Q3(A)

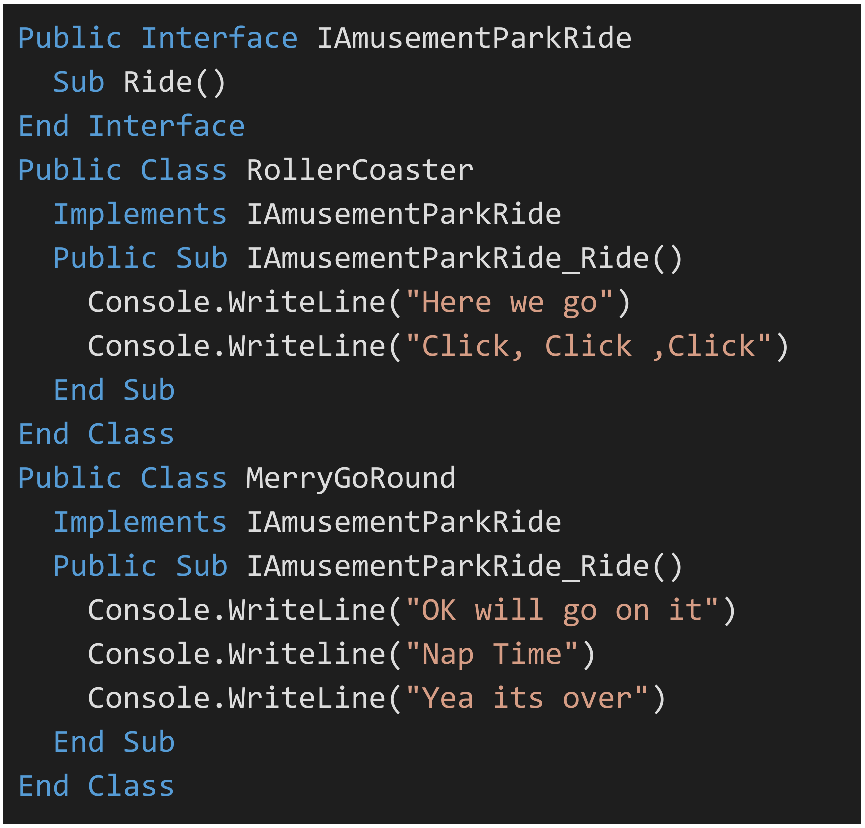
(1) Explain Polymorphism in VB.net with example.

Ans :Polymorphism means "The ability to take on different form“.It is also called as Overloading and Overriding with interface which means the use of the same thing for different purposes.Using Polymorphism we can create as many functions we want with one function name but with different argument list.The function performs different operations based on the argument list in the function call.The exact function to be invoked will be determined by checking the type and number of arguments in the function. **Interface** is an example of polymorphism.

Interface

Interfaces in VB.net are used to define the class members using a keyword Interface, without actually specifying how it should be implemented in a Class. Interfaces are examples for multiple Inheritance. Interfaces are implemented in the classes using the keyword ‘**Implements**’ that is used before any Dim statement in a class.

Example of polymorphism through Interface



```
Public Interface IAmusementParkRide
  Sub Ride()
End Interface
Public Class RollerCoaster
  Implements IAmusementParkRide
  Public Sub IAmusementParkRide_Ride()
    Console.WriteLine("Here we go")
    Console.WriteLine("Click, Click ,Click")
  End Sub
End Class
Public Class MerryGoRound
  Implements IAmusementParkRide
  Public Sub IAmusementParkRide_Ride()
    Console.WriteLine("OK will go on it")
    Console.Writeline("Nap Time")
    Console.WriteLine("Yea its over")
  End Sub
End Class
```

(2) Define & Differentiate: SDI & MDI.

Ans : **SDI**

SDI stands for Single Document Interface. It is an interface design for handling documents within a single application. SDI exists independently from others and thus is a stand-alone window. SDI supports one interface means you can handle only one application at a time.

MDI

MDI stands for Multiple Document Interface. It is an interface design for handling documents within a single application. When application consists of an MDI parent form containing all other window consisted of the app, then MDI interface can be used. Switch focus to a specific document can be easily handled in MDI.

Difference between SDI & MDI

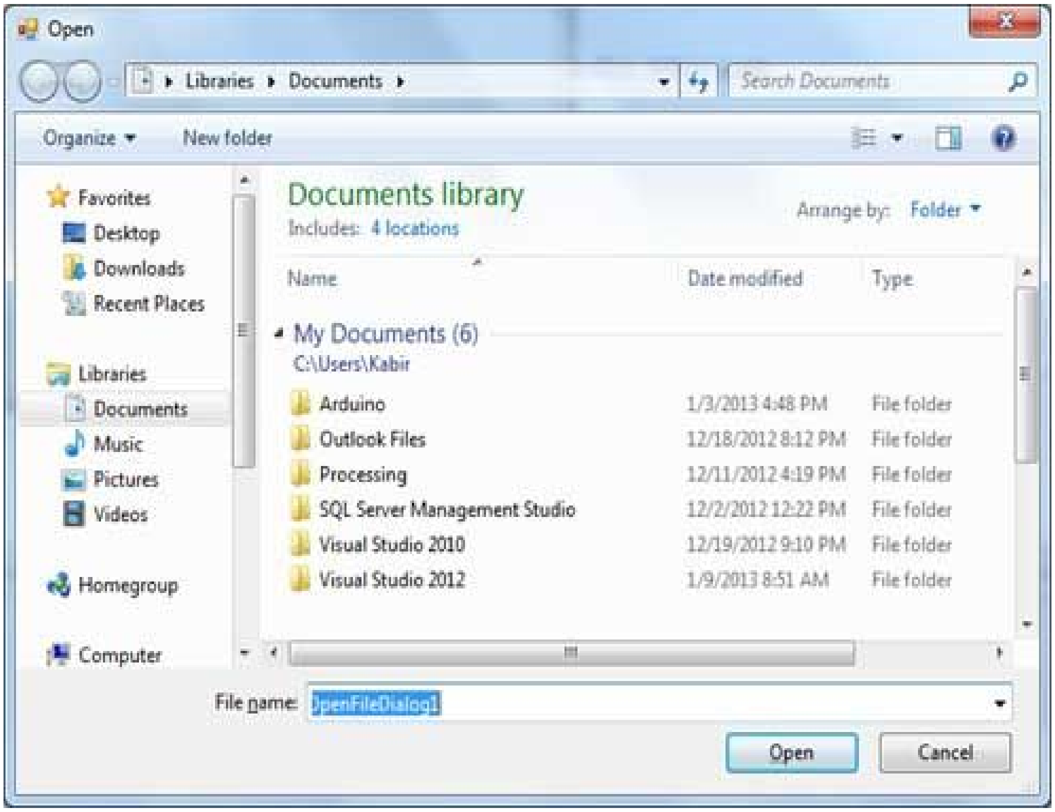
	MDI	**SDI**
Full Name	Multiple Document Interface	Single Document Interface
Type	It is the type of Graphic User Interface which is able to show more than a single document at a time on the screen.	It is a Graphic User Interface which is able to show one document at a time on the screen.
Maximization	All the documents can be maximized in the MDI.	There needs to be a special command in order to maximize the documents.
Switch between documents	Using special interface inside parent window	Through task /window manager
Grouping	Naturally implemented	Possible only through special window managers
Example	Latest web browsers.	Windows Notepad.

(3) Explain any 3 Common Dialog Controls.

Ans :The Common Dialog Control provides a standard interface for operations such as opening, saving, and printing files or selecting colours and fonts.The common dialog controls are invisible at runtime, and they're not placed on your forms, because they're implemented as modal dialog boxes and they're displayed as needed. You simply add them to the project by double-clicking their icons in the Toolbox; a new icon appears in the components tray of the form, just below the Form Designer. All of these dialog box control classes inherit from the CommonDialog class.The ShowDialog method is used to display all the dialog box controls at run time.

OpenFileDialog

The OpenFileDialog control prompts the user to open a file and allows the user to select a file to open. The user can check if the file exists and then open it. The OpenFileDialog control class inherits from the abstract class FileDialog.Following is the Open File dialog box.



My Documents (6)
C:\Users\Kabir

Name	Date modified	Type
Arduino	1/3/2013 4:48 PM	File folder
Outlook Files	12/18/2012 8:12 PM	File folder
Processing	12/11/2012 4:19 PM	File folder
SQL Server Management Studio	12/2/2012 12:22 PM	File folder
Visual Studio 2010	12/19/2012 9:10 PM	File folder
Visual Studio 2012	1/9/2013 8:51 AM	File folder

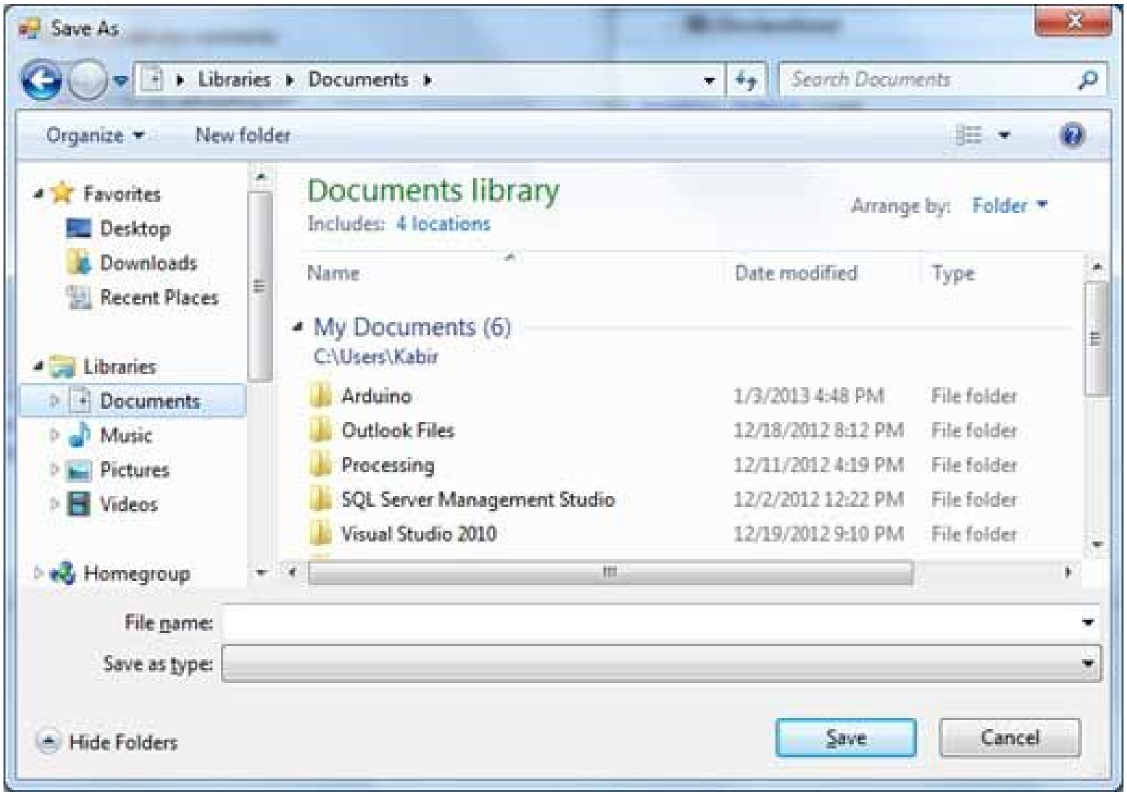
File name: OpenFileDialog1

Example of OpenFileDialog

```
Private Sub Button1_Click(sender As Object, e As EventArgs) Handles
Button1.Click
   If OpenFileDialog1.ShowDialog <> Windows.Forms.DialogResult.Cancel
Then
      PictureBox1.Image = Image.FromFile(OpenFileDialog1.FileName)
   End If
End Sub
```

SaveFileDialog

The SaveFileDialog control prompts the user to select a location for saving a file and allows the user to specify the name of the file to save data. The SaveFileDialog control class inherits from the abstract class FileDialog. Following is the Save File dialog box.



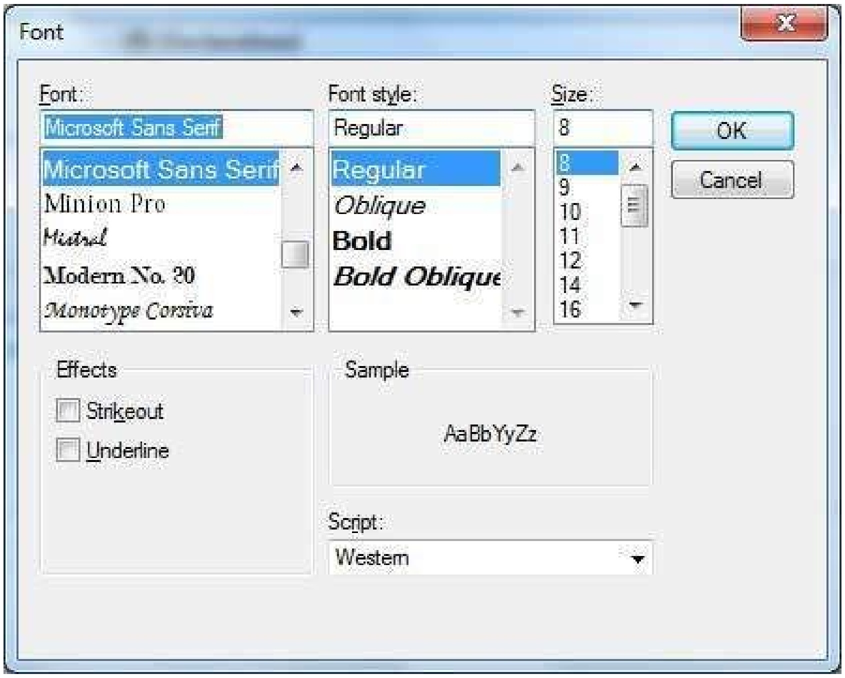
The SaveFileDialog object has properties for setting the initial appearance and functionality of the dialog box, a property for returning the filename selected by the user, as well as a method for showing the dialog box. The object does not itself save the file, but instead provides the information that allows your code to do this programmatically.

Example of SaveFileDialog

```
Private Sub Button1_Click(sender As Object, e As EventArgs)
Handles Button1.Click
   SaveFileDialog1.Filter = "TXT Files (*.txt*)|*.txt"
      If SaveFileDialog1.ShowDialog =
Windows.Forms.DialogResult.OK _
    Then
           My.Computer.FileSystem.WriteAllText _
           (SaveFileDialog1.FileName, RichTextBox1.Text, True)
      End If
End Sub
```

FontDialogBox

It prompts the user to choose a font from among those installed on the local computer and lets the user select the font, font size, and color. It returns the Font and Color objects. Following is the Font dialog box.



Font: Microsoft Sans Serif

Font style: Regular

Size: 8

Script: Western

By default, the Color ComboBox is not shown on the Font dialog box. You should set the ShowColor property of the FontDialog control to be True.

Example of FontDialogBox

```
Private Sub Button1_Click(sender As Object, e As EventArgs)
Handles Button1.Click
   If FontDialog1.ShowDialog <> Windows.Forms.DialogResult.Cancel
Then
      RichTextBox1.ForeColor = FontDialog1.Color
      RichTextBox1.Font = FontDialog1.Font
   End If
End Sub
```

Q3 (B)

(1) Explain any 2 Loop structures in VB.Net with example.

Ans : (1) **Do Loop**

The Do Loop repeats the group of statements while or until the given boolean condition is true. The Do Loop statements are terminated by the Exit Do statement.

There are two methods of Do Loop. The first method is entry loop and the second method is exit do loop. In entry do loop the boolean condition is checks first, and the exit Do-loop checks the boolean condition after the execution of loop statements. The syntax of Do Loop is given below.

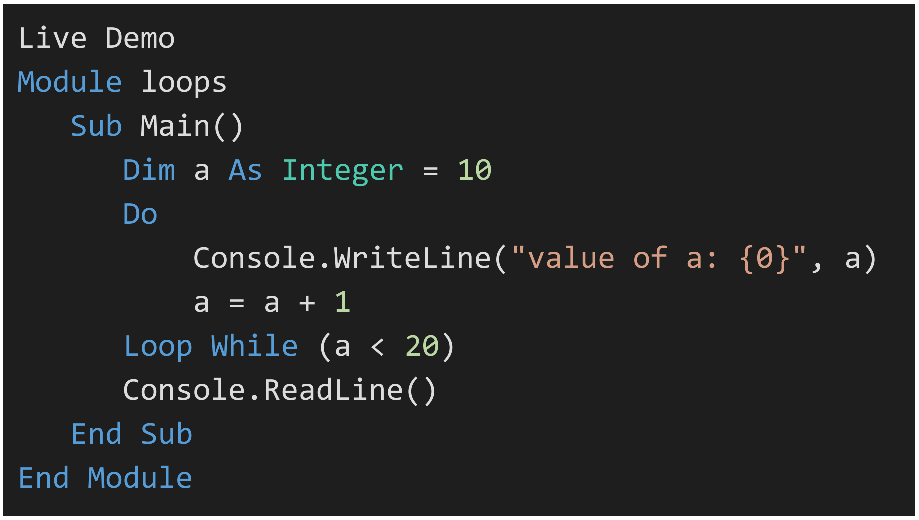
Method 1

```
Do { While | Until } condition
   [ statements ]
   [ Continue Do ]
   [ statements ]
   [ Exit Do ]
   [ statements ]
Loop
```

Method 2

```
Do
   [ statements ]
   [ Continue Do ]
   [ statements ]
   [ Exit Do ]
   [ statements ]
Loop { While | Until } condition
```

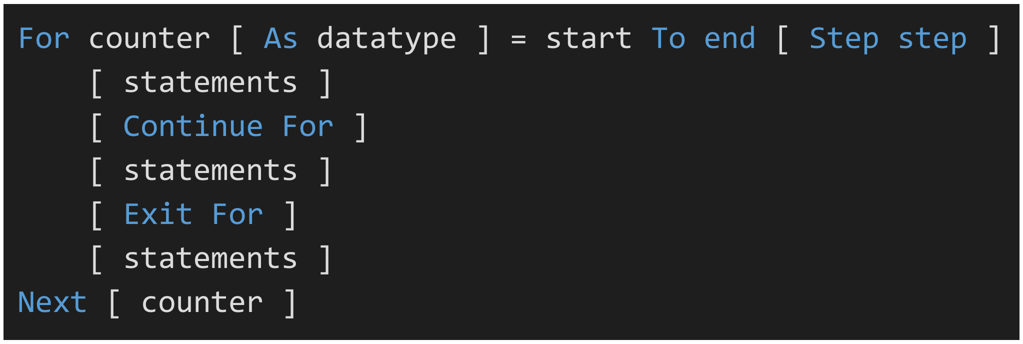
Example of Do Loop



```
Live Demo
Module loops
   Sub Main()
      Dim a As Integer = 10
      Do
          Console.WriteLine("value of a: {0}", a)
          a = a + 1
      Loop While (a < 20)
      Console.ReadLine()
   End Sub
End Module
```

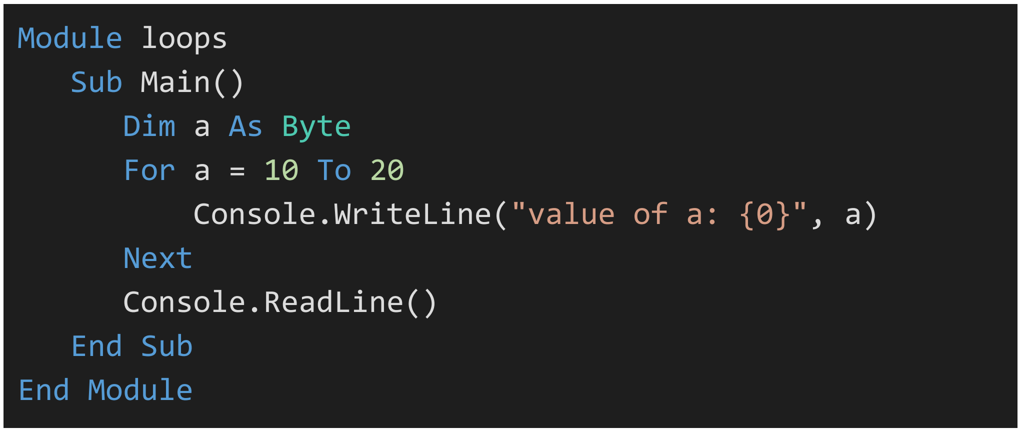
(2) For Next Loop

The For Next loop repeats a group of statements a specified number of times and a loop index counts the number of loop iterations as the loop executes.The syntax for this loop is :



```
For counter [ As datatype ] = start To end [ Step step ]
    [ statements ]
    [ Continue For ]
    [ statements ]
    [ Exit For ]
    [ statements ]
Next [ counter ]
```

Example of For Next Loop



```
Module loops
   Sub Main()
      Dim a As Byte
      For a = 10 To 20
          Console.WriteLine("value of a: {0}", a)
      Next
      Console.ReadLine()
   End Sub
End Module
```

(2) Describe the basic properties or Windows Forms in VB.Net.

Ans : Following table lists down the important properties of a form in VB.Net.

Property	Uses
BackColor	Sets the background color for the form
BackgroundImage	Sets the background image for the form
Font	Get or sets the font used in the form
FormBorderStyle	Get or set border style of a form
Text	Provide the title for a Form Window
Name	This is the actual name of the form
AcceptButton	Get or sets the form button if the enter key is pressed.
CancelButton	The button that's automatically activated when you hit the Esc key.
AllowDrop	Specifies whether to accept the data dragged and dropped onto the form.
Control Box	Determines whether the ControlBox is available by clicking the icon in the upper left corner of the window
Autoscroll	Specifies whether to enable auto scrolling.
HelpButton	Determines whether a Help button should be displayed in the caption box of the form.
MinimumSize	Specifies the minimum height and width of the window you can minimize.
MaximumSize	Specifies the maximum height and width of the window you maximize.

(3) Define & differentiate: Text box & Rich Text Box. Also list down any 3 properties of Text Box.

Ans :**Text Box :**

A TextBox control is used to display, or accept as input, a single line of text during runtime.The default setting is that it will accept only one line of text, but you can modify it to accept multiple lines.

Rich Text Box :

A RichTextBox control is used for displaying, entering, and manipulating text with formatting. The RichTextBox control does everything the TextBox control does, but it can also display fonts, colors, and links; load text and embedded images from a file; undo and redo editing operations; and find specified characters.

Difference between TextBox and RichTextBox

A RichTextBox is a better choice when it is necessary for the user to edit formatted text, images, tables, or other rich content. For example, editing a document, article, or blog that requires formatting, images, etc is best accomplished using a RichTextBox.

A TextBox requires less system resources then a RichTextBox and it is ideal when only plain text needs to be edited (i.e. usage in forms).

A RichTextBox mainly used if you want more control over styling the text color, type, font, alignment etc. So anything you can do in Microsoft Word, you can do with a RichTextBox. It can be used to save or display '.rtf' files with ease.

A Textbox is basically used to display or get one line input. You can have a multi-line TextBox which is used mainly to display or get more than one one-liner and keeps you from having to manage multiple TextBox's. Also keeps your UI a little more tidy.