Practical Test Module 2 – AdvCS.NET & SQL Max Marks: 100

[Read the question fully first]

Part-I (Generic Collection)

Premium Customers (30 Marks)

A jeweler keeps records of his customers visiting his shop. He stores customer’s **mobile number, name, number of visits,** and **total purchase** about the customers who buy jewelries from his shop.

Objective

Working with Generic Collection

Problem Statement

The Jeweler wants to invite all his premium customers to one of his function. For that he wants to select those customers who have following criteria:

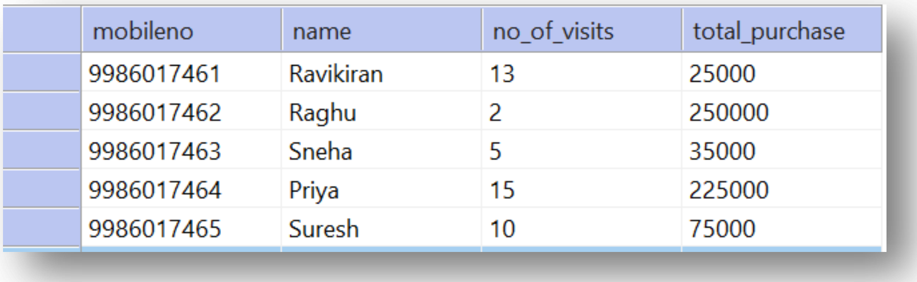
1. Customers who have purchased jewelries of **total worth >=2lakhs and above**.
2. Also, those customers are considered whose total purchase may or may not be meeting 2lakhs and above but their **number of visits** to his shop is **greater than 10**.

What to be implemented

Define a function **“GetPremiumCustomers”** which retrieves all the premium customers based on above assumptions and display them in Console Application.

Tasks to be completed:

1. Define an entity class “**Customer**” to represent the customer record with **properties** needed.
   Marks: 2
2. Create a list of **customers** with the fields for mobile number, name, number of visits, and total purchase. Insert the follow sample records in the list directly with hard-coded values (**DO NOT input from user**): **Marks: 2**



mobileno	name	no_of_visits	total_purchase
9986017461	Ravikiran	13	25000
9986017462	Raghu	2	250000
9986017463	Sneha	5	35000
9986017464	Priya	15	225000
9986017465	Suresh	10	75000

3. Define a class "**CustomerDataAccess**" and define its methods as below: **Marks: 2**

   List<Customer> GetPremiumCustomers()
   void DisplayCustomers (List<Customer> lstCust)

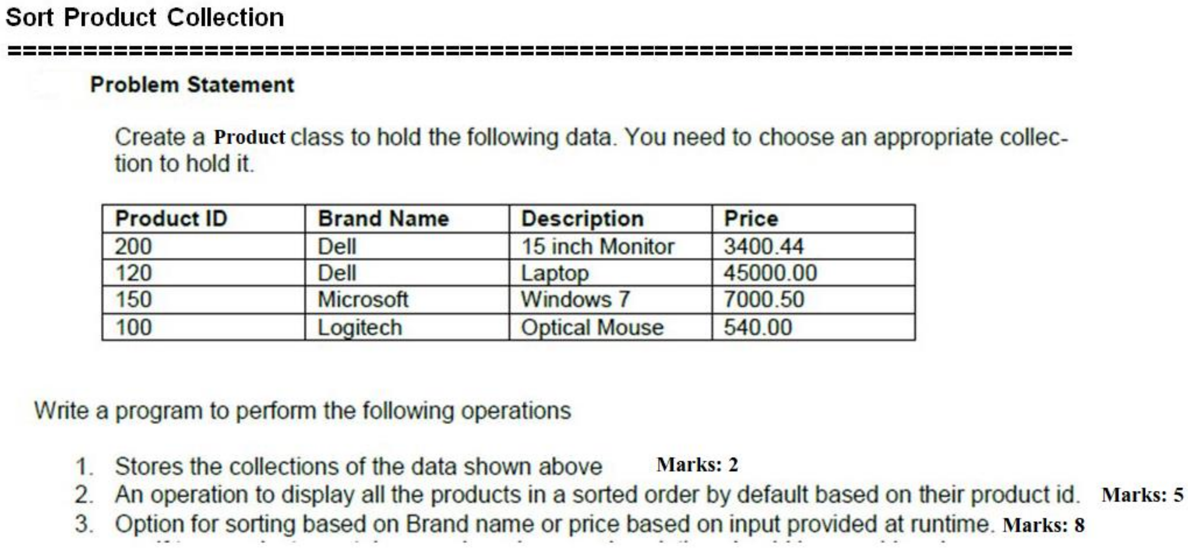
4. Write the code in the method **GetPremiumCustomers ()** to read all the premium customers records from collection and return the result. **Marks: 10**

5. Write the code in the method **DisplayCustomers ()** to display all the invited customers **Marks: 4**

6. In case, if there are no such premium customers in database then you should display the proper message as **"No premium customers present"**. **Marks: 6**

Your application should also handle exceptions if it is occurring anywhere. **Marks: 4**

Part-II (Generic Collection Sort) – 30 Marks



Sort Product Collection

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Problem Statement

Create a **Product** class to hold the following data. You need to choose an appropriate collection to hold it.

Product ID	Brand Name	Description	Price
200	Dell	15 inch Monitor	3400.44
120	Dell	Laptop	45000.00
150	Microsoft	Windows 7	7000.50
100	Logitech	Optical Mouse	540.00

Write a program to perform the following operations

1. Stores the collections of the data shown above **Marks: 2**
2. An operation to display all the products in a sorted order by default based on their product id. **Marks: 5**
3. Option for sorting based on Brand name or price based on input provided at runtime. **Marks: 8**

[Hint: Use IComparable<> and IComparer<> interface]

Part-III (LINQ)

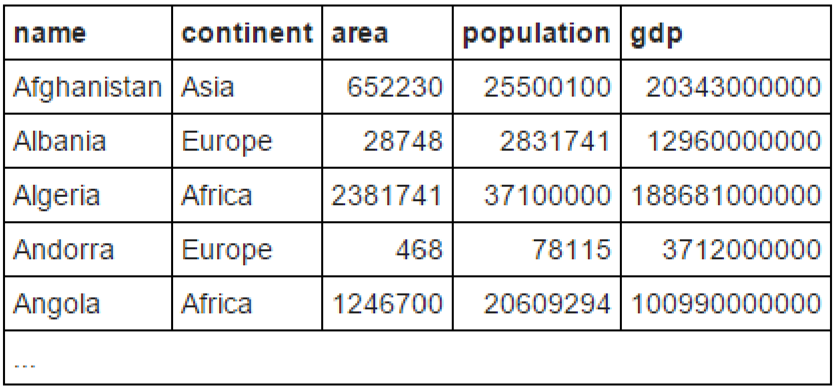
Countries and Population (20 Marks)

Store the below records in a collection as "**List of Countries"** as sample where **Country** class will have properties as per the columns:

- **Define the Country class: Name** as string, **Continent** as string **Area** as long, **Population** as long, **Gdp** as long **Marks:4**

- **Add the following records** *in the collection as given below:*

Countries **Marks:4**



name	continent	area	population	gdp
Afghanistan	Asia	652230	25500100	20343000000
Albania	Europe	28748	2831741	12960000000
Algeria	Africa	2381741	37100000	188681000000
Andorra	Europe	468	78115	3712000000
Angola	Africa	1246700	20609294	100990000000
...				

Ques: Write the **LINQ to Objects** queries to obtain the following results:

SL No	Query	Marks
1	List the name and continent of countries that are in the continents of either **Asia** or **Africa**. Order by name of the country.	4
2	Show the countries which belongs to continent Europe and having the per capita GDP greater than **Algeria'.(The per capita GDP is the gdp/population).**	4
3	List the name of countries that have a highest population?	4

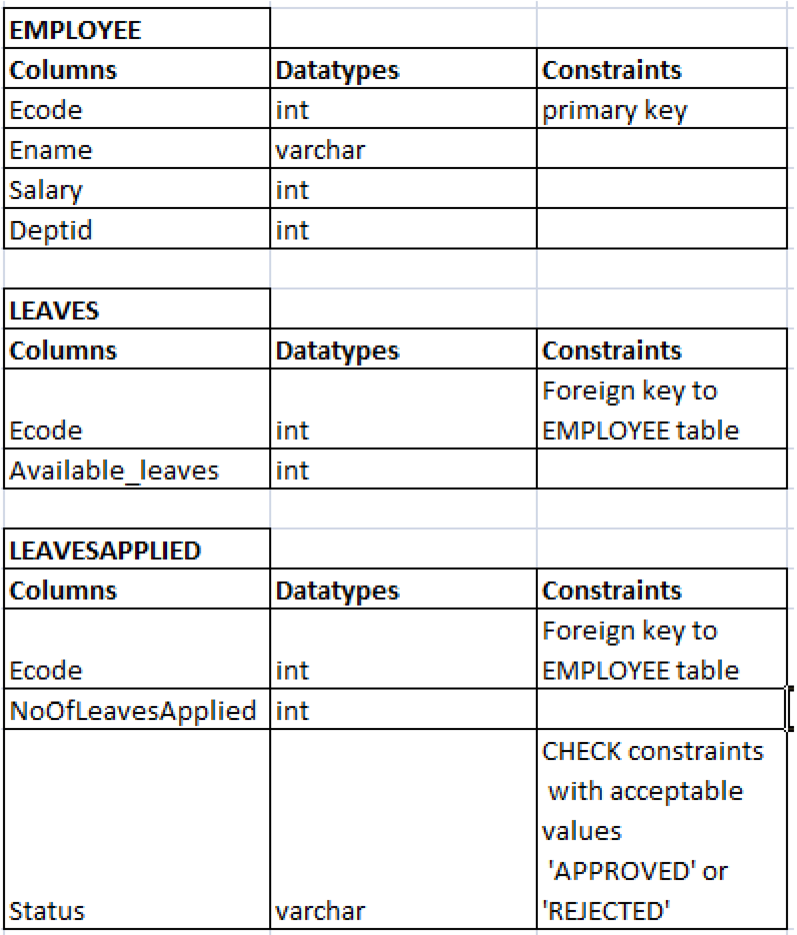
Additional Marks Distributions:

Coding Standards	Marks
Use of proper naming conventions for the variables, methods, parameters and classes	4
Use of proper data-types	4
Use of modularity	4
Use of proper access specifiers of different members of classes	4
Overall completeness	4

Part-IV (SQL/TSQL)

T-SQL Practice Question – Marks 20

Consider the following 3 tables in database for employees leave management:



EMPLOYEE		
Columns	**Datatypes**	**Constraints**
Ecode	int	primary key
Ename	varchar	
Salary	int	
Deptid	int	

LEAVES		
Columns	**Datatypes**	**Constraints**
Ecode	int	Foreign key to EMPLOYEE table
Available_leaves	int	

LEAVESAPPLIED		
Columns	**Datatypes**	**Constraints**
Ecode	int	Foreign key to EMPLOYEE table
NoOfLeavesApplied	int	
Status	varchar	CHECK constraints with acceptable values 'APPROVED' or 'REJECTED'

- EMPLOYEE table stores records of employees
- LEAVES table stores available leaves of the employees
- LEAVESAPPLIED table stored the record of leave request done by the employee

Tasks to be done:

1) Create a stored procedure **“sp_insert_leave_request”** with two parameters to Insert employee code and number of leaves requested in the table **LEAVESAPPLIED**. It should check whether number of leaves applied by the employee is available or not from the table **LEAVES**. **Marks:6**

2) If it is more than the available leaves in database, it should be rejected otherwise it should be approved. **Marks:6**

3) Once it is approved it should deduct the no of leaves applied from the **LEAVES** table for the employee. **Marks:6**

4) Status column in the table **LEAVESAPPLIED** should also be updated as **‘APPROVED’** or **‘REJECTED’** accordingly. **Marks:2**