**Java Programs - BPA Review**

1. Create an array of 5000 randomized integers with the value ranging from 1 to 1000. Calculate the following:

1. Output the value (1 to 100) that appears most frequently in the array. If more than one number ties, output all numbers that tie.
2. Output any numbers from 1 to 1000 that do not appear in the array.
3. Output the indices of any values that appear more than 3 times.

2. A Cryptogram is a program that will assign new letter values for every letter of the alphabet. A SimpleCryptogram will assign new values to letters based on a fixed, static adjustor. For example a SimpleCryptogram with an adjustor of +3 will cause "A" to become "D" since D is located three places after A in the alphabet. The adjustor can be negative as well. An adjustor of -5 will cause "M" to become "H".

Write a program that will convert "The quick brown fox jumped over the two lazy dogs" to a new SimpleCryptogram. The user will be asked to provide an integer value in the range -25 to 25, excluding 0. The entire sentence will be outputted using the new key.

3. SimpleCryptogramTranslator is a program that will accept an encrypted sentence and output its translated equivalent. You can assume the encrypted sentence was done so using the SimpleCryptogram program listed above. The adjustor, however, is not known. Your only assumption with your solution is that the sentence contains the world "the" (lower case) in it. Given that information, you should be able to translate and output the entire sentence.

The quick brown fox jumped over the two lazy dogs (with + 3 adjustor)

Wkh txlfn eurzq ira mxpshg ryhu wkh wzr odcb grjv