

**Context:**

This document contains assignments to be completed as part of the hands-on for the

Collections day1 topic.

**Assignment 1: Working with List<>**



**Estimated time: 20 Mins**

**Problem description:**

1) Create code to accept user input as given below:

bool acceptFlag=false;

while(!acceptFlag)

{

Console.WriteLine("Enter some integer");

int i = int.Parse(Console.ReadLine()); Console.WriteLine("Do you want to continue? Y/N");

string accept= Console.ReadLine().ToUpper());

if(accept==”Y”)

{

acceptFlag=true;

}

else

{

acceptFlag=false;

}

}

2) Integer values entered by user have to be saved in an list

3) Display the number of integers in the list.

Hint: Use ‘Count’ property of list

4) Take average of all integer values. Insert the value at middle position of the list.

Display the complete list on console.

Hint: Use ‘Insert’ method. If list has even number of items, take middle position as (itemnumber/2)+1

5) Remove an item from 2nd position of list. Hint: Use ‘Remove’ method

6) Remove the ‘average value’ item inserted in the list.

Hint: Use ‘RemoveAt’ method

Display the modified list

7) Now can you tell the difference between ‘Remove’ and ‘RemoveAt’ method

**Assignment 2: Working with objects in list**



**Estimated time: 25 Mins**

**Problem description:** Given a class ClsPerson having property ‘Name’ of string type. Create objects of the class having various names and add the objects to an list.

Traverse the list to display person names on console. How many ways can you traverse the list?

**Assignment 3: Working with Stack**



**Estimated time: 15 Mins**

**Problem description:** Create a stack object. Add below string objects to the stack:

string1

string2

string4

string5

Traverse through the stack object to get all the string values on console. Did you get ‘string1’ as the first output on console or ‘string5’

Insert “string3” between “string2” and “string4”.

How will you read only the topmost item from the stack without removing it.

**Assignment 4: Working with Queue**



**Estimated time: 15 Mins**

**Problem description:** Create a queue object. Add below string objects to the queue:

string1

string2

string4

string5

Traverse through the queue object to get all the string values on console. Did you get ‘string1’

as the first output on console or ‘string5’

Insert “string3” between “string2” and “string4”.

Traverse through the queue object to get all the string values on console. Is the sequence that you got earlier similar to the one you get this time?

**Assignment 5: Working with HashTable**



**Estimated time: 20 Mins**

**Problem description:** Create class ClsPerson as shown in figure below:

**ClsPerson**

+string Name

+int Age

+string PlaceOfBirth

+ClsPerson()

+Bool CanVote()

*\*Public Attributes represent properties in the class diagram*

Method ‘CanVote’ returns true if Age >=18

Constructor of the class assigns default values to all properties.

Create objects of person class with following properties:

|  |  |  |
| --- | --- | --- |
| **Name** | **Age** | **PlaceOfBirth** |
| John | 16 | Chennai |
| Smita | 22 | Delhi |
| Vincet | 25 | Bangalore |
| Jyothi | 10 | Bangalore |

Add the objects to a hashtable with key as Person Name.

Can you add 1 more person object with Name=”Jyothi” to the hashtable? Can you add 1 more person object with Age=10 to the hashtable?

Iterate through the hashtable object to print Name and whether the person can vote or not.

**Assignment 6: Working with SortedList**



**Estimated time: 10 Mins**

**Problem description:** For the above example, add the person objects to a sorted list. Can you add 1 more person object with Name=”Jyothi” to the sortedlist?

Can you add 1 more person object with Age=10 to the sortedlist?

Iterate through the sortedlist object to print Name,Age and whether the person can vote or not.

What is the sequence in which objects are displayed? Is it similar to the sequence displayed by hashtable in the previous question? What is the difference?

**Summary of assignments:**

You have learnt

How to use list

How to use stack

How to use queue

How to use hashtable

How to use sortedlist