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

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Assignment guide for Candidates
Assignment D

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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 **4 hours**.

Level 2 Create software components using Visual Basic (7266/7267-204)
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: 4 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 the use of graphics.
- **Task B** - provides presentation criteria that should be followed by candidates when producing their work.

Scenario

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

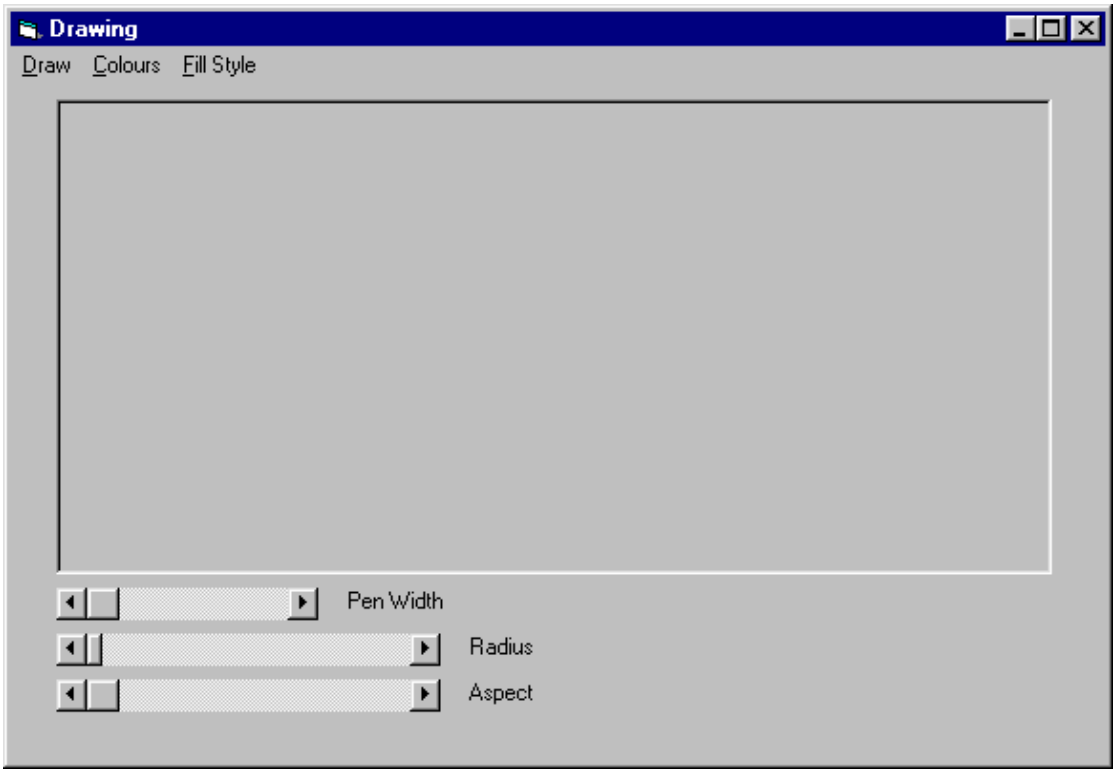
The program is to use menus and scroll bars to demonstrate the following graphics facilities

- draw freehand lines
- draw a line
- draw a circle with different radii
- draw an ellipse with different aspect ratios
- change the colour of the pen being used
- change the width of the lines being drawn
- change fill styles for a circle and ellipse
- change fill colours for a circle and ellipse.

Task A

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

In this task you are required to create and test a user interface to show the different types of graphics that can be drawn. Menus are used to allow options for the type of object to be drawn, the colour to be used for lines and fills and the fill style to be used for circles and ellipses. Scroll bars are used to specify values for the line (pen) width, radius for a circle and ellipse and aspect ratio for an ellipse. 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 frmDrawing and the project file as TaskA.

1 In the General Declarations area set up variables for the mode, pen colour, radius, aspect ratio, fill style, start value of x, start value of y, old value of x and old value of y.

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

3 Set up a menu with the caption Draw and the name mnuDraw with the following items in a drop down menu.

Option	**Name**
Freehand	mnuFreehand
Line	mnuLine
Circle	mnuCircle
Ellipse	mnuEllipse
Clear	mnuClear
Exit	mnuExit

4 Set up a menu with the caption Colours and the name mnuColours with the following items in a drop down menu.

Option	**Name**
Red	mnuRed
Blue	mnuBlue
Green	mnuGreen
Yellow	mnuYellow

5 Set up a menu with the caption FillStyle and the name mnuFillStyle with the following items in a drop down menu.

Option	Name
Solid	mnuSolid
Transparent	mnuTransparent
Horizontal Line	mnuHorLine
Vertical Line	mnuVertLine
Cross	mnuCross
Diagonal Cross	mnuDiagonal Line

6 Draw, size and position a picture box control and name it picDraw.

7 Draw size and position three horizontal scroll bar controls for the pen width, radius and aspect and name them hsbPenWidth, hsbRadius and hsbAspect respectively.

8 Set the Min and Max properties of the three horizontal scroll bar controls to appropriate values.

9 Draw, size and position three label controls next to the horizontal scroll bars. Name the controls lblPen, lblRadius and lblAspect. Set their Caption properties to Pen Width, Radius and Aspect respectively.

10 Code the Form_Load sub procedure as follows:
- set the starting pen colour to Red
- set the starting DrawWidth property of the picture box control to 2
- set the mode variable to 0.

11 Code the sub procedures for the menu options for the Colours menu so that the pen colour is changed to the selected colour option.

12 Code the sub procedures for the menu options for the Fill Style menu so that the fill style is changed to the selected fill style.

13 Code the Change sub procedures for the scroll bar controls hsbRadius and hsbAspect to store the new values in the appropriate variables.

14 Code the Change sub procedure for the scroll bar control hsbPenWidth to change the DrawWidth property of the picture box control to the new value.

15 Code the sub procedures for the menu options for the Draw menu as follows:
- Freehand - set mode variable to 1
- Line - set mode variable to 2
- Circle - set mode variable to 3
- Ellipse - set mode variable to 4
- Clear - set mode variable to 0 and clear the picture box control
- Exit – terminate the program.

16 Code the picDraw_MouseUp sub procedure as follows:
- set the DrawMode of the picture box control to 13
- if the Button parameter is 1 and the mode variable is not equal to 0 then
  - if the mode variable is 1 draw a freehand line

- if the mode variable is 2 draw a line from the start point to the current point
- if the mode variable is 3 draw a circle
- if the mode variable is 4 draw an ellipse.

17 Code the picDraw_MouseDown sub procedure as follows:
- if the mode variable is 1 then
  - set the DrawMode property of the picture box control to 13
  - set the DrawStyle property of the picture box control to a solid line
- otherwise
  - set the DrawMode property of the picture box control to 7
  - set the FillStyle property of the picture box control to the fill style variable value
  - set the DrawStyle property of the picture box control to a solid line
  - set the ForeColor property of the picture box control to the pen colour variable value
  - set the FillColor property of the picture box control to the pen colour variable value
  - set the start value of x variable and the old value of x variable to X
  - set the start value of y variable and the old value of y variable to Y.

18 Code the picDraw_MouseMove sub procedure as follows:
- if the Button parameter is not equal to 0
  - if the mode variable is equal to 1
    - draw a freehand line
  - otherwise
    - draw a line from the start point to the current point
- set the old value of x variable to X
- set the old value of y variable to Y.

19 Test the program for different positions on the scroll bar controls and all the menu options and ensure that it fully conforms with the specification. Use the Debug facilities to find any errors.

20 Print a program listing and a printed copy of the form frmDrawing.

Task B

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

1 The program conforms to the design specification.

2 The program syntax is consistently indented to aid readability.

3 The program is commented.

Note

- Candidates should produce the following for their assessor:
  - A printed program listing.
  - A printout of the frmDrawing 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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