**Dotnet Centric Computing** **BCSIT 6th Semester**

**Lab rules:**

1. Submit your lab reports on your own, no copying is allowed. You can collaborate while working with the project for conceptual clarifications, but the report should be written individually. Write your own codes and descriptions.

2. Create a folder named Labs as the parent folder, then create subfolders within Labs folder for each labs, e.g. Lab1, Lab2, etc. All your lab projects should be placed under Labs, and the solution name also should be Labs. Within Labs solution you will be creating Lab1, Lab2, etc. projects for each lab.

3. Write all the steps followed while accomplishing the project in your lab report. You can copy paste the screenshots of folder structures and the output.

**Lab1: Working with OOP concepts and LINQ in C#**

1.1. Create two folders, one for class library and another for console app that contains Program.cs file with main() method to consume the classes defined in classlib. Create two related classes of your own as classlib project in the class library folder, where one class should be the base class and the other one should be inherited one. Your base class should have at least two properties and one method, and the child class should contain at least two extra properties and one overriding method. The child class should also have one field of generic list type of the same class (e.g. Children in Person class). This is to demonstrate the aggregation, collection and generic concepts in OOP.

1.2. In the app folder instantiate an object of child class and initialize all the properties with some values. Also, add some (at least four) values to the generic list for the aggregated field. Print out those values with different print formats. For aggregated field use both for and foreach loop constructs to output the values on the console. Change the access modifiers for the properties and discuss the consequences. Test the cases for method over loaning, overriding and hiding cases and briefly comment on these concepts.

1.3. Withing your Program.cs class, write a sample code to demonstrate the concept of exceptional handling in C#.

1.4. Create a string array of at least ten major cities of Nepal and apply two simple LINQ queries and print the results. Later, use lambda expression or anonymous function to achieve the similar outcome as before. Briefly comment on LINQ and Lambda expression.