SIT221 –DATA STRUCTURES AND ALGORITHMS

LAB7: HASHTABLES

LAB OBJECTIVE:

The objective of this lab is to get hands on using Dictionaries.

SUBMISSION INSTRUCTIONS

Please submit your work to Week07 assignment folder. Please submit the following files:

PREPARATION

1. Download the template project available in Week07 resources folder. The solution has two projects: **DataStructures_Algorithms & Runner** projects.
2. You can download the project and copy files in **Week07** in your current project. Also copy file **Runner07_Task1** to your runner project.
3. Find tasks that you need to complete.

LAB TASKS

SHOPPING CENTER MAP

In this task we want to use Dictionary data structure to store a map of a shopping center so we can use it to find different stores or points-of-interest (POI) in the shopping center.

1. There is a class called **PointOfInterest** available in **Week07** folder. This class maintains information about a POI including Name, Description, Location Details, and List of items or services.
2. We are to create a class called **ShoppingCenter** that has the following data and methods
    a. A property & field of type dictionary of POIs, **call it POIsTable**. The key will be POI Name (string), and the value will be POI object.
    b. Constructor: In the constructor, you need to initialize your POIsTable and add at least 5 POIs to your table.
    c. SearchByPOIName (string POIName): This method should search in the POIsTable and return a detailed description string (use ToString of the POI class).

d. SearchByService(string ServiceName): This method should search in the POIsTable and return a list of POI (List<POI>) that deliver the requested service.

3. In your Runner07_Task01 Run method do the following:
    a. Create a ShoppingCenter object, **call it myShoppingCenter**. This will call your constructor and initialize the POIsTable.
    b. Call SearchByPOIName and pass it a store name – e.g. myShoppingCenter.SearchByPOIName("Nike"), and display the result (description of a POI) on the screen.
    c. Call SearchByService and pass it a service name – e.g. myShoppingCenter.SearchByService("Food"), and display the result (list of POIs) on the screen – you need a for loop.