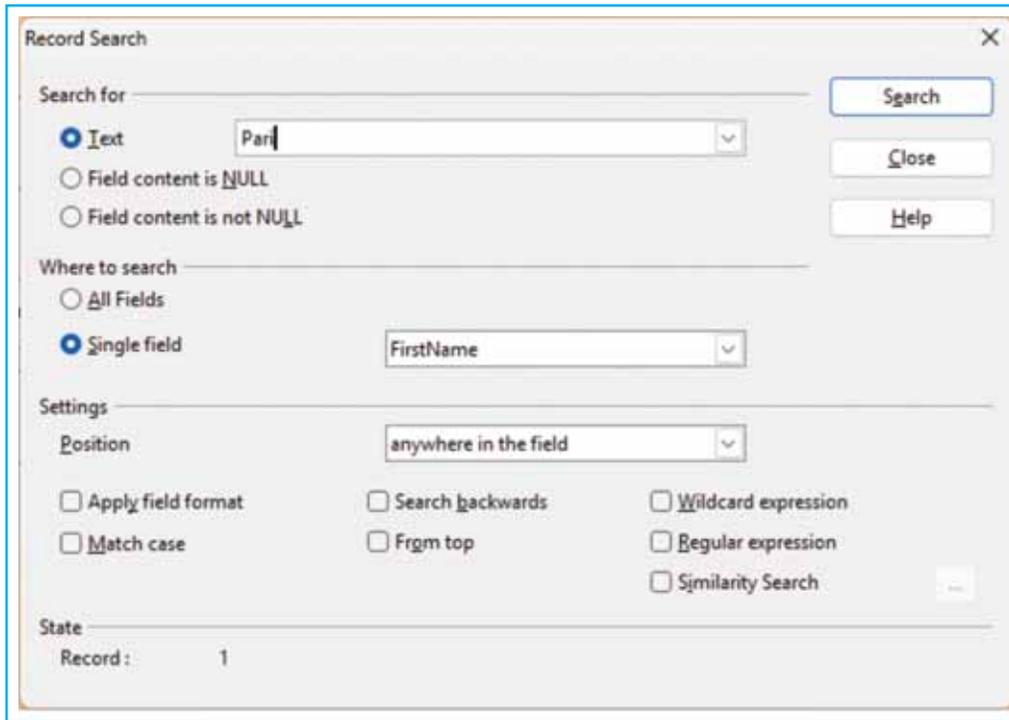
Figure 4.19 : Searching for a Record

Reports

Reports are an excellent way to present retrieved information in an attractive and organized format, often with the goal of creating a hard copy. The design of a report usually prioritizes how it will look when printed.
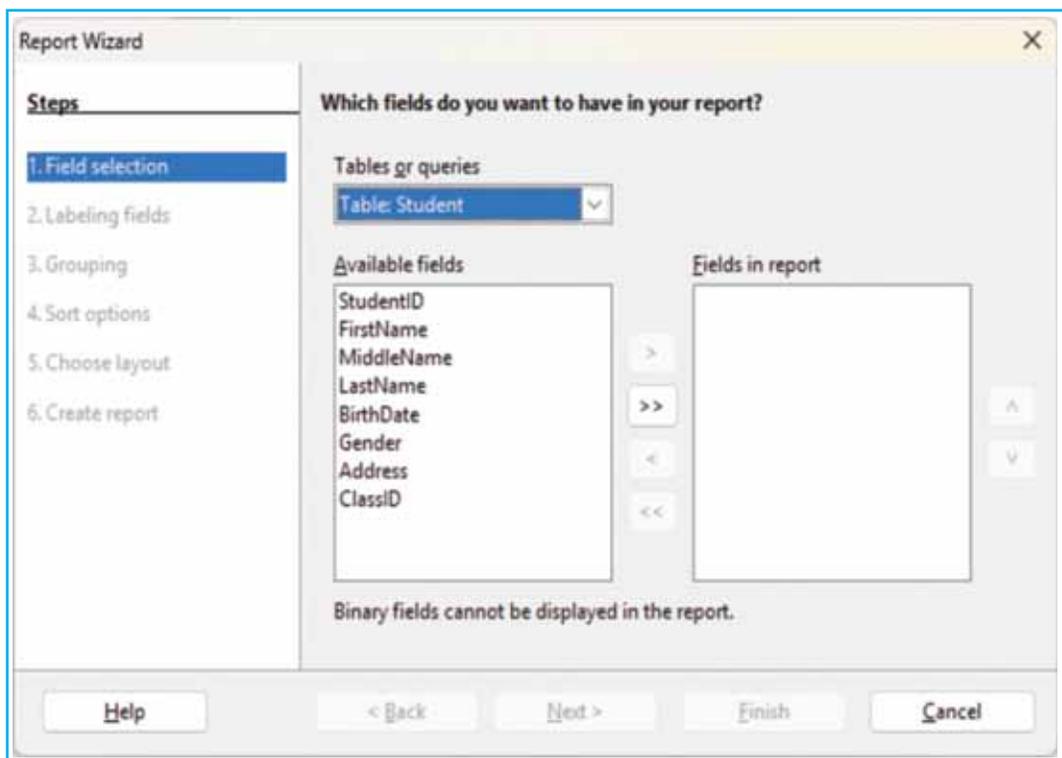

Figure 4.20 : Report Wizard

We can create reports using a query, a table or a combination of both. If our report needs to include fields from various tables, it is a good practice to first create a query that brings those fields together. Then, we can build our report using that combined query.

Let us create a report using *Student* table. First, click the *Reports* icon in the left-hand panel. We will then see the option *Use Wizard to Create Report*…. Click this, and the *Report Wizard* will appear as shown in figure 4.20, guiding us through six distinct steps to prepare our report.

To begin creating our report, the first step in the *Report Wizard* is to select the data source. From the *Tables or Queries* list, choose the *Student* table. After selecting the table, we will need to pick the specific fields we want to include in our report. Use the > button to move these fields from the available list to our report.

Just like in the Form Wizard, we have several options for managing the fields in our report. The >> button lets us quickly add all available fields to our report. To remove a selected field, simply use the < button. If we want to remove all fields from report at once, use the << button.

After configuring the field selections, click the *Next* button to proceed to the *Labeling Fields* step of the *Report Wizard* as shown in figure 4.21.
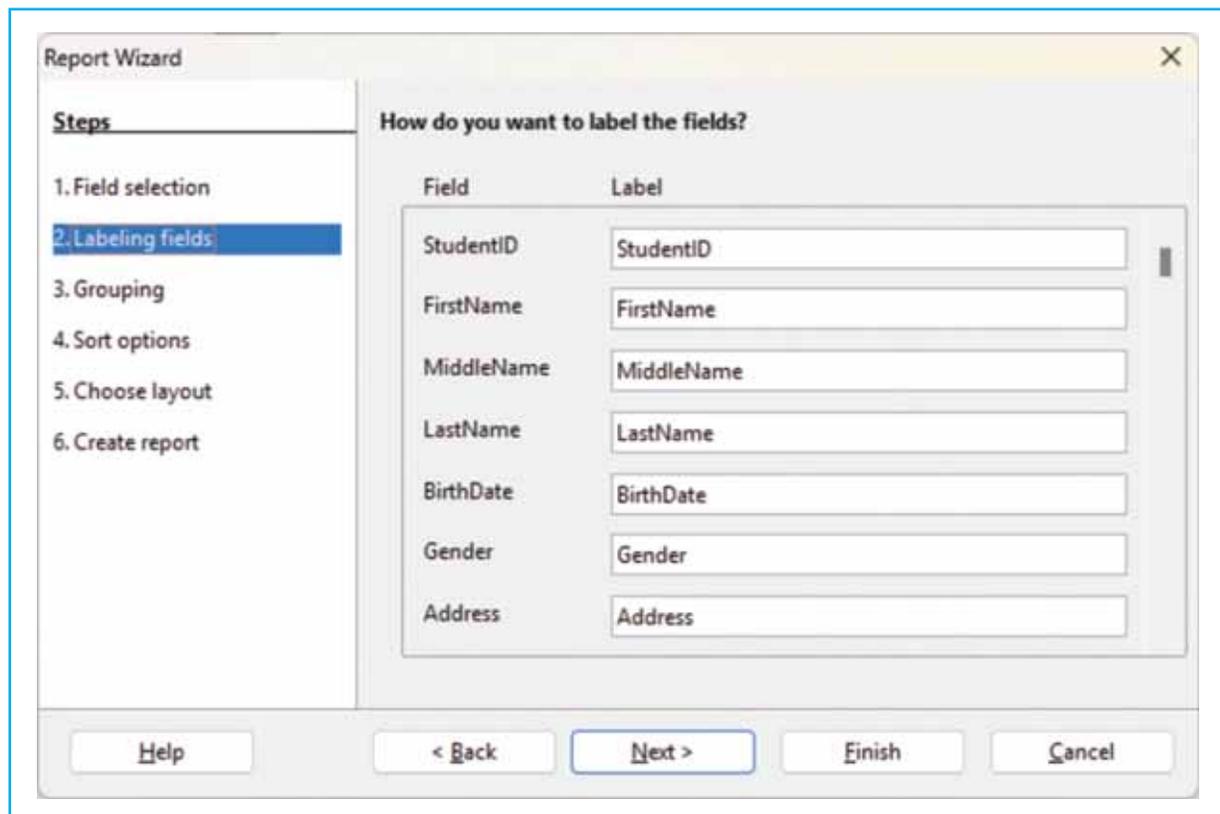

Figure 4.21 : Second step of Report Wizard – Labeling Fields

This step allows us to customize how those fields will appear as labels in the final report. By default, Base will use the exact field names from the table or query as the labels in the report. This step gives us the opportunity to make them more user-friendly and readable. We can add spaces, change capitalization, or use more descriptive terms for our labels.

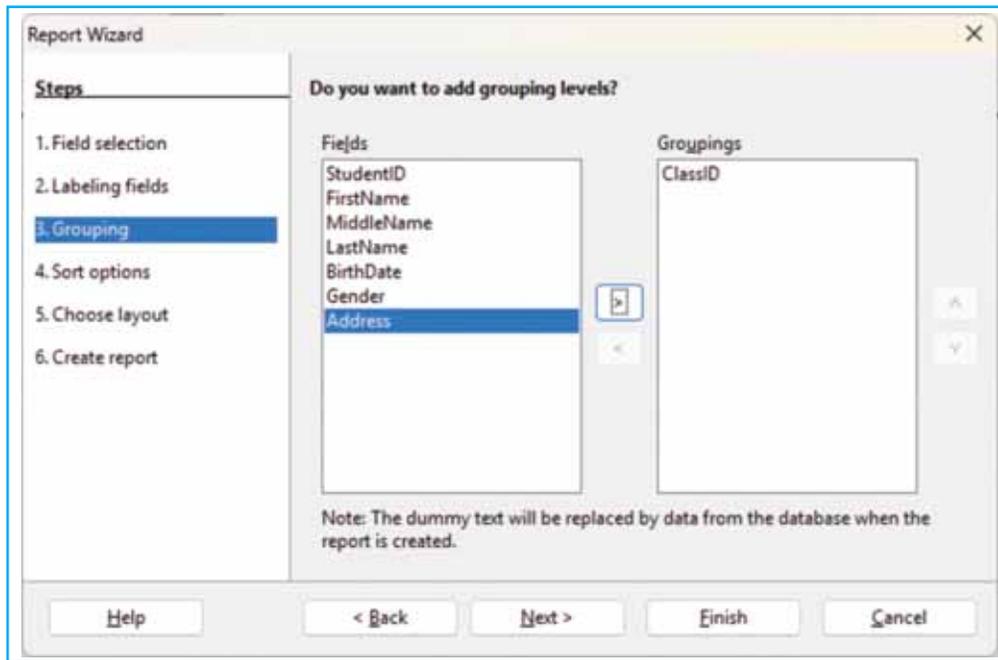Click *Next* to proceed to the *Grouping* step of the *Report Wizard* as shown in figure 4.22.

Figure 4.22 : Third step of Report Wizard – Grouping

Grouping involves collecting rows of data that have the same value in a specific field and presenting them together. When we group data, the report will display a header for each unique value in the
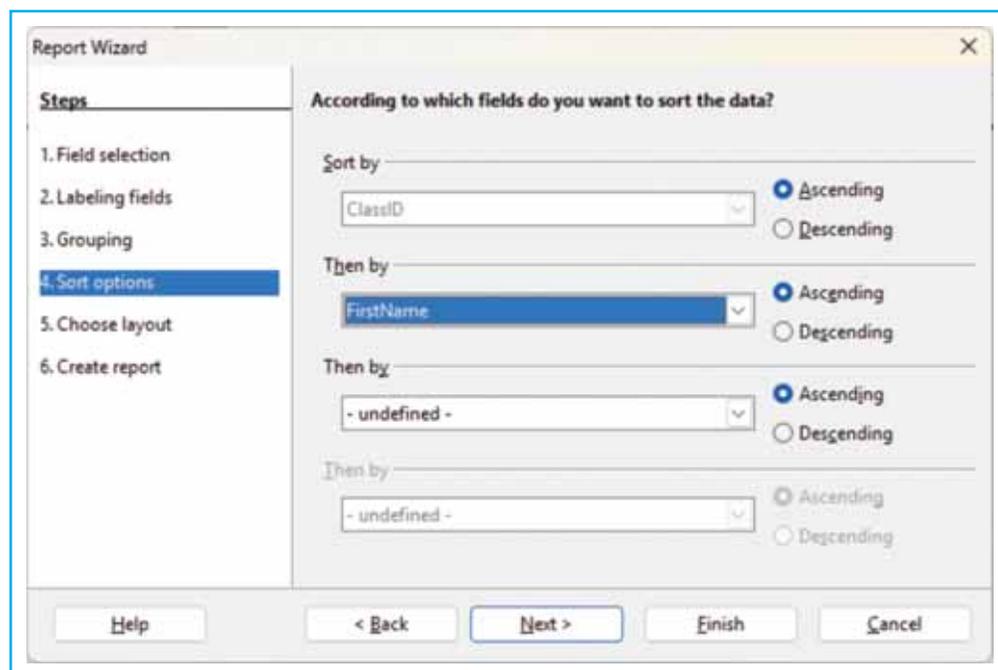

Figure 4.23 : Forth step of Report Wizard – Sort options

chosen grouping field, followed by all the detail records that belong to that group. Choose one or more fields from the available list and move them to a *Grouping* list. Here, the *ClassID* field has been added as a grouping field.

Click *Next* to go to the next step of *Report Wizard* → *Sort Options* as shown in figure 4.23.

In this step, we define the order in which the detail records within our report, and specifically within any defined groups, will be presented. This step is crucial for making report data logically ordered and easy to follow. In the *Sort by* dropdown menu, select the *FirstName* field. Then, click *Next* to proceed to the *Choose layout* step of the *Report Wizard* as shown in figure 4.24.
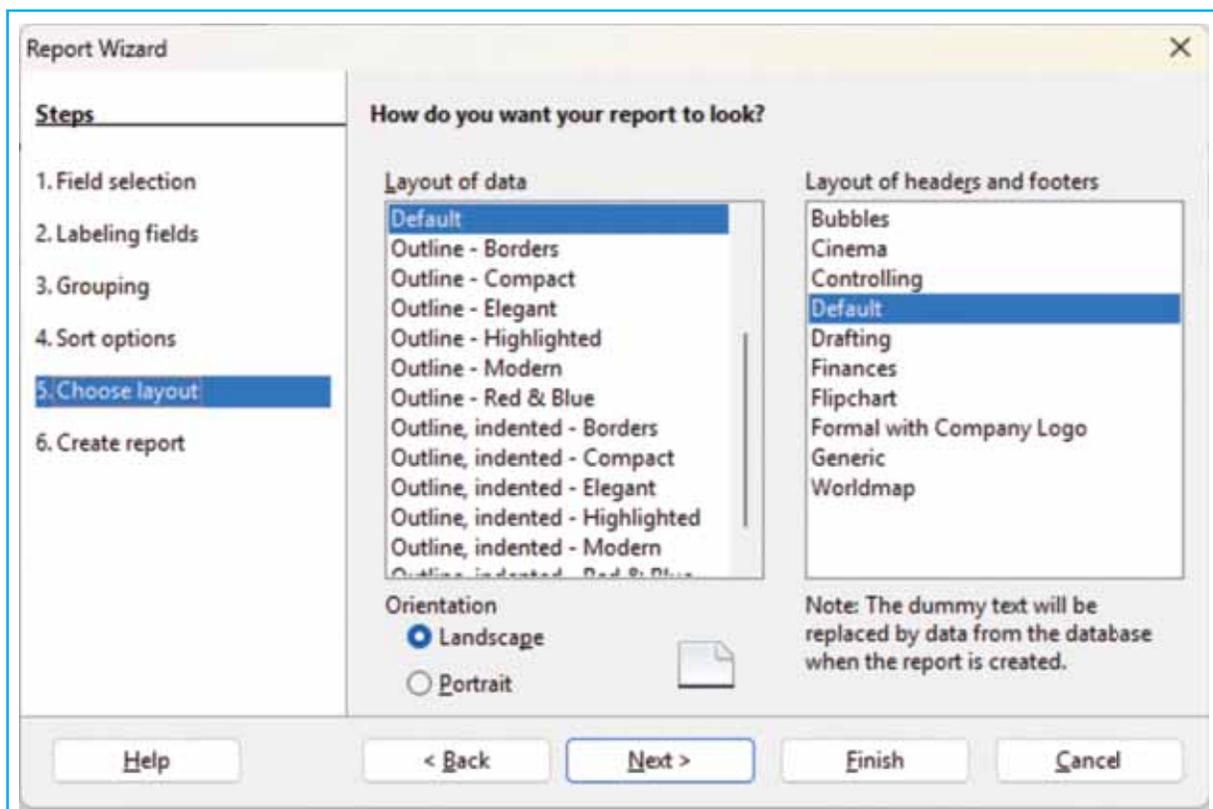

Figure 4.24 : Fifth step of Report Wizard – Choose layout

The fifth step of the *Report Wizard* lets us customize our report's layout. You can choose from various colour combinations and adjust the positioning of fields and text alignment using the *Layout of data* selection list. This step also allows to set the orientation of report to either *Landscape* or *Portrait* and select a generalized header and footer layout from the *Layout of headers and footers* list box.

Once we have chosen our desired report layout, simply click *Next* to proceed to the final step of the *Report Wizard: Create Report* as shown in figure 4.25.
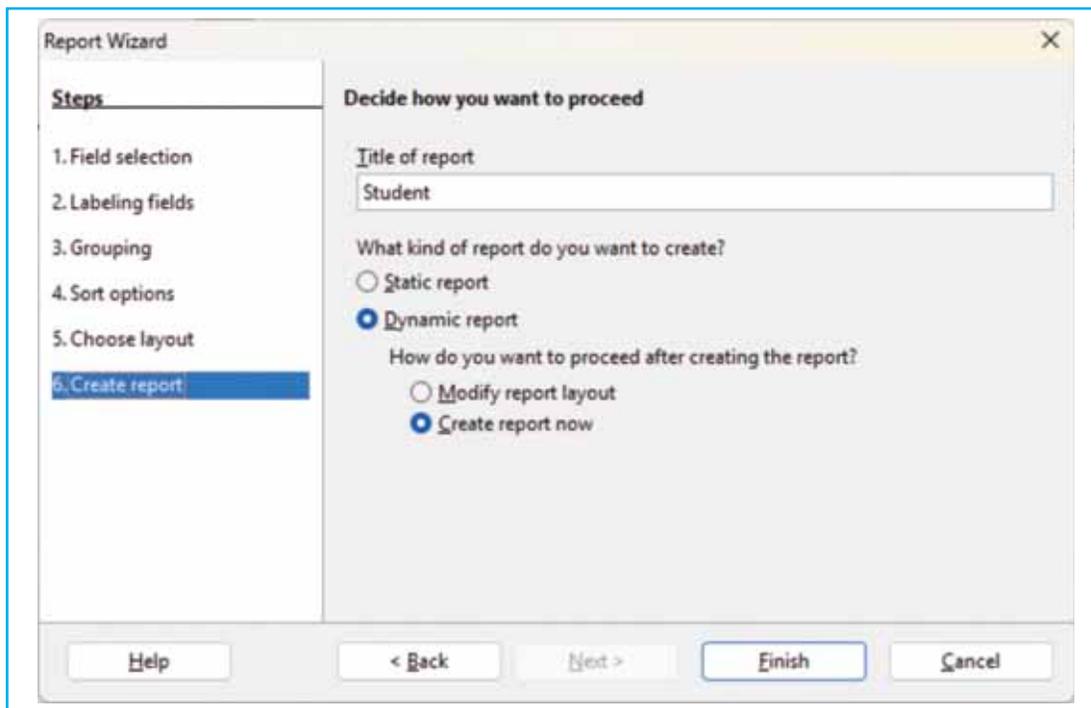
Figure 4.25 : Last step of Report Wizard : Create Report

In the last step of *Report Wizard,* we will be offered following options:

- **Title of Report**: We will need to name the report we are creating.
- **What kind of report do you want to create?**: We will be presented with two options here:
  - **Static report**: Once created, the data displayed in a static report does not change, even if the underlying tables or queries in our database are updated with new information.
  - **Dynamic report**: A dynamic report is designed to reflect the current data in our database every time it is opened or refreshed.

Click *Finish* to complete creating our report. Figure 4.26 displays a similar view of the final report.

Figure 4.26 : Report based on Student Table

Please note that the report groups the *Student* table data by *ClassID* and sorts it by *FirstName*. Once our report is created, we can easily modify its design. Simply right-click on the report name and select the *Edit* option. This will open the *Report Design View*, where we can make changes in a similar way to how we would modify a form.

We can obtain a hardcopy of our report by printing it via *File→Print* option. Alternatively, to create a PDF copy, simply click the *Export directly as PDF* button on the standard toolbar.

Summary

Forms and Reports are vital to any effective database management system. They play distinct yet complementary roles, transforming raw data into accessible, usable, and valuable information for end users. In this chapter, we have learned how to create both forms and reports for our database. We saw that forms act as user interfaces, allowing direct interaction with the database without needing to manipulate tables or queries. We also prepared reports, which are essential tools for presenting and summarizing data in an organized and meaningful way, turning raw data into actionable insights crucial for decision-making. With this, we conclude our exploration of the basics of database management.

EXERCISE

1. Why are forms more convenient for interacting with database data?

2. Which form creation options are available in Base?

3. Explain any three steps of Form Wizard.

4. How can we change the background of our form?

5. How do we resize form controls?

6. What is a report, and what role does it play in data representation?

7. What are the steps to modify the Label property of a control in Form Design view?

8. What is the difference between static and dynamic reports?

9. Which buttons are displayed on the navigation bar of a form?

10. How do we search a specific record in a form?

11. **State whether True or False.**

    (1) It is possible to modify data in Form view.

    (2) We can create a form based on a table or query.

    (3) It is required to create a subform when creating a form with the Form Wizard.

    (4) Reports are typically read only.

    (5) Reports can be exported as PDF files.

12. **Fill-in the blanks.**

(1) Forms can be created based on ………... or ………... .

(2) Using a ………... to create forms is both easier and quicker.

(3) Form Wizard contains total ………... steps.

(4) ………... lets us easily move through the records in our table.

(5) ………... are an excellent way to present retrieved information in an attractive and organized format, often with the goal of creating a hard copy.

13. **Mutichoice questions. Choose the most correct answer.**

(1) Which element enables interaction with data stored in a table?

(a) Design view   (b) Relationship   (c) Form   (d) Report

(2) Which database object can be used to create a form?

(a) Table   (b) Query   (c) Report   (d) Table or Query

(3) How many steps are involved in the Form Wizard?

(a) 6   (b) 7   (c) 8   (d) 10

(4) In which step of the Form Wizard do we choose the underlying table or query?

(a) First   (b) Third   (c) Forth   (d) Eighth

(5) Which button is used to add all available fields of a table to a form?

(a) >   (b) >>   (c) <   (d) <<

(6) Which key should be held down while selecting a control to choose either the label or textbox?

(a) Shift   (b) Control   (c) Alter   (d) Space

(7) Which property in Form Design view is used to add a tooltip to a control?

(a) Tooltip   (b) Add text

(c) Help text   (d) There is no such property

(8) Which button in the Report Wizard is used to remove a selected field from the report?

(a) >   (b) >>   (c) <   (d) <<

(9) In which step of the Report Wizard do we choose the page layout orientation?

(a) Third   (b) Forth   (c) Fifth   (d) Sixth

(10) Which kind of report does not change even if the underlying tables are updated?

(a) Static   (b) Dynamic   (c) Programmatic   (d) Automatic

Laboratory Exercise

1. Create report for all the tables created in previous chapters.

2. Modify the forms according to the specified requirements.:

   - Change the background of any form.

   - Insert tooltip for at least two controls in any form.

   - Change 'Date' type control of form to dropdown menu.

   - Change label of any two controls in any form.

   - Adjust the size of all controls on all forms as necessary.

3. Search for a student record by providing the student's name, birthdate, and address.

4. Generate static and dynamic reports based on two distinct tables.