Chapter 3: Introduction to Queries

1. Building Queries

Lab Practice Problem
Given a database named 'Our Students.mdb'. Writing query objects for required data manipulations.

Query#1: Problem Statement
Find the list of the students with their last name, state, major and age. The list should be arranged with respect to the age column in ascending order.

1. Create a query information matrix for the required query.

Query#7		
	Query Name	Student Ages
	Query Type	SELECT (single table – with a computed field)
	Tables Involved	Students
	Fields Involved	LastName, State, Major, Age: Date()-[BirthDate]
	Criteria Needed	None
	Sorting	Age

2. Use the steps similar to the ones in handson 9.1 to finish the query design grid.

Query#2: Problem Statement
Write a query to find the average credits per student.

1. Create a query information matrix for the required query.

Query#8		
	Query Name	Average Credits
	Query Type	SELECT (single table – a summary info is needed on Credits)
	Tables Involved	Students
	Fields Involved	Credits
	Criteria Needed	None
	Sorting	None

2. For writing a summary query (total query), a new row needs to be added in the query grid, called Total. Press 'Totals' Σ button from the toolbar to add this new row.

3. Select the field on which summary information (average) is needed. i.e. Credits.

4. Use the drop down list box in the Total row to select the function Average.

Field:	Credits
Table:	Students
Total:	Avg
Sort:	
Show:	☑
riteria:	

AvgOfCredits
56.5833333333

5. Run the query to see the result.

Query#3: Problem Statement
Write a query to find the average credits for students in every city.

1. Create a query information matrix for the required query.

Query#9		
	Query Name	Student Averages Per City
	Query Type	SELECT (single table –Summary query)
	Tables Involved	Students
	Fields Involved	City, Credits
	Criteria Needed	None
	Sorting	None

2. Use the steps similar to the ones in handson 9.8 to finish the query design grid. The only differences:

-Two fields will be brought in the query grid, named City & Credits.

-In the Total row, GroupBy will be selected under City and Avg will be selected under Credits.

Field:	City	Credits
Table:	Students	Students
Total:	Group By	Avg
Sort:		
Show:	☑	☑
Criteria:		

3. The result will be shown as follows:

Query1 : Select Query

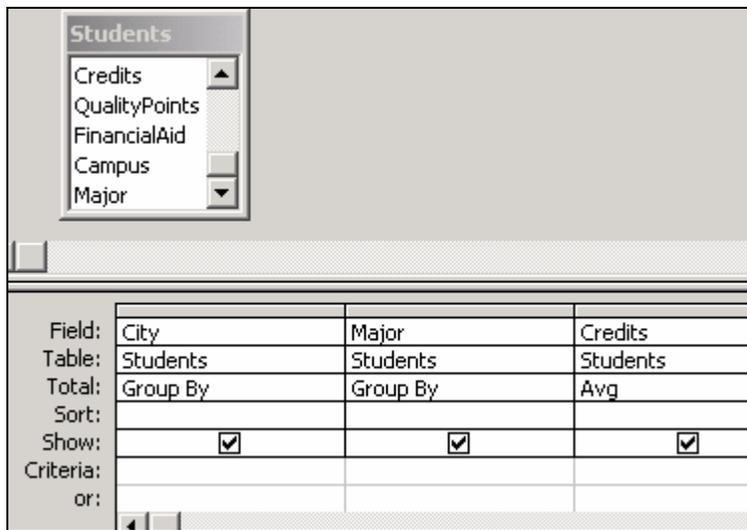| City	AvgOfCredits
▶ Atlanta	45
Baltimore	42.5
Boston	21
Buffalo	100
Charleston	100
Chicago	105
Coral Gables	50
Coral Springs	25
Denver	28
Ft. Lauderda	30
Gainesville	63
Houston	120
Miami	52.5

Query#4: Problem Statement
Write a query to find the average credits for students group by city and major. Covert the query to Crosstab with rows showing city values and columns showing major values.

1. Create a query information matrix for the required query.

Query#4

Query Name	Student Averages By City and Major
Query Type	SELECT (single table –Summary query)
Tables Involved	Students
Fields Involved	City, Credits
Criteria Needed	None
Sorting	None

2. Use the steps similar to the ones in Query#3 to finish the query design grid. The only differences:

    -Two fields will be brought in the query grid, named City & Credits.
    -In the Total row, GroupBy will be selected under City and Avg will be selected under Credits.
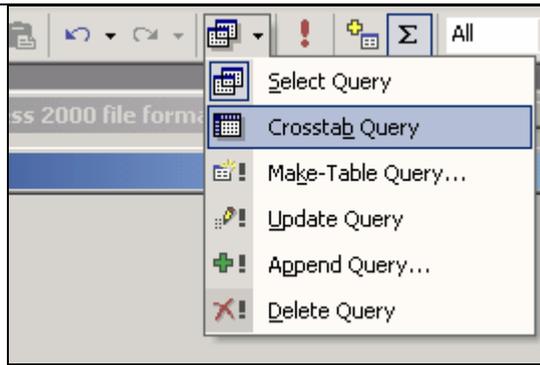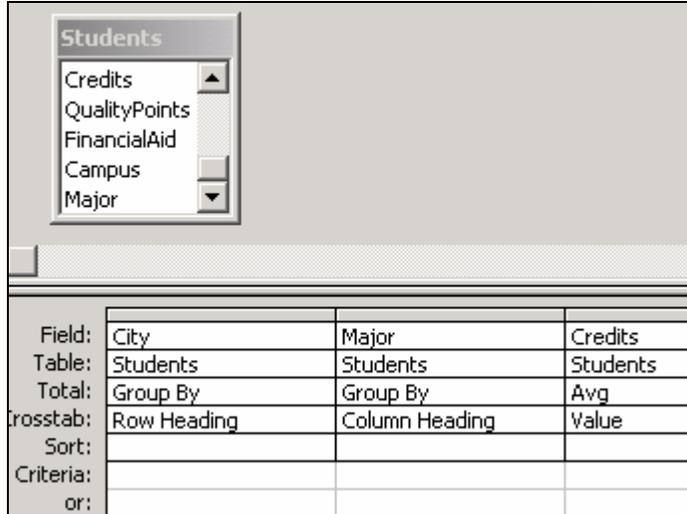

3. The result will be shown as follows:

4. Select the query type as Crosstab query.

5. Select row and column headings as mentioned in the Query text.

Field:	City	Major	Credits
Table:	Students	Students	Students
Total:	Group By	Group By	Avg
Crosstab:	Row Heading	Column Heading	Value
Sort:			
Criteria:			
or:			

the output of the above crosstab query is as follows:

City	Business	Communication	Education	Engineering	Liberal Arts
Atlanta		45			
Baltimore					50
Boston					
Buffalo					100
Charleston				100	
Chicago		105			
Coral Gables				50	
Coral Spring:				25	
Denver		28			
Ft. Lauderda	30	30			
Gainesville					63

2. Creating Switchboard with Switchboard Manager

What is a *switchboard*?
- A *user interface form (or switchboard)* ties the objects in a database together, so that the database is easy to use.
- A switchboard can either be created manually or through switchboard manager.
- The switchboard displays a menu, often a series of menus (multi-level switchboards), which enables a non-technical person to move easily from one Access object to another.
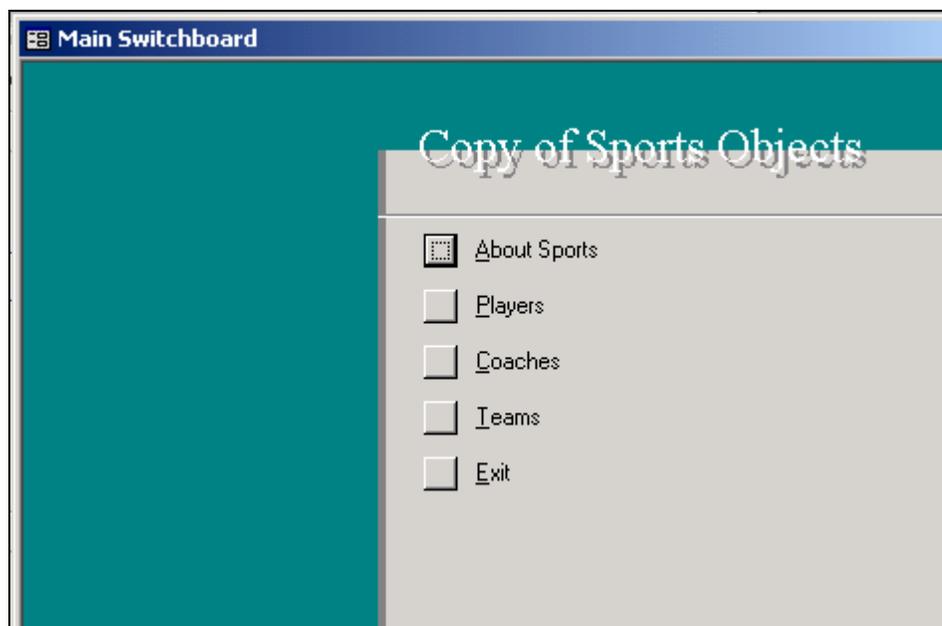
What is *Switchboard Manager?*
- A Wizard program in Microsoft Access which creates the application switchboard automatically
- A Switchboard items table that stores information about each command.
- Prompts developer for information about each menu item
- Access creates a switchboard form that is displayed to the user

Problem Statement
Create a Switch Board form using switch board manager having 4 buttons listed. Each button should be opening a different form (already done in the database)
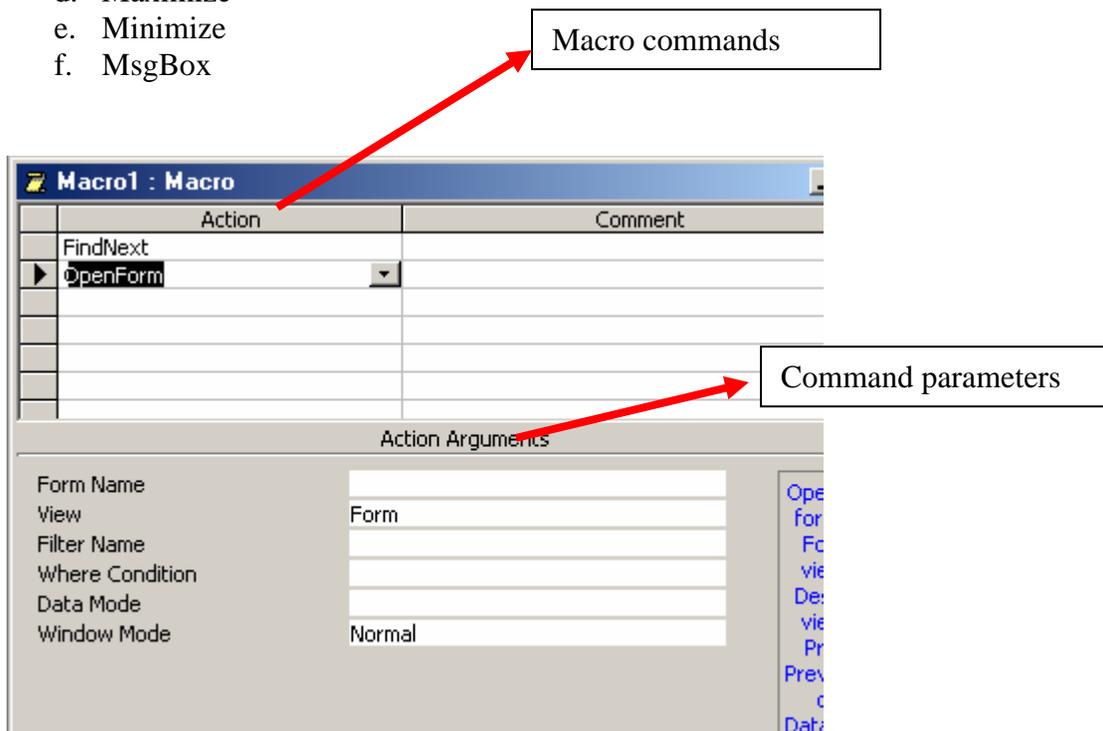- First button should open the form 'About Sports'
- Second button should open the form 'Players'
- Third button should open the form 'Coaches'
- Forth button should open the form 'Teams'

Main Switchboard

Copy of Sports Objects

- About Sports
- Players
- Coaches
- Teams
- Exit

3. Use of Macros

Why Macros?

1. A macro is a set of instructions that automates some menu based task in Microsoft Access.
2. A macro allows users to automatically run a sequence of Microsoft Access menu commands.
3. Use F6 to come back and forth in command and parameter sections.
4. Use Shift-F2 to enter the parameter in a zoomed window.
5. Some of the commands available in macros are as follows:
   a. OpenForm
   b. GotoRecord
   c. Close
   d. Maximize
   e. Minimize
   f. MsgBox

Macro commands

Command parameters

	Macro1 : Macro		
	Action		Comment
	FindNext		
▶	OpenForm	▾	

Action Arguments

Form Name	
View	Form
Filter Name	
Where Condition	
Data Mode	
Window Mode	Normal

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Problem Statement

Write a macro for Exit Application Task. The steps to be done in the macro are as follows:

1. Print a GoodBye Message.
2. Close the form 'Switch board'
3. Close the database

Named the macro as 'Close Database'.
Attach it to the Exit button of the Switchboard.

Debugging A Macro

An error box is shown with the error message.
Read the message carefully then open macro object again and correct the error.

AutoExec Macro
- Macro which runs automatically when the database is opened.
- Used to open the switchboard form automatically.

Problem Statement
Write a autoexec macro for opening the switchboard form automatically.

Steps:
- Create a NEW macro (using macro tab)
- Slect the command OpenForm and use the name of the switchboard form to open.
- Save the macro with the name autoexec.

Macro Groups
- Macro groups are used to write many macros in one Macro object.
- Each macro within the macro object is identified by a name

Problem Statement
Write a macro group for About Form buttons. The group must have three macros, named OK, Authors, and ContactUs. Each of these macros need to perform the following actions:

- OK Macro --- Close the About form
- Authors Macro --- Print a message showing your name as the author of the program
- ContactUs macro --- Print a message showing your contact details.

- Steps of creating a macro group (page number 342 – Volume 2)

- The macros in the group are called using the name like, MacroGroupName.MacroName.

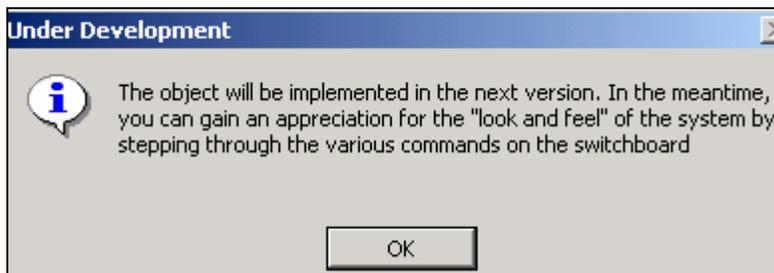## Creating an Incomplete Application or Prototypes
- Incomplete Applications or prototypes are ones in which many options are still not implemented but will be implemented in the future.

- The concept is to quickly build an application for the user use in order to get user's feedback about the current status of the application.

Problem Statement
Create a report menu (as a sub-switch board) and attach it on the main switch board. However the options available on the report menu are not supposed to open any report (not available) but just printing messages to tell the users that the reports will be implemented in later versions.

The message box appearing on pressing each button (done with macros)

- Use Switchboard manager to integrate this new switchboard onto the main switchboard.