Theory Questions

1. What is a base class and a derived class

A base class is a class all other classes are derived from; all other classes acquire features from the base class. A derived class is a class derived from other classes

Example

**Class** Net {

public virtual void Act()

{

//Base class

}

}

**Class** Perl : Net

{

public override void Act()

{

Console.WriteLine(“ This is a derived class”);

}

}

**Class** Python : Net

{

public override void Act()

{

Console.WriteLine(“ This is a derived class”);

}

}

1. Define Overriding?

Method over riding means two identical methods with the same name and parameter. One should be in base class and other method should be in derived class. You can override the functionality of base class to create a same name method with same signature in derived class. You can achieve method overriding using inheritance. Virtual and Override keywords are used to achieve method overriding.

1. Can you use multiple inheritances in .NET?

Multiple inheritance is not allowed because the compiler get confused.

Explanation

Let take two classes shape1 and shape2 they both have the CalculateArea() method  
  
Class Shape1  
{  
     public void CalculateArea()  
     {  
       //  
     }  
}  
  
There is another class shape2 that one also has same method   
Class Shape2  
{  
     public void CalculateArea()  
     {  
       //  
     }  
}  
  
Now I have a child class Circle, it derives from both SHape1 and shape2;  
  
public class Circle: Shape1,shape2  
{  
}

In this example the system doses not know which calculate area method to be called. Both have same signatures. So compiler will get confused. That’s why multiple inheritances are not allowed.

1. What is an interface?

An interface is defined as a blueprint all the classes inheriting the interface should follow. Interfaces define properties, methods, and events, which are the members of the interface

Example

**Interface** IPerl

{

void Read();

}

Class Test: IPerl {

public void Read();

{

Console.WriteLine("Read");

}

}

Class Program

{

static void Main()

{

IPerl perl = new Test(); // Create instance.

perl.Read(); // Call method on interface.

}

}

1. Define MVC and briefly describe each of the components (i.e. M, V and C)?

MVC

The model View Controller is an architectural pattern that separates an application into three main logical components: the model, the view, and the controller.

Model: This level is the data layer level that interacts with the database to process data being set by a user. The major functionality of the application will be done on this level

Views: The view is the presentation layer, which can also be referred to as the GUI graphical user interface. This level displays processed information for a user to view.

Controller: Controller is the brain of the programme; it serves as the middleman between the view and model. It serves users with views, takes user request to the Model to be processed, and collects the processed information and display in a view for the user to see.

1. You are writing a C#.NET MVC application and using a MySQL database.

You choose to encrypt some of the sensitive information in the database (field level) using the AES\_ENCRYPT method.

a.       Describe the pros and cons of using this method

b.      Where would you store the encryption key used in the AES\_ENCRYPT method

 i.      Note: This key needs to be different per instance of the application (i.e. at each client’s site)

Pros and Cons  of Using the AES\_ENCRYPT Method In C#.NET

PROS

* In asymmetric or public key, cryptography there is no need for exchanging

keys, thus eliminating the key distribution problem.

* The primary advantage of public-key cryptography is increased security: the

private keys do not ever need to be transmitted or revealed to anyone.

* Can provide digital signatures that can be repudiated

Cons

* A disadvantage of using public-key cryptography for encryption is speed:

there are popular secret-key encryption methods which are significantly faster

than any currently available public-key encryption method.

The public and private key generated from the ASE encrypt method can be stored in a n a user keystore using various CspParameters