**ITEC397 Chapter 10 LABWORK**

**Example: Automatic Student Attendance Report Generator**

In this work we will develop an application in VBA that will get two excel workbook file: “Classroster” (Taken from portal.emu.edu.tr) and “Attendance” (Given by Microsoft Forms).

Your application has to allow the user to select these files and then open these files as hidden workbooks. Then copy the required columns from the “Classroster” into the Worksheet1 in a proper form.

Then it will open the “attendance “file and it will add a column for each lectured day, then mark all students on that column as who were attended or not.

At the end of the process, your application will count and give attendance percentage of every student.

1. **Design the Controls Part of the TabSheet1 to get your application ready for inputting**



* As it is shown above, Go to Developer 🡪 Insert, and from the “Activex Controls” add two checked-boxes and three buttons to the top most position of the TabSheet1.
* Adjust the sizes of the first row, buttons and checkboxes. With using the “properties” window (you can open it for every object with clicking the right button of your mouse and selecting the “properties” choice within the options); change their names as they will be “CheckBox\_classroster”, “CheckBox\_attendance”, “CommandButton\_SelectFiles”, “CommandButton\_GenerateAttendance”, “CommandButton\_Reset”.
* Set the values of these two checkboxes to “False”, make them disabled (Enable=False), also make the last two buttons disabled (Until the two input files are not selected, this button has to be kept as disabled)
1. **Design a UserForm for letting the user to select the input files**



* At the VBA Editor, insert a new UserForm, rename it as “UserForm\_SelectFiles”and design it as the form given above.
* Rename the TextBoxes as “TextBox\_ClassRosterFile”, and “TextBox\_AttendanceFile”, and disable them. Rename the CommandButtons as “CommandButton\_SelectClassRosterFile”, and “CommandButton\_SelectAttendanceFile”, and “CommandButton\_Close”.
1. **Complete the \_initialize () event of the UserForm with the given code below:**

*Private Sub UserForm\_Initialize()*

 *‘Disable the “Generate Attendance” CommandButton of the Sheet1*

 *Sheet1.CommandButton\_GenerateAttendance.Enabled = False*

*End Sub*

1. **Complete the \_click() event of the Close CommandButton of the UserForm**

Private Sub CommandButton\_FileSelect\_Close\_Click()

 ‘If both ClassRoster and Attendance Filesare already selected enable the button “Generate Attendance”

 If (Sheet1.CheckBox\_attendance = True) And (Sheet1.CheckBox\_classroster = True) Then

 Sheet1.CommandButton\_GenerateAttendance.Enabled = True

 End If

 ‘Close (Unload) the UserForm

 Unload Me

End Sub

1. **Complete the \_click() event of the “Select File” CommandButton of ClassRoster:**

Private Sub CommandButton\_SelectClassRosterFile\_Click()

 ‘Set the properties and show the FileDialog object

 With Application.FileDialog(msoFileDialogFilePicker)

 .Title = "Please select the class roster file"

 .InitialFileName = ActiveWorkbook.Path

 'Makes sure the user can select only one file

 .AllowMultiSelect = False

 'Filter to just the following types of files to narrow down selection options

 .Filters.Add "Excel Files", "\*.xlsx; \*.xls", 1

 'Show the dialog box

 .Show

 'Store in fullpath into the global variable and to the textbox if a file is selected

 If (.SelectedItems.Count > 0) Then

 TextBox\_ClassRosterFile.Value = .SelectedItems.Item(1)

 Sheet1.CheckBox\_classroster.Value = True

 Sheet1.path\_ClassRoster = .SelectedItems.Item(1)

 End If

 End With

End Sub

1. **Complete the \_click() event of the “Select File” CommandButton of Attendance:**

Private Sub CommandButton\_SelectAttendanceFile\_Click()

Sheet1.CheckBox\_attendance.Value = False

With Application.FileDialog(msoFileDialogFilePicker)

 .Title = "Please select the Attendance File"

 .InitialFileName = ActiveWorkbook.Path

 'Makes sure the user can select only one file

 .AllowMultiSelect = False

 'Filter to just the following types of files to narrow down selection options

 .Filters.Add "Excel Files", "\*.xlsx; \*.xls", 1

 'Show the dialog box

 .Show

 'Store in fullpath variable if a file is selected

 If (.SelectedItems.Count > 0) Then

 TextBox\_AttendanceFile.Value = .SelectedItems.Item(1)

 Sheet1.CheckBox\_attendance.Value = True

 Sheet1.path\_Attendance = .SelectedItems.Item(1)

 End If

 End With

End Sub

1. **Write the calling routines for “UserForm\_SelectFiles”**
* Go To excel, worksheet1, and Developer🡪Design Mode, select the “CommandButton\_SelectFiles”. Double click it and then complete the \_OnClick event of it with the given code below:

 *Private Sub CommandButton\_SelectFiles\_Click()*

 *UserForm\_SelectFiles.Show*

 *End Sub*

1. **Write \_Click event subroutine of the ComandButton\_GenerateAttendance**
* Double click the CommandButton\_GeenerateAttendance and complete the subroutine with the given code below:

*Private Sub CommandButton\_GenerateAttendance\_Click()*

 *‘While changing values of the cells to avoid screen flickings and speed up*

 *‘the processes, it is a good tradition to freeze the screen*

 *Application.ScreenUpdating = False*

 *Design\_Captions*

 *Transfer\_ClassRoster\_Data*

 *Transfer\_Attendance\_Data*

 *‘When all processes are completed we can disable the screen freezing*

 *Application.ScreenUpdating = True*

*CommandButton\_Reset.Enabled = True ‘Enable the Reset button*

*End Sub*

1. **Define The Global variables**
* Add the following statements to the beginning of the “Source” part of the Worksheet1:

*Public number\_of\_students As Integer*

*Public path\_ClassRoster As String*

*Public path\_Attendance As String*

*Public objWorkbook\_ClassRoster As Workbook*

*Public objWorkbook\_Attendance As Workbook*

1. **Complete the GenerateAttendance steps with subroutines”Design\_Captions”, “Transfer\_ClasRoster\_Data”, and “Transfer\_Attendance\_Data”.**
* Add the following subroutines to the “Source” part of the Sheet1:

***Private Sub Design\_Captions()***

 *With Sheet1.Range("A2:Z2")*

 *.Font.Bold = True*

 *.Font.Size = 14*

 *.Interior.ColorIndex = 11*

 *.Font.ColorIndex = 2*

 *End With*

 *Sheet1.Range("A2").Select*

 *ActiveCell = "Std. No"*

 *ActiveCell.Offset(0, 1) = "Name"*

 *ActiveCell.Offset(0, 2) = "Surname"*

 *ActiveCell.Offset(0, 3) = "Course"*

 *ActiveCell.Offset(0, 4) = "e-mail"*

 *ActiveCell.Offset(0, 5) = "Count"*

 *ActiveCell.Offset(0, 6) = "Percent"*

 *Columns(1).AutoFit*

 *Columns(2).AutoFit*

 *Columns(3).AutoFit*

 *Columns(4).AutoFit*

 *Columns(5).AutoFit*

 *Columns(6).AutoFit*

 *Columns(7).AutoFit*

***End Sub***

***Private Sub Transfer\_ClassRoster\_Data()***

 *Dim app As New Excel.Application*

 *app.Visible = False 'Excel document will be opened in invisible mode*

 *Dim book As Excel.Workbook*

 *‘Open the CLassRoster xlsx file in hidden mode*

 *Set book = app.Workbooks.Add(path\_ClassRoster)*

 *‘Freeze the Screen*

 *'Application.ScreenUpdating = False*

 *number\_of\_students = 0*

 *For n = 2 To 50*

 *‘Transfer student details from classroster excel file to Sheet1*

 *With book.Sheets(1)*

 *If (.Range("D" & n).Value <> "") Then*

 *number\_of\_students = number\_of\_students + 1*

 *Sheet1.Range("A" & (n + 1)).Value = .Range("D" & n).Text 'Transfer STD.NO*

 *Sheet1.Range("B" & (n + 1)).Value = .Range("E" & n).Value 'Transfer NAME*

 *Sheet1.Range("C" & (n + 1)).Value = .Range("F" & n).Value 'Transfer SURNAME*

 *Sheet1.Range("D" & (n + 1)).Value = .Range("B" & n).Value 'Transfer COURSE CODE*

 *Else*

 *Exit For*

 *End If*

 *End With*

 *Next n*

 *‘Autofit the column lengths after the transfer completed*

 *Sheet1.Columns(1).AutoFit*

 *Sheet1.Columns(2).AutoFit*

 *Sheet1.Columns(3).AutoFit*

 *Sheet1.Columns(4).AutoFit*

 *‘Close the Classroster Excel file without saving*

 *book.Close SaveChanges:=False*

 *app.Quit*

 *‘Set the app pointer free*

 *Set app = Nothing*

***End Sub***

***Private Sub Transfer\_Attendance\_Data()***

 *Dim app As New Excel.Application*

 *app.Visible = False 'Make the Attendance Excel File invisible*

 *Dim book As Excel.Workbook*

 *Set book = app.Workbooks.Add(path\_Attendance)*

 *For n = 2 To 500*

 *Fill the columns of the Sheet1 with the data come from Attendance excel file*

 *With book.Sheets(1)*

 *If (.Range("D" & n).Value <> "") Then*

 *S\_no = Left(.Range("D" & n).Value, InStr(.Range("D" & n).Value, "@") - 1)*

 *A\_day = "." & Year(.Range("B" & n).Value) & "-" & Month(.Range("B" & n).Value) \_*

 *& "-" & Day(.Range("B" & n).Value)*

 *E\_mail = .Range("D" & n).Value*

 *'Check if caption of that day is existing, if not add it as a new caption*

 *a\_column = 8 ‘Starting from the 8th column, begin to add the lecturing day columns*

 *Sheet1.Range("A2").Select*

 *For m = 7 To 70*

 *‘ Check if for the current day is there already a column is dedicated or not*

 *If ActiveCell.Offset(0, m).Value = A\_day Then ‘already a column (m) was added*

 *a\_column = m*

 *Exit For*

 *Else*

 *‘This is a new attendance day, a new column should be added, column m is the first empty column*

 *If ActiveCell.Offset(0, m).Value = "" Then*

 *'New Attendance Day will be added*

 *a\_column = m*

 *ActiveCell.Offset(0, m).Value = A\_day*

 *'Set attendance for all students for that day by default as 0*

 *Sheet1.Range("A1").Select*

 *For k = 2 To number\_of\_students + 1*

 *ActiveCell.Offset(k, m).Value = 0*

 *Next k*

 *Exit For*

 *End If*

 *End If*

 *Next m*

 *m\_row = 0*

 *'Find the row of the student*

 *For m = 2 To number\_of\_students + 2*

 *If Sheet1.Range("A1").Offset(m, 0).Text = S\_no Then*

 *m\_row = m*

 *Exit For*

 *End If*

 *Next m*

 *If (m\_row > 0) Then*

 *Sheet1.Range("E1").Offset(m\_row, 0).Value = E\_mail*

 *Sheet1.Range("A1").Offset(m\_row, a\_column).Value = 1*

 *End If*

 *Else*

 *Exit For*

 *End If*

 *End With*

 *Next n*

 *'Counting the attendance and percentages for each student*

 *Days = Count\_Days()*

 *For n = 1 To number\_of\_students*

 *cnt = 0*

 *For m = 1 To Days*

 *If (Sheet1.Range("G2").Offset(n, m) = 1) Then*

 *cnt = cnt + 1*

 *End If*

 *Next m*

 *Sheet1.Range("F2").Offset(n, 0) = cnt*

 *Sheet1.Range("G2").Offset(n, 0) = Format(((cnt / Days)), "###.## %")*

 *Next n*

 *'Autofitting the column sizes*

 *For n = 4 To 70*

 *If (Sheet1.Range("A2").Offset(0, n - 1) <> "") Then*

 *Sheet1.Columns(n).AutoFit*

 *Else*

 *Exit For*

 *End If*

 *Next n*

 *‘Close the attendance excel file*

 *book.Close SaveChanges:=False*

 *app.Quit*

 *Set app = Nothing*

***End Sub***

1. **Add the following subroutines also the the “Source” of Worksheet1**

**Private Function Count\_Days()**

 **‘**Count and return, how many student rows are on the Sheet1

 Count\_Days = 0

 For i = 1 To 80

‘Count until found the firs empty row

 If (Sheet1.Range("G2").Offset(0, i).Value = "") Then

 Count\_Days = i – 1 ‘The lastrow is empty, exclude it from the count

 Exit For

 End If

 Next i

**End Function**

1. **Write \_Click event subroutine of the CommanButton\_Reset**
* Double click the CommandButton\_Reset and complete the subroutine with the given code below:

*Private Sub CommandButton\_Reset\_Click()*

*CommandButton\_Reset.Enabled = False ‘Disable the button until new generation*

 *‘Freezing the screen*

*Application.ScreenUpdating = False*

 *'Erase the existing data rows and the captions until the empty row found*

 *For n = 1 To 300*

 *Sheet1.Range("A2").Select*

 *r = ActiveCell.Row*

 *If ActiveCell.Value <> "" Then*

 *Sheet1.Rows(2).Delete*

 *Else*

 *Exit For*

 *End If*

 *Next n*

 *'Reseting the checkboxes and disable the "Generate Attendance",*

 *‘ and “Reset” CommandButtons*

 *CheckBox\_attendance.Value = False*

 *CheckBox\_classroster.Value = False*

 *CommandButton\_GenerateAttendance.Enabled = False*

*CommandButton\_Reset.Enabled = False*

 *‘If already Attendance file is opened, close it*

 *If Not objWorkbook\_Attendance Is Nothing Then*

 *objWorkbook\_Attendance.Close SaveChanges:=False*

 *End If*

 *‘If already Class Roster file is opened, close it*

*If Not objWorkbook\_ClassRoster Is Nothing Then*

 *objWorkbook\_ClassRoster.Close SaveChanges:=False*

 *End If*

 *‘Unfreeze the screen*

 *Application.ScreenUpdating = True*

 *End Sub*

1. **Worksheet \_activate() event**
* With using the given code complete the Worksheet activate event

*Public Sub Worksheet\_Activate()*

 *‘Empty the global variables f\_Classroster and f\_Attendance*

 *f\_ClassRoster = ""*

 *f\_Attendance = ""*

*End Sub*

* On the VBAEditor, Project Tree, with the right button of your mouse, select the menu options insert 🡪 UserForm.

*Private Sub CommandButton\_SelectClassRosterFile\_Click()*

 *With Application.FileDialog(msoFileDialogFilePicker) ‘Calling the FileDialog Method*

 *.Title = "Please select the class roster file"*

 *.InitialFileName = ActiveWorkbook.Path ‘Look to the same folder of the xlsm file*

 *'Makes sure the user can select only one file*

 *.AllowMultiSelect = False*

 *'Filter to just the following types of files to narrow down selection options*

 *.Filters.Add "Excel Files", "\*.xlsx; \*.xls", 1*

 *'Show the dialog box*

 *.Show*

 *'Store in fullpath variable if a file is selected*

 *If (.SelectedItems.Count > 0) Then*

 *‘Assign the selected filepathinto the TextBox\_ClassRosterFile*

 *TextBox\_ClassRosterFile.Value = .SelectedItems.Item(1)*

 *‘Check the CheckBox\_classroster to show classroster file is selected*

 *Sheet1.CheckBox\_classroster.Value = True*

 *‘Assign the file name to theglobal variable*

 *Sheet1.path\_ClassRoster = .SelectedItems.Item(1)*

 *End If*

 *End With*

*End Sub*