Design 1

Tuesday, 16 May 2023 8:18 PM

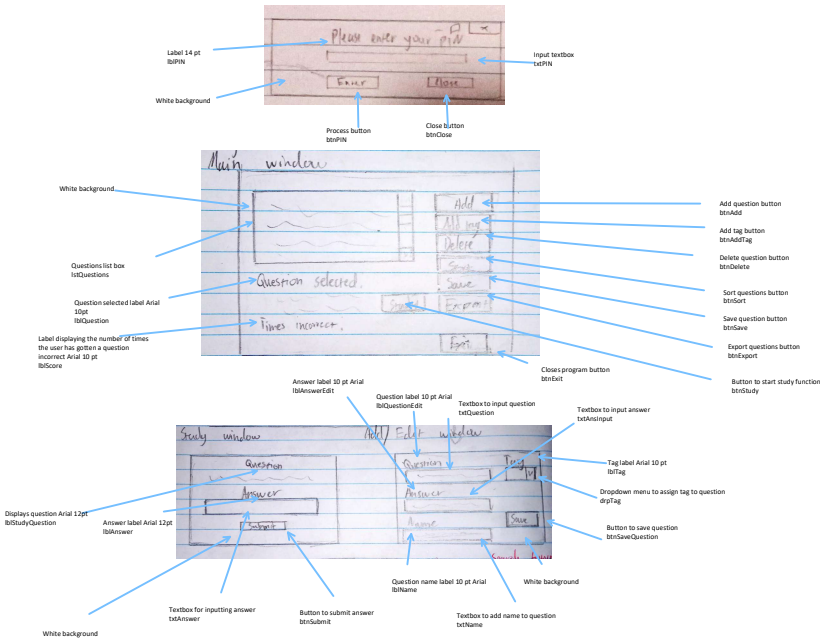
Data dictionary

Variable name	Data type	Size	Scope	Description
PIN	Integer	1	Global	The user's PIN is stored within this variable and it is checked when the user attempts to log in to ensure it is correct.
SelectedQuestion	String	1	Global	The question selected using the list box is stored here so that it can be displayed using a label.
score	Integer	1	Global	Stores the number of times a question was answered incorrectly.
inputAns	String	1	Global	Stores what the user inputs as their answer during the study session so that it can be compared to the stored answer.
tag	String	1	Global	Holds the tag selected.
question	String	1	Global	Holds the string to be added to a question that will be saved.
ans	String	1	Global	Stores the string for the answer that will be added to the saved question.
name	String	1	Global	Holds the name that will be added to the question being edited/added.
inputPIN	Integer	1	Global	Holds the PIN inputted in the login screen so that it can be compared to the PIN stored.
DisplayQuestion	String	1	Global	The question is retrieved from the file and assigned to this variable.

Object descriptions

Object type	Object name	Type	Variable handled	Properties	Description
Form	frmPIN	Event - load	N/A	Colour = control	This is the screen used that prompts the user to input their PIN before they can use the rest of the program.
Form	frmMain	Event - load	N/A	Colour = control	This screen appears after the user has successfully inputted their PIN, housing many of the functions of the program, including viewing questions added.
Form	frmStudy	Event - load	N/A	z	After clicking the study button this form will appear. This is where the user will complete their study regime.
Form	frmEdit	Event - load	N/A	Colour = control	It is on this screen where the user can add and edit questions saved by the program.
Button	btnPIN	Event - load	N/A	Arial 10pt "Enter"	Initiates code to check if PIN matches the set one.
Button	btnClose	Event - load	N/A	Arial 10pt "Close"	Closes the PIN screen.
Textbox	txtPIN	Method	InputPIN	""	The user inputs the PIN into the textbox here.
List box	lstQuestions	Method	SelectedQuestion	Arial 10 pt "" Read only = true	Allows the user to select from the questions they have added to the program.
Button	btnAdd	Event - click	N/A	Arial 10 pt "Add"	Opens up frmEdit.
Button	btnAddTag	Event - click	N/A	Arial 10 pt "Add tag"	Opens up a window to add a new tag to the database.
Button	btnDelete	Event - click	N/A	Arial 10 pt "Delete"	Deletes the selected question.
Button	btnSort	Event - click	N/A	Arial 10 pt "Delete"	Sorts the list of questions.
Button	btnSave	Event - click	N/A	Arial 10 pt "Save"	Saves the questions.
Button	btnExport	Event - click	N/A	Arial 10 pt "Export"	Exports the questions into a test format in a text file.
Button	btnStudy	Event - click	N/A	Arial 10 pt "Study"	Opens up frmStudy.
Button	btnExit	Event - click	N/A	Arial 10 pt "Exit"	Closes the program.
Label	lblQuestion	Method	SelectedQuestion	Arial 12 pt "Question selected: "	Displays the selected question.
Label	lblScore	Method	score	Arial 12 pt "Times incorrect: "	Displays the score of the selected question.
Textbox	txtAnswer	Method	InputAns	""	The user types in the answer to the question in this textbox.
Button	btnSubmit	Event - click	N/A	Arial 10 pt "Submit"	Submits the answer and then displays the stored answer for the user to compare.
Dropdown menu	drpTag	Method	tag	Arial 10 pt "" Read only = true	Allows the user to select from previously added tags.
Button	btnSaveQuestion	Event - click	N/A	Arial 10 pt "Save"	Saves the question that was being edited in frmEdit.
Textbox	txtQuestion	Method	question	""	The user inputs what will be stored as the question.
Textbox	txtAnsInput	Method	ans	""	The user inputs what will be stored as the answer to the question.
Textbox	txtName	Method	name	""	The user inputs what will be saved as the name of the question they are editing.
Label	lblTag	N/A	N/A	Arial 10 pt "Tag"	Clarifies what the drop down box below it holds.

Mock up



Pseudocode

```
PIN check
START
    InputPIN <- txtPIN.text
    IF InputPIN = PIN THEN
        Open frmMAIN
    ELSE
        Messagebox("Incorrect PIN, please try again.")
    ENDIF
END

Question selected label
START
    SelectedQuestion <- lstQuestions.index
    Read Question file
        DisplayQuestion <- Find question with corresponding inc
    lblQuestion.text <- "Question Selected - " & DisplayQuestion
END

Answer check
START
    ans <- txtAnswer.text
    lblQuestion.text <- Random(DisplayQuestion)
    Messagebox(Question + ans)
    IF YesNo("Was the answer incorrect?") = Yes THEN
        Score += 1
    ENDIF
END

Adding question (when btnSaveQuestion clicked)
START
    Question <- txtQuestion.text
    Answer <- txtAnsInput.text
    Name <- txtName.text
    Tag <- drpTag.selected
    Write to file
    Close frmEdit
END

Searching (binary search)
START
    binarySearch(questions, search term, low, high)
      repeat till low = high
          mid = (low + high)/2
          if (x = arr[mid])
              return mid
          else if (x > arr[mid])
              low = mid + 1
          else
              high = mid – 1
          End loop
END

Sort (quick sort)
START
quickSort(arr[], low, high)
  if (low < high) THEN
    pi = partition(arr, low, high)
    quickSort(arr, low, pi – 1)
    quickSort(arr, pi + 1, high)
  End If
END

Export
START
    array <- Read question file to end
    For each question in array
        WriteToFile(array)
        NewLine
        WriteToFile("Answer: ")
        NewLine
    Loop
END
```

lex
n