Collections Assignments

1 Create an Array List, which holds the names of students. Print the number of elements in the Array List and the values

2 Create and initialize a hash table and print out its keys and values

3 Input a sentence and print the frequency of words repeating in the sentence. Use Array list or Hash Table

4 Create a Linked List. Add new elements. Delete existing elements and traverse through the list

5 Create a queue. Add values and display each value in the queue

6 Use a BitArray to calculate the prime numbers over the range 2 to n

7 Write a program that accepts a postfix expression and determines its value.

Input Specification:

The input to the program will consist of a well-formed postfix expression terminated by a newline character('\n'). The expression will consist of operands and operators separated by a single space. The possible operators are

+ Addition
-Subtraction
* Multiplication
/ Integer Division
% Remainder
^ Exponentiation

Operands will be positive integers.

Input will not be such that it will cause an overflow or underflow in an integer variable.

Output Specification:

Output should be the value of the expression followed by a new-line character

Example

```
Input
10 20 +

Output
30

Input
9 8 + 3 5 - /

Output
-8

Input
7 3 2 ^ %

Output


8.
```

Create a List of Programming Languages and do the following actions:

a) Check whether the List contains the language “C#” in it.
b) If there is a language ‘C’ in the list, then remove it.
c) Add the language “VB.Net” to the 4th position of the list.
d) Sort the list.
e) Display the List

9.

Create a dictionary with the names of the country

```
"de", "Germany";
"sk", "Slovakia";
"us", "United States";
"ru", "Russia";
"hu", "Hungary";
"pl", "Poland";
```

a) Display the names of the countries with the key values “hu” and “sk”
b) Print the number of items in the dictionary
c) Display all the keys in the dictionary
d) Display all the values in the dictionary
e) Display all the values and keys in the dictionary

10.

Create a class Customer with the properties Customerid and name

a) The class should have a constructor which accepts the id, name and initiliase the object values
b) Create three customer objects
c) Add the three customer objects to a dictionary
d) Display the key and values of the Customers

11.

Create a data structure to store the names of five students. This data structure should allow only strings to be stored in it.