**Developer screening - sample questionnaire (Total Time - 2 hours)**

**C#, OOP (20 min)**

1. What is the difference between a class and an Interface?  
   Class has both definition and implementation. Interface has only definition.
2. Can We Inherit Multiple Interfaces?  
   Yes, we can inherit multiple Interfaces.
3. What are the fundamental OOP concepts?  
   Encapsulation, Polymorphism, Abstraction, and Inheritance
4. What are the different types of classes in C#?  
   Abstract, Partial, Sealed, Static
5. How is Exception Handling implemented in C#?  
   Using Exception we can transfer control from One area to other.
6. What are access modifiers and name them  
   Used to set Accessibility or Visibility in the class, Public, Private, Protected, Internal
7. Can We Prevent My Class From Being Inherited And Becoming A Base Class From The Other Classes?  
   Sealed and Abstract Class
8. How Does Method Overloading Different From Overriding?  
   Overloading – Same name of multiple function with different parameters  
   Overriding – Change the implementation of a function from Parent Class
9. Can We Override Private Virtual Method? No
10. What is an Array? Give the syntax for a single and multi-dimensional array?  
    Array stores data in sequence. int[]
11. We have two classes class1 and class2, class2 inherit class1. If we make the object of class2 then which class's constructor called first?  
    Class 2
12. What will be the output of the following code?

Public abstract class baseClass

{

Void Print()

{

Console.WriteLine(“BaseClass Constructor”)

}

Public abstract void print1();

}

Public class ChildClass : BaseClass

{

Public void Print1()

}  
  
Execution Error

**SQL (15 min)**

1. **What is the difference between Primary key and Unique key?  
   Primary key – Used to identify a Unique Row, don’t support null values, Cluster Index Created.  
   Unique Key – Used to defend storing duplicate values in column(s), support one null, Non-Cluster Index Created.**
2. **Does View contain Data? No**
3. What are Views used for? To Provide combined data from one or multiple tables
4. What is a Relationship and what are they? Relationship in between two tables data, on table data must be present on another table
5. What are table valued and scalar functions? Function can return a Table or any single data types, Table Valued function can be used with Outer Apply key word
6. How can you insert NULL values in a column while inserting the data? Writing NULL
7. Write a SQL query to display the current date? getdate()
8. What is subquery in SQL? One Where clause dependent on another query data, can be used ‘=’ or ‘in’ or ‘not in’ key words
9. **What is the difference between DELETE and TRUNCATE statements?**

Delete keeps log, used to delete one or multiple rows

Truncate – used to delete al rows from a table without keeping logs

1. Answer below questions based on the entities provided **(10min)**

**Department:**

|  |  |
| --- | --- |
| **Department\_No** | **Department\_Name** |
| 10 | ECE |
| 20 | ECE |
| 30 | CSE |
| 40 | IT |

**Employee Details:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Employee\_No** | **Emp\_Name** | **Address** | **Age** | **Department\_No** | **Salary** |
| 1 | Anil | Hyderabad | 23 | 10 | 20000 |
| 2 | Sunil | Hyderabad | 22 | 10 | 21000 |
| 3 | Ajay | Chennai | 24 | 20 | 23000 |
| 4 | Vijay | Chennai | 25 | 30 | 22000 |
| 5 | James | Hyderabad | 24 | 50 | 230000 |

1. Write a Query to display employee details who are working in ECE department?  
   select Employee\_No, Emp\_Name, Address, Age, Salary from Employee\_Details where Department\_No in (select Department\_No fromDepartment where Department\_Name = ‘ECE’)
2. Write a Query to display employee details along with department\_name?  
   select Employee\_No, Emp\_Name, Address, Age, Salary, Department.Department\_Name  
   from Employee\_Details   
   inner join Department on Employee\_Details.Department\_No = Department.Department\_No
3. Write a Query to display employee details whose sal>20000 and who is working in ECE department?  
   select Employee\_No, Emp\_Name, Address, Age, Salary from Employee\_Details where   
   Salary > 20000 and  
   Department\_No in (select Department\_No fromDepartment where Department\_Name = ‘ECE’)
4. Write a Query to display employee details along with department\_name and who is working in ECE department, whose name starts with a?  
   select Employee\_No, Emp\_Name, Address, Age, Salary, Department.Department\_Name  
   from Employee\_Details   
   inner join Department on Employee\_Details.Department\_No = Department.Department\_No  
   where Department.Department\_Name = ‘ECE’ and Employee\_Details.Emp\_Name like ‘a%’
5. Write a Query to display employee details along with department\_name and whose age between 20 and 24?  
   select Employee\_No, Emp\_Name, Address, Age, Salary, Department.Department\_Name  
   from Employee\_Details   
   inner join Department on Employee\_Details.Department\_No = Department.Department\_No  
   where Employee\_Details.Age between 20 and 24
6. Write a Query to display employee detail with 2nd highest salary   
   select Employee\_No, Emp\_Name, Address, Age, Salary, Department.Department\_Name  
   from Employee\_Details   
   inner join Department on Employee\_Details.Department\_No = Department.Department\_No  
   where Salary = (select max(Salary) from Employee\_Details where Salary < select max(Salary) from Employee\_Details)

**Programming**

1. **Programming Task 1 (15 min)**

* Create a MVC web application to display a text pass as a parameter to the controller method and display it in the web form.

Available in the GitHub as ZIP

1. **Programming Task 2 (1 hour)**

Build a .NET/C# REST API application with Angular 2+ and Bootstrap front-end framework. Specific requirements are below.

* The application should provide a UI form with input fields as training name, start date, end date, and a Confirm button to submit the form.
* If the end date is before the start date, the application should display an error message and the message text should be defined externally.
* On Confirmation of saving the training name, start date and end date REST API should save details to DB and respond with Success message. Along with message, application should display number of days between the two date inputs.
* Unit/Integration test cases are mandatory

Available in the GitHub as ZIP