Level 2 Create software components using Visual Basic (7266/7267-204)

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Assignment guide for Candidates
Assignment B

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Introduction – Information for Candidates

About this document

This assignment comprises part of the assessment for Level 2 Create software components using Visual Basic (7266/7267-204).

Health and safety

You are asked to consider the importance of safe working practices at all times.

You are responsible for maintaining the safety of others as well as your own. Anyone behaving in an unsafe fashion will be stopped and a suitable warning given. You will not be allowed to continue with an assignment if you compromise any of the Health and Safety requirements. This may seem rather strict but, apart from the potentially unpleasant consequences, you must acquire the habits required for the workplace.

Time allowance

The recommended time allowance for this assignment is **four** hours.

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Candidate instructions

Candidates are advised to read all instructions carefully before starting work and to check with your assessor, if necessary, to ensure that you have fully understood what is required.

Time allowance: four hours

Assignment set up: A scenario is provided for candidates in the form of a company specification for a service they require.

This assignment is made up of two tasks

- **Task A** - provides a detailed design specification for software to demonstrate password protected software with simulated disco lights.
- **Task B** - provides presentation criteria that should be followed by candidates when producing their work.

Scenario

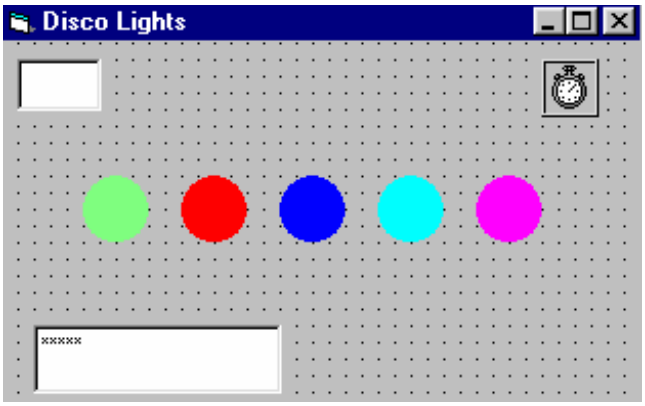
A software development company, Disco Systems is developing a program for use as demonstration software for clients. As a contracted employee of Disco Systems, you have been asked to create and test the software.

Task A

Candidates should use the following detailed specification to fulfil the company's requirements.

In this task you are required to use shape controls to simulate a time-controlled disco light system. Entry to the system is to be controlled by a password which the user must enter into a text box – when the correct password is entered the text box background colour must change to green. An input box must appear so that the user can enter the number of times that a complete rotation of disco lights is to be carried out. A repeating sequence to rotate the colours in the shape controls is then executed with delays to hold the colours determined by a timer control.

Your completed form should appear similar to the screen image shown below.



Save the project at regular intervals as you work through the task. Save the form file as frmDisco and the project file as TaskA.

1 Set up the following constants in the General Declarations section.

```
Const RED = &HFF&
Const LIGHTBLUE = &HFFFF&
Const GREEN = &HFF00&
Const BLUE = &HFF0000
Const PINK = &HFF00FF
```

2 Set the Caption property of the form to: Task A *your name and the date*.

3 Draw, size and position a shape control to act as a light. Name the control shpLight. Set the Shape to Circle, the FillColor to green, the FillStyle to Solid and the BorderStyle to Transparent.

4 Copy the shape control four times to set up a control array of shape controls. Set the FillColor of the four shape controls as red, dark blue, light blue and pink.

5 Draw a timer control. Name the control tmrLight and set its Enabled property to False.

6 Draw, size and position a text box control. Name the control txtCount and set its Enabled property to False.

7 Draw size and position a text box control. Name the control txtPassword and set the PasswordChar property to *

8 Select the group of five shape controls and set the Visible property for the group to False.

9 In the General Declarations section declare the variables LightState and CountNumber as integers and LoopNumber as a string.

10 Code the Form_Load sub procedure to set the values of LightState and CountNumber to 0.

11 Decide on a short password that will start the system running. Code the txtPassword_Change sub procedure to carry out the following actions, in the order given, in response to the correct password being entered:

   a. change the BackColor of txtPassword to green (to indicate the correct password has been entered) and use the Refresh method to update the colour immediately
   b. use a For…Next loop to create a one or two second delay, with an instruction within

the loop that sets txtPassword text to "" (empty)

c. set the Visible property of the txtPassword text box control to False
d. use an InputBox$ function to output a prompt and obtain a string from the user and place the string in the variable LoopNumber. (This value specifies how many complete rotations of the colours will be executed.)
e. use a loop to set the Visible property of each shape control to True
f. set the tmrLight Enabled property to True
g. call the tmrLight_Timer sub procedure

12 Use the Select Case construct to code the tmrLight_Timer event sub procedure to change the FillColor property of the shape controls, for the required time, according to the value of the variable LightState, as below.

LightState = 0
    shpLight(0) set FillColor to RED
    shpLight(1) set FillColor to BLUE
    shpLight(2) set FillColor to GREEN
    shpLight(3) set FillColor to LIGHTBLUE
    shpLight(4) set FillColor to PINK
    set the Interval property of the timer control to hold the colours for 3 seconds
    set LightState to 1
LightState = 1
    shpLight(0) set FillColor to PINK
    shpLight(1) set FillColor to RED
    shpLight(2) set FillColor to BLUE
    shpLight(3) set FillColor to GREEN
    shpLight(4) set FillColor to LIGHTBLUE
    set the Interval property of the timer control to hold the colours for 3 seconds
    set LightState to 2
LightState = 2
    shpLight(0) set FillColor to LIGHTBLUE
    shpLight(1) set FillColor to PINK
    shpLight(2) set FillColor to RED
    shpLight(3) set FillColor to BLUE
    shpLight(4) set FillColor to GREEN
    set the Interval property of the timer control to hold the colours for 3 seconds
    set LightState to 3
LightState = 3
    shpLight(0) set FillColor to GREEN
    shpLight(1) set FillColor to LIGHTBLUE
    shpLight(2) set FillColor to PINK
    shpLight(3) set FillColor to RED
    shpLight(4) set FillColor to BLUE
    set the Interval property of the timer control to hold the colours for 3 seconds
    set LighState to 4
LightState = 4
    shpLight(0) set FillColor to BLUE
    shpLight(1) set FillColor to GREEN
    shpLight(2) set FillColor to LIGHTBLUE
    shpLight(3) set FillColor to PINK
    shpLight(4) set FillColor to RED

set the Interval property of the timer control to hold the colours for 3 seconds
set LightState to 0
add 1 to CountNumber
check if CountNumber is equal to the value in the LoopNumber string. If the values are equal then set the Enabled property of the timer control to False
set the Text property of the txtCount text box control to the string value of CountNumber

13 Add explanatory comments to the code.

14 Test that the program works correctly, use the debug facilities to find any errors and ensure that the software conforms to the specification.

15 Print a program listing and a printed copy of the form frmDISCO.

Task B

Candidates should follow the criteria listed below when producing their work:

1 The program conforms to the design specification.

2 The program uses the most appropriate data type(s).

3 Meaningful names are used when declaring variables.

4 The program syntax is consistently indented to aid readability.

Note

- Candidates should produce the following for their assessor:
  - A printed program listing.
  - Printout of the frmDisco form.
- At the conclusion of this assignment, hand all paperwork and removable media to the test supervisor.
- Ensure that your name is on the removable media and all documentation.
- If the assignment is taken over more than one period, all removable media and paperwork must be returned to the test supervisor at the end of each sitting.

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