WIA1002 Data Structure
Lab 7: Binary Search Tree

1. Write a program that generate 10 random numbers within 0 – 20. Insert the number into the BST. Then, print the number of elements in the BST and **d**isplay the BST elements (PREORDER, INORDER, POSTORDER)**.**). Then, perform the following:
    a. A method in BST to get minimum value
    b. A method in BST to get maximum value
    c. A method in BST to get the total value
    d. A method to count the number of occurrence of a given number

    Example output:

```
The random numbers are 5 16 19 18 16 17 9 0 1 9
The number of elements in the tree : 10
The tree elements - PREORDER : 5 --> 0 --> 1 --> 16 --> 16 --> 9 --> 9 --> 19 --> 18 --> 17 -->
The tree elements - INORDER : 0 --> 1 --> 5 --> 9 --> 9 --> 16 --> 16 --> 17 --> 18 --> 19 -->
The tree elements - POSTORDER : 1 --> 0 --> 9 --> 9 --> 16 --> 17 --> 18 --> 19 --> 16 --> 5 -->
The minimum number is : 0
The maximum number is : 19
The total is : 110
Enter a number to search : 16
The number of occurrence of 16 is 2
```

2. Create a word frequency generator program. The program will read a text file (**lab7Q2.txt**) and generate an alphabetical listing of the unique words that the file contains, along with a count of how many times each word occurs.

    Example output:

```
Word Frequency Generator Program
0001 a -->
0001 addition -->
0002 allow -->
0001 an -->
0002 and -->
0001 are -->
0001 as -->
0001 be -->
0002 binary -->
0001 bst -->
0001 by -->
0001 called -->
0001 can -->
0001 computer -->
0001 containers -->
0001 data -->
0001 dynamic -->
0001 either -->
0001 etc -->
0001 fast -->
0001 finding -->
0001 implement -->
0002 in -->
0001 item -->
0003 items -->
```

3. Write a program to request an infix expression from the user and then insert the expression to the BSTExpression. You need to create the new BSTExpression class.

   Example output:

```
Enter Infix Expression : 4+5*7
The number of elements in the tree : 5
The tree elements - INORDER :  <-- 4 <-- + <-- 5 <-- * <-- 7
The tree elements - PREORDER :  <-- 4 <-- 5 <-- 7 <-- * <-- +
The tree elements - POSTORDER :  <-- + <-- 4 <-- * <-- 5 <-- 7


Enter Infix Expression : (5*4+8)/7+2
The number of elements in the tree : 9
The tree elements - INORDER :  <-- 5 <-- * <-- 4 <-- + <-- 8 <-- / <-- 7 <-- + <-- 2
The tree elements - PREORDER :  <-- 5 <-- 4 <-- * <-- 8 <-- + <-- 7 <-- / <-- 2 <-- +
The tree elements - POSTORDER :  <-- + <-- / <-- + <-- * <-- 5 <-- 4 <-- 8 <-- 7 <-- 2
```