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**M70-176**

## **Designing and Implementing Desktop Applications with Microsoft(r) Visual Basic(r) 6.0**

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### **Study Notes**



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#### **Deriving the Physical Design**



Assess the potential impact of the logical design on performance, maintainability, extensibility, and availability.



Design Visual Basic components to access data from a database.



Design the properties, methods, and events of components.



#### **Establishing the Development Environment**



Establish the environment for source code version control.



#### **Creating User Services**



Implement navigational design.



Create data input forms and dialog boxes.

#### **What is a TreeView control?**

A TreeView control displays a hierarchical list of Node objects, each of which consists of a label and an optional bitmap. A TreeView control is typically used to display files and directories on a disk or any other kind of information that may usefully be displayed as a hierarchy.



Write code that validates user input.



Add an ActiveX control to the toolbox.



Instantiate and invoke a COM component.




Implement online user assistance in a desktop application.



Implement error handling for the user interface in desktop applications.

 Write code that processes data entered on a form

## **Creating and Managing COM Components**

 Create a COM component that implements business rules or logic. Components include DLLs, ActiveX controls, and active documents.

### **What is an in-process server?**

An in-process server is implemented as a DLL file. It runs in the same process space of the client. An in-process server typically runs faster than an out-of-process server because the code runs in the same address space as the calling application. One of the disadvantages of an in-process server is that it is less fault-tolerant.

### **What is an out-of-process server?**

An out-of-process server is implemented as an EXE file. It runs out of the process space of the client. An out-of-process server is a stand-alone application that runs on the server and takes advantage of the server. The server components run in a separate address space from the calling application.

 Create ActiveX controls.

### **What is an ActiveX control?**

An ActiveX control is a standard user interface element that allows to assemble forms and dialog boxes . They can be debugged in process, so the developer can step from the code for the test form, to the code for the ActiveX control project. ActiveX controls can be compiled directly into an application's executable, or into .ocx files.

 Create an active document.

### **What is UserDocument object?**

UserDocument is the base object of an ActiveX document. It has most, but not all the events of a Form object. The events that are present on a Form object but not present on a UserDocument object are as follows:

LinkClose, Activate, Deactivate, LinkError, LinkExecute, LinkOpen, Load, Unload, QueryUnload etc.


### **What is a Hyperlink object?**


The Hyperlink object provides the ActiveX hyperlinking functionality to a control. The control can request to jump to a given URL or to navigate through the history list, by using the properties and the methods of the Hyperlink object.

### **What is NavigateTo method used for?**

NavigateTo method executes a hyperlink jump to the specified target.

NavigateTo method can be used to jump from one ActiveX document to another. If you create multiple ActiveX documents and your target container application is a browser that supports Hyperlink object, you must use NavigateTo method to open the next document.

 Debug a COM client written in Visual Basic.

 Compile a project with class modules into a COM component.

### What is Instancing property?

Instancing property determines whether a class is private or public. It also determines how other applications create instances of the class. The following values can be specified for the Instancing property:

<b>Private</b>	Other applications cannot create instances of the object. Private objects are only used within the component.
<b>PublicNotCreatable</b>	Other applications can use objects of this class only if the component creates objects first.
<b>MultiUse</b>	One instance of the component can provide any number of objects created in this manner.
<b>GlobalMultiUse</b>	It is like MultiUse, with one addition, i.e., properties and methods of the class can be invoked as if they were simply global functions.
<b>SingleUse</b>	Allows other applications to create objects from the class, but every object of the class starts a new instance of the component.
<b>GlobalSingleUse</b>	It is like SingleUse, except that properties and methods of the class can be invoked as if they were simply global functions.

 Use Visual Component Manager to manage components.

 Register and unregister a COM component.

### Creating Data Services

 Access and manipulate a data source by using ADO and the ADO Data control.

### What is a Connection object?

A Connection object provides a link between the program and the data source. It represents the connection made with the data source through the OLE DB data provider. It handles the communication between the solution and the data source. The Connection object can support multiple lower level objects such as Recordset, Command, and other objects. A Connection object is also used where transaction processing is handled in the ADO model.


### What is a Command object?

A Command object contains specific information about data retrieved from a database connection. A Command object can be used on a database object such as a table, view, stored procedure, or a SQL query. It is useful when defining query parameters, or executing a stored procedure that returns output parameters. It can be used in conjunction with the ADO Views and Procedures collections, to store queries in the database.

### What is a Recordset object?

Recordset is an ADO object representing a set of records returned from a query. It also returns a cursor of the records. A Recordset object contains a Fields collection containing Field objects. Each of them represents a single column of data, within the Recordset object.

## **Testing the Solution**


-  Given a scenario, select the appropriate compiler options.

### **What is Locals window?**

Locals window is a debugging window. It displays the value of variables within the scope of the current procedure. As execution switches from procedure to procedure, the contents of the Locals window change to reflect only the variables applicable to the current procedure. It can be used to see the value of variables at run-time.

### **What is Call Stack window?**

Call Stack window is a debugging window. It displays a list of currently active procedure calls during break mode. When code is executed in a procedure, that procedure is added to a list of active procedure calls. Each time a procedure calls another procedure, it is added to the list. Called procedures are removed from the list when execution returns to the calling procedure. Procedures called from the Immediate window are also added to the call's list.

-  Control an application by using conditional compilation.

### **What is a compiler directive expression?**


A compiler directive expression is the required part of the #Const directive. #Const directive is used to define conditional directive constants for Visual Basic. Literal statements, other conditional compiler constants, or any combination of arithmetic or logical operators except IS keyword, can be used as a compiler directive expression.

Variables, user-defined functions, and Visual Basic functions cannot be used in a compiler directive expression.

-  Set watch expressions during program execution.

### **What is Watch window?**


Watch window is a debugging window. It shows the current watch expressions, whose values are to be monitored, as the code runs. In Watch window, the Context column indicates the procedure or module(s) in which each watch expression is evaluated. The Watch window can display a value for a watch expression only if the current statement is in the specified context. Otherwise, the Value column shows a message indicating that the statement is not in context. It can be used to view the value of variables at run-time.

-  Monitor the values of expressions and variables by using the Immediate window.





### **What is Immediate window?**

Immediate window is a debugging window. It displays information that results from debugging statements in the code, or the information requested by typing commands directly into the window. It can be used to view the value of variables at run-time.



-  Implement project groups to support the development and debugging processes.

-  Given a scenario, define the scope of a watch variable.

## **Deploying an Application**

-  Use the Package and Deployment Wizard to create a setup program that installs a desktop application, registers the COM components, and allows for uninstall.
-  Plan and implement floppy disk-based deployment or compact disc-based deployment for a desktop application.
-  Plan and implement Web-based deployment for a desktop application.
-  Plan and implement network-based deployment for a desktop application.

#### **Maintaining and Supporting an Application**

-  Fix errors, and take measures to prevent future errors.
-  Deploy application updates for desktop applications.