brahim mohammed SD_PD 34

Common Language Runtime (CLR) in C#

CLR is the basic and Virtual Machine component of the **.NET Framework**. It is the **run-time enviornment in the .NET Framework** that runs the codes and helps in making the development process easier by providing the various services.

1- what is WCF.

is a framework for building service-oriented applications.

Using WCF, you can send data as asynchronous messages from one service endpoint to another.

2- what is Framework:

framework is a real or conceptual structure intended to serve as a support or guide for the building of something that expands the structure into something useful.

3- how to move anything between pages in asp.net .

Method 1 - Url parameter passing

- Pros : Simple to use, can handle relatively large data loads, works everywhere
- Cons : Looks ugly, not search engine friendly, very insecure, open to tampering

Method 2 - Form Posting

Method 3 - Session Variables

Method 4 - Web Cache

Method 5 – Cookies

4- compare between cookie & session in asp "security".

Sessions:-

Sessions are stored per-user in memory

(or an alternative Session-State) on the server.

Sessions use a cookie(session key) to tie the user to the session. This means no "sensitive" data is stored in the cookie on the users machine.

Cookies:-

Cookies are stored per-user on the users machine.

A cookie is usually just a bit of information.

Cookies are usually used for simple user settings colours preferences ect. No sensitive information should ever be stored in a cookie.

4-what is purpose of virtual key word.

We use Virtual keyword in the base class method so that we can achieve Runtime polymorphism. or you can better say Late Binding. you can override the base class method in the derived class.

5-what is purpose of static constructor.

A static constructor is used to initialize any static data, or to perform a particular action that needs to be performed once only. It is called automatically before the first instance is created or any static members are referenced.

Properties:

- **A static constructor does not take access modifiers or have parameters.**
- **A class or struct can only have one static constructor.**
- **Static constructors cannot be inherited or overloaded.**
- **A static constructor cannot be called directly and is only meant to be called by the common language runtime (CLR). It is invoked automatically.**
- **The user has no control on when the static constructor is executed in the program.**

1-diff between stack & heap

Stack is used for static memory allocation .

The stack is always reserved in a LIFO order.

access to this memory is very fast.

Stack is thread specific

Heap for dynamic memory allocation.

accessing this memory is a bit slower.

heap size is only limited by the size of virtual memory.

Heap is application specific

2- diff between stack & queue

stack uses LIFO (last in first out) method to access elements

Stack has only one end open for pushing and popping the data

Queue uses FIFO (First in first out) method to access elements

Queue has both ends open for enqueuing and dequeuing the data

3- diff between overload & override?

Overriding is a run-time concept while overloading is a compile-time concept.

Overloading occurs when two or more methods in one class have the same method name but different parameters

Overriding means having two methods with the same method name and parameters (i.e., *method signature*). One of the methods is in the parent class and the other is in the child class. Overriding allows a child class to provide a specific implementation of a method that is already provided its parent class.

4- Can we define virtual constructor?

Virtual Constructor is an idiom that allows you to do something that C++ doesn't directly support.

You can get the effect of a virtual constructor by a virtual clone() member

function (for copy constructing), or a virtual create() member function

---

Variable hiding happens when we declare a property in a local scope that has the same name as the one we already have in the outer scope

Method hiding may happen in any hierarchy structure in java. When a child class defines a static method with the same signature as a static method in the parent class, then the child's method hides the one in the parent class.

5- Can we define private constructor?

A private constructor is a special instance constructor. It is generally used in classes that contain static members only. If a class has one or more private constructors and no public constructors, other classes (except nested classes) cannot create instances of this class.

6- What's abstract class?

Abstract classes are classes that contain one or more abstract methods.

An abstract method is a method that is declared, but contains no implementation

Abstract classes may not be instantiated

7- What's virtual function?

A virtual function is a special form of member function that is declared within a base class and redefined by a derived class. The keyword virtual is used to create a virtual function, precede the function's declaration in the base class

virtual function is a function which gets override in the derived class and instructs the C++ compiler for executing late binding on that function.

shymaa mohamed SD_PD 34

1- what is static function and why i use it?

   A static method means that it can be accessed without creating an object of the class cannot access any variable of its class except for **static variables**.

→ a regular function can access static variables but a static function cannot access regular variables

2- what is polymorphism?
   Polymorphism means "many forms", and it occurs when we have many classes that are related to each other by inheritance.

Soaad Abdel-aziz SD_.Net&cross Platform mobile 34

1-what are the 4 basics of OOP

Abstraction: means using simple things to represent complexity.

Inheritance:l ets programmers create new classes that share some of the attributes of existing classes.

Polymorphism:lets programmers use the same word to mean different things in different contexts

Encapsulation is the process of combining data and functions into a single unit called class. In Encapsulation, the data is not accessed directly; it is accessed through the functions present inside the class. In simpler words, attributes of the class are kept private and public getter and setter methods are provided to manipulate these attributes

- (Protects the code from others-Code maintainability.)

5-In DB --->difference btw delete ,drop ,truncate

- TRUNCATE is a DDL command
- TRUNCATE removes all rows from a table.
- DROP is a DDL command
- The DROP command removes a table from the database.
- DROP and TRUNCATE operations cannot be rolled back
- DELETE is a DML command.
- The DELETE command is used to remove rows from a table based on WHERE condition.
- DELETE operations can be rolled back

Commit is used for permanent changes. When we use Commit in any query then the change made by that query will be permanent and visible. We can't Rollback after the Commit.

Rollback is used to undo the changes made by any command but only before a commit is done. We can't Rollback data which has been committed in the database with the help of the commit keyword.
ID greater than 10

begin tran tranName
Command for operation
Rollback tran tranName

Amr Mahdy SD_Software Architect

2 - el Variables Allocated in Stack or Heap ?

Variables allocated on the stack are stored directly to the memory and access to this memory is very fast

Variables allocated on the heap have their memory allocated at run time and accessing this memory is a bit slower

3 - Abstract Class can implement interface ??

Yes, Classes can implement the interface and not extends.

What is meant by Interface?

Ans: Multiple inheritance cannot be achieved in java. To overcome this problem Interface concept is introduced.
An interface is a template which has only method declarations and not the method implementation

abstract class can have both “Abstract” methods and “Non-abstract” methods that are a concrete class.

4 - Diff between Abstract Class and Concrete Class ?

concrete class can be instantiated because it provides (or inherits) the implementation for all of its methods.

An abstract class cannot be instantiated because at least one method has not been implemented.

5- What is Aggregate Functions ?

An aggregate function performs a calculation on a set of values, and returns a single value. Except for COUNT, aggregate functions ignore null values. Aggregate functions are often used with the GROUP BY clause of the SELECT statement.

Deterministic functions always return the same result any time they are called with a specific set of input values and given the same state of the database. **Nondeterministic** functions may return different results each time they are called with a specific set of input values even if the database state that they access remains the same

5- What is Triggers with Example ?

Trigger: A trigger is a stored procedure in database which automatically invokes whenever a special event in the database occurs. For example, a trigger can be invoked

when a row is inserted into a specified table or when certain table columns are being updated

```
create trigger [trigger_name]
[before | after]
{insert | update | delete}
on [table_name]
[for each row]
[trigger_body]
```

Amal Ashry SD_PD 34

3- what is the primary key and what is the difference between it and the unique constraint?

PRIMARY KEY: A primary key is a field which can uniquely identify each row in a table. And this constraint is used to specify a field in a table as primary key.

Only one primary key is allowed to use in a table.

does not accept the any duplicate and NULL values

UNIQUE : This constraint when specified with a column, tells that all the values in the column must be unique. That is, the values in any row of a column must not be repeated

Unique key constraints can accept only one NULL value for column

A table can have more than one unique key

Ahmed Marof (.Net Mobile)

1- what is view?

view is a searchable object in a database that is defined by a query. Though a view doesn't store data, some refer to a views as "virtual tables,"

A view can combine data from two or more table, using joins, and also just contain a subset of information.

Trigger is a special function/procedure defined to execute automatically when any data manipulation statement occurs on a table/view.

View is a virtual table. Can be created on multiple tables. You can get data from many tables (virtually), but u cannot modify data on a view. Its just a VIEW as its name specifies.

2- what is the importance of view?

Enforce Business Rules- Consistency - Security - Simplicity - Space

3- can you make object from abstract class?

why? what the importance of it?

NO, **because it does not have a complete implementation**

The abstract class and inheritance collectively ensures that most of the code are written using abstract and higher level classes, so that it can leverage Inheritance and Polymorphism to support future changes.

-software flexible enough to support future changes.

1. connected vs. disconnected modes in database and classes of each of them.

The ***connected*** environment provides forward-only, read-only access to data in the data source and the ability to execute commands against the data source. The connected classes provide a common way to work with connected data regardless of the underlying data source. They include `Connection`, `Command`,`DataReader`, `Transaction`, `ParameterCollection`, and `Parameter` classes.

The ***disconnected*** environment allows data retrieved from the data source to be manipulated and later reconciled with the data source. The disconnected classes provide a common way to work with disconnected data regardless of the underlying data source. They include
the `DataSet`, `DataTable`, `DataColumn`, `DataRow`, `Constraint`, `DataRelationship`, and `DataView` classes.

ADO.NET introduces the connected `DataAdapter` class to bridge the data source and disconnected classes by way of the connected classes

`DataAdapter` is an abstraction of the connected classes that simplifies filling the disconnected `DataSet` or `DataTable` classes with data from the data source and updating the data source to reflect any changes made to the disconnected data.

2. difference between object and class.

> Class is a **group of similar objects**.

A class is used to bind data as well as methods together as a single unit.

A class doesn't take any memory spaces when a programmer creates one.

The class has to be declared only once.

-

> Object is a **real world entity** such as pen, laptop, mobile, bed, keyboard, mouse, chair etc.

An object is the instance of the class, which helps programmers to use variables and methods from inside the class.

An object takes memory when a programmer creates one.

Objects can be declared several times depending on the requirement.

3. what is delegate.

A **delegate** is a reference type variable that holds the reference to a method. The reference can be changed at runtime.

Delegates are especially used for implementing events and the call-back methods. All delegates are implicitly derived from the **System.Delegate**class.

4. online reservation system should be built in connected or diconnected model.

Connected Mode:- because in connected architecture a **DataReader** is used for retrieving data from the database. Here a connection is always maintained. Update, Delete, Read and Select operations can be performed as the data is accessed in the database, so that a connection must be be maintained.

5. what is friend function.

A friend function of a class is defined outside that class' scope but it has the right to access all private and protected members of the class

Even though the prototypes for friend functions appear in the class definition, friends are not member functions.

6. passing by ref and passing by value.

Pass by value:

Passing by value means that the value of the function parameter is copied (green arrow in Diagram 2) into another location of your memory, and when accessing or modifying the variable within your function, only the copy is accessed/modified and the original value is left untouched.

Pass by Reference

Passing by reference means that the memory address of the variable (a pointer to the memory location) is passed to the function. This is unlike passing by value, where the value of a variable is passed on

7. private and public key words.

`private` - Only the current class will have access to the field or method.

`protected` - Only the current class and subclasses (and sometimes also same-package classes) of this class will have access to the field or method.
`public` - Any class can refer to the field or call the method.

8. what is this key word.

Keyword THIS is a reference variable in Java that refers to the current object.

Mirna Amr SD_PD 34

1-What is the difference between table and view ?

Table: Table is a preliminary storage for storing data and information in RDBMS. A table is a collection of related data entries and it consists of columns and rows.

View: A view is a virtual table whose contents are defined by a query. Unless indexed, a view does not exist as a stored set of data values in a database. Advantages over table are

- We can combine columns/rows from multiple table or another view and have a consolidated view.
- Views can be used as security mechanisms by letting users access data through the view, without granting the users permissions to directly access the underlying base tables of the view
- It acts as abstract layer to downstream systems, so any change in schema is not exposed and hence the downstream systems doesn't get affected.

3-Can a Private method override and why ?

You cannot override a private method

Because Only the current class will have access to the method.

-Can a protected method override and why?

Yes – using public

A nested class is a class which is declared in another enclosing class. A nested class is a member and as such has the same access rights as any other member. The members of an enclosing class have no special access to members of a nested class

→ `private virtual void fun() in base class`

1-What is the .NET Framework ?

The .Net framework is a software development platform developed by Microsoft. The framework was meant to create applications, which would run on the Windows Platform. The first version of the .Net framework was released in the year 2002.

The version was called .Net framework 1.0. The .Net framework has come a long way since then, and the current version is 4.7.1.

The .Net framework can be used to create both - **Form-based** and **Web-based** applications. Web services can also be developed using the .Net framework.

→supports various programming languages such as Visual Basic and C#.

2-can the constructor have a private access modifier and why ?

yes , The modifier can be used so you control where the object can be constructed.

Using private constructor we can ensure that no more than one object can be created at a time.

By providing a private constructor you prevent class instances from being created in any place other than this very class.

4-What is the Assembly File ?

An assembly is a file that is automatically generated by the compiler upon successful compilation of every .NET application. It can be either a Dynamic Link Library or an executable file. It is generated only once for an application and upon each subsequent compilation the assembly gets updated. The entire process will run in the background of your application; there

is no need for you to learn deeply about assemblies. However, a basic knowledge about this topic will help you to understand the architecture behind a .NET application

---

3- what is virtual function puplic class a {

puplic int x() {}

}

public class b : a {

public int x() {}

}

is this override or not ?? override

so i can make override without virtual so why i use virtual function?

virtual function is a function which gets override in the derived class and instructs the C++ compiler for executing late binding on that function.

difference between reference ,pointer

1. A pointer can be re-assigned any number of times while a reference cannot be re-assigned after binding.
2. Pointers can point nowhere (`NULL`), whereas a reference always refers to an object.
3. You can't take the address of a reference like you can with pointers.
4. There's no "reference arithmetic" (but you can take the address of an object pointed by a reference and do pointer arithmetic on it as in `&obj + 5`).
5. Pointers: A pointer is a variable that holds memory address of another variable. A pointer needs to be dereferenced with ***** operator to access the memory location it points to.

6. References : A reference variable is an alias, that is, another name for an already existing variable. A reference, like a pointer, is also implemented by storing the address of an object.
   A reference can be thought of as a constant pointer (not to be confused with a pointer to a constant value!) with automatic indirection, i.e the compiler will apply the ***** operator for you.

7-Can struct inherited?

No, because it sealed

8-what is sealed modifier?

Sealed type cannot be inherited

Sealed modifier can be applied to instance ,methods, properties, event and index

Sealed member are allowed in sealed class and non sealed class