## Validated Questions:

## Questions Being Tested:

1. **What is your process for adding a feature to software?**
   * **Test driven design?**
     + **What are some of the pros and cons of test-driven design?**
2. **What coding practices do you feel are important to follow?**
   * This could be patterns like DDD or TDD or it could be principles like separation of concerns.
3. Horizontal vs. Vertical integration process.
4. **What is your method for error handling?**
5. **Explain the concept of “abstraction” using an everyday example** 
   * Ex: Property manager abstracts “Landlord” duties from a real estate investor, so they can concentrate on the investing side
   * Ex 2: A Piano Teacher abstracts away the need to self-figure out what exercises and songs to learn. You’re outsourcing *how* to learn to someone who knows how to teach
6. **Explain the concept of “iteration” using an everyday example**
7. Let’s say your yard is a total mess. The grass is high from one end of the fence to the other, your garden is overgrown, and the mulch is 5 years old. Apply *iteration* and explain how you would iteratively get this yard to look nice.
8. Explain the benefits and drawbacks of story points
9. Explain the benefits and drawbacks of sprints
10. Explain the benefits of Infrastructure as a service?
11. What do you believe are the major advantages of cloud computing?
12. **What has been the most challenging hurdle you have had in application development, how have you overcome it?**
13. **Brevity vs. Clarity: Break this down/talk about it**
14. Pros and Cons of Object-Oriented Programming?
15. Simple V.S Easy (Need to find more context to put behind this)
16. OOD vs. Functional?
17. “Let’s say your team is working for the Public Building Service, an arm of the GSA that is responsible for the maintenance and upkeep of all government buildings. They’ve asked you to create a feature where a building inspector can upload photos of their building inspection findings so they can document them visually and ensure issues are fixed. How would you approach the design and build for this?”
    * Follow Up: What are some of the questions you would ask stake holders in a grooming session before beginning this project?

**React Questions:**

**\*this is bare bones and intended to be expanded- this is a placeholder\***

**Composition vs Inheritance**

**Props vs state**

**Talk about props – props should be readonly**

**PITA Questions:**

**Tell me about the Agile process.**

**Why would I want to make Infrastructure as Code? What are some of the advantages or disadvantages?**

**Java# Questions:**

**What is meant by Method Overriding?**

Method overriding a language feature that allows a subclass or child class to provide a specific implementation of a method that is already provided by one of its superclasses or parent classes.

* Method name should be the same
* The argument should be the same
* Return type should also be the same

**What is method overloading?**

Method overloading is creating multiple methods with the same name with unique signatures in the same class. When we compile, the compiler uses overload resolution to determine the specific method to be invoke.

* Same method name
* Different argument types
* There may be different return types

**What is meant by an Exception?**

An Exception is a problem that can occur during the normal flow of execution. A method can throw an exception when something wails at runtime. If that exception couldn’t be handled, then the execution gets terminated before it completes the task. Try/Catch blocks can handle Exceptions.

**Difference between Serialization and Deserialization in Java.**

These are the differences between serialization and deserialization in java:

|  |  |
| --- | --- |
| **Serialization** | **Deserialization** |
| Serialization is the process which is used to convert the objects into byte stream | Deserialization is the opposite process of serialization where we can get the objects back from the byte stream. |
| An object is serialized by writing it an ObjectOutputStream. | An object is deserialized by reading it from an ObjectInputStream. |

**What are Loops in Java? What are three types of loops?**

Looping is used in programming to execute a statement or a block of statement repeatedly. There are three types of loops in Java:

1) For Loops

For loops are used in java to execute statements repeatedly for a given number of times. For loops are used when number of times to execute the statements is known to programmer.

2) While Loops

While loop is used when certain statements need to be executed repeatedly until a condition is fulfilled. In while loops, condition is checked first before execution of statements.

3) Do While Loops

Do While Loop is same as While loop with only difference that condition is checked after execution of block of statements. Hence in case of do while loop, statements are executed at least once.

**What is a default switch case?**

In a switch statement, default case is executed when no other switch condition matches. Default case is an optional case. It can be declared only once all other switch cases have been coded. In the below example, when score is not 1 or 2, default case is used.

public class switchExample {  
 int score = 4;  
 public static void main(String args[]) {  
 switch (score) {  
 case 1:  
 system.out.println("Score is 1");  
 break;  
 case 2:  
 system.out.println("Score is 2");  
 break;  
 default:  
 system.out.println("Default Case");  
 }  
 }  
 }

**What's the purpose of using Break in each case of Switch Statement?**

Break is used after each case (except the last one) in a switch so that code breaks after the valid case and doesn't flow in the proceeding cases too. If break isn't used after each case, all cases after the valid case also get executed resulting in wrong results.

**Can main() method in Java can return any data?**

In java, main() method can't return any data and hence, it's always declared with a void return type.

**C# Questions:**

**What is the difference between Console, Windows, Web applications and Web services?**

* Console applications are light weight programs run inside the command prompt (DOS) window. They are commonly used for test applications.
* Windows Applications are form based standard Windows desktop applications for common day to day tasks. Microsoft word is an example of a Windows application.
* Web applications are programs that used to run inside some web server (e.g., IIS) to fulfill the user requests over the http. A typical example of web application is Google.

**What are the differences between System.String and System.Text.StringBuilder classes?**

System.String is immutable. When we modify the value of a string variable, then a new memory is allocated to the new value and the previous memory allocation released. System.StringBuilder was designed to have a concept of a mutable string where a variety of operations can be performed without allocation separate memory location for the modified string.

**What's the difference between single equal sign "=" and double equal sign "=="?**

The Equality Operator (==) is used to compare two value type data items. Example: if (company == "Neudesic")

The Equals Sign (=) is used when to assigning a value to a variable. Example: string company = "Neudesic";

**What is serialization?**

When we want to transport an object through a network, then we have to convert the object into a stream of bytes. The process of converting an object into a stream of bytes is called Serialization. For an object to be serializable, it should implement ISerialize Interface. De-serialization is the reverse process of creating an object from a stream of bytes.

**What is method overloading?**

Method overloading is creating multiple methods with the same name with unique signatures in the same class. When we compile, the compiler uses overload resolution to determine the specific method to be invoke.

* Same method name
* Different argument types
* There may be different return types

**What is the difference between method overriding and method overloading?**

In method overriding, we change the method definition in the derived class that changes the method behavior. Method overloading is creating a method with the same name within the same class having different signatures.

**What are value types and reference types?**

A value type holds a data value within its own memory space.

Example: int age = 30;

A Reference type stores the address of the Object where the value is being stored. It is a pointer to another memory location.

Example: string company = "Neudesic";

**How do we use nullable types in .Net?**

Value types can take either their normal values or a null value. Such types are called nullable types.

int? someID = null;

if (someID.HasVAlue)

{

// Do something here

}

**What's the difference between an interface and an abstract class?**

Interfaces have all the methods having only declaration but no definition. In an abstract class, we can have some concrete methods. In an interface class, all the methods are public. An abstract class may have private methods.

**Write down the C# syntax to catch an exception.**

To catch an exception, we use try-catch blocks. Catch block can have a parameter of system.Exception type. (In this example, we can omit the parameter from catch statement.)

Example:

try

{

GetAllData();

}

catch (Exception ex)

{

throw ex;

}

**Can Multiple Catch Blocks be executed in C#?**

We can use multiple catch blocks with a try statement. Each catch block can catch a different exception.

int x = 0;

int div = 0;

try

{

div = 100 / x;

Console.WriteLine("Not executed line");

}

catch (DivideByZeroException de)

{  
 Console.WriteLine("DivideByZeroException");

}

catch (Exception ex)

{

Console.WriteLine("Exception");

}

finally

{

Console.WriteLine("Finally Block");

}

}

**What is Multithreading with .NET?**

Multithreading allows a program to run multiple threads concurrently. The real usage of a thread is not about a single sequential thread, but rather using multiple threads in a single program. Multiple threads running at the same time and performing various tasks are referred to as Multithreading.

**SQL Questions:**

**Describe what a Table is, in SQL?**

A table refers to a collection of data in an organized manner in form of rows and columns.

**What is a Primary Key?**

A Primary key is a column or a set of columns that uniquely identifies each row in the table.

**Can Primary Keys be null?**

Null values not allowed.

**What is an Auto Increment in SQL?**

Auto increment keyword allows the user to create a unique number to get generated whenever a new record is inserted into the table.

This keyword is usually required whenever PRIMARY KEY is used.

**What are View in SQL?**

Views in SQL are kind of like virtual tables. The result set of a stored query on the data, which the database users can query just as they would in a table.

Views can represent a subset of the data contained in a table. Consequently, a view can limit the degree of exposure of the underlying tables to the outer world: a given user may have permission to query the view, while denied access to the rest of the base table.

Views can join and simplify multiple tables into a single virtual table.

**What are Joins in SQL?**

A JOIN clause is used to combine rows from two or more tables, based on a related column between them. It is used to merge two tables or retrieve data from there.

**What is the difference between a LEFT JOIN and an INNER JOIN?**

* An INNER JOIN returns all common records in both tables.
* A LEFT JOIN will return all the rows from the left table AND all matching rows from right table. In case of no match with right side table it will return NULL value.

Query – Get all products of all categories –

SELECT p. ProductID , p. ProductName, c. CategoryName

FROM Category c INNER JOIN Product p ON c.CategoryID = p. CategoryID

Here in above query in case there are no products in some category then category would not be fetched at all. So to make sure that all the categories are listed use LEFT join instead of INNER JOIN. So the query can be changed like this –

SELECT p. ProductID , p. ProductName, c. CategoryName

FROM Category c LEFT JOIN Product p ON c.CategoryID = p. CategoryID

So all the categories are displayed here irrespective of presence of products in that category.

**Which SQL query is more efficient?**

1. SELECT employee FROM company WHERE firstname = "Homer" OR firstname = "Marge" OR firstname = "Bart";
2. SELECT employee FROM company WHERE firstname IN ("Homer", "Marge", "Bart");

**What is a TRANSACTION?**

A sequence of operations performed (using one or more SQL statements) on a database as a single logical unit of work. The effects of all the SQL statements in a transaction can be either all committed (applied to the database) or all rolled back (undone from the database).

BEGIN TRANSACTION;

DELETE FROM HumanResources.JobCandidate

WHERE JobCandidateID = 13;

COMMIT;

CREATE TABLE ValueTable (id INT);

BEGIN TRANSACTION;

INSERT INTO ValueTable VALUES(1);

INSERT INTO ValueTable VALUES(2);

ROLLBACK;

**What is the difference between DELETE and TRUNCATE statements?**

* Delete command is used to delete a row in a table. You can rollback data after using the delete statement. Enforces Table Constraints.
* Truncate is used to delete all the rows from a table. You cannot rollback data. Does not enforce Table Constraints. It is faster.

**Are NULL values same as a zero or a blank space?**

A NULL value is not at all same as that of zero or a blank space. NULL value represents a value which is unavailable, unknown, assigned or not applicable whereas a zero is a number and blank space is a character.

**What is a Stored Procedure?**

A stored procedure is a prepared SQL code that you can save, so the code can be reused over and over again. This can provide efficiencies, but also has some limitations as it uses more memory, and can only be executed in the database.

**What is the meaning of a “TRIGGER” in SQL?**

A Trigger in SQL is are a special type of stored procedures that are defined to execute automatically in place or after data modifications. It allows you to execute a batch of code when an insert, update or any other query is executed against a specific table.