

# 1.

```
import java.util.*;
```

```
import java.Text.*;
```

```
public class StringOperations {
```

```
    public static void main(String[] args) {
```

i. Compare two strings lexicographically, ignoring case differences.

```
        String str1 = "Hello";    String str2 =  
"hELLO";    int result =  
str1.compareToIgnoreCase(str2);  
        if (result == 0) {  
            System.out.println("Strings are equal.");  
        } else if (result < 0) {  
            System.out.println("String 1 is lexicographically smaller than String 2.");  
        } else {  
            System.out.println("String 2 is lexicographically smaller than String 1.");  
        }  
    }
```

ii. Check whether a given string ends with the contents of another string.

```
        String mainStr = "Hello World";    String  
suffixStr = "World";    boolean endsWith =  
mainStr.endsWith(suffixStr);  
        if (endsWith) {  
            System.out.println("Main string ends with the given suffix string.");  
        } else {  
            System.out.println("Main string does not end with the given suffix string.");  
        }  
    }
```

iii. Print current date and time in the specified format.

```
Date date = new Date();  
SimpleDateFormat sdf = new SimpleDateFormat("dd/MM/yyyy HH:mm:ss");  
String formattedDate = sdf.format(date);  
System.out.println("Current date and time: " + formattedDate);
```

iv. Get the index of all the characters of the alphabet.      String str =

```
"abcdefghijklmnopqrstuvwxyz";      for (char ch = 'a'; ch <= 'z'; ch++) {      int index =  
str.indexOf(ch);  
      System.out.println("Index of " + ch + ": " + index);  
      }
```

v. Replace each substring of a given string that matches the given regular expression with the given replacement.

```
String inputStr = "The quick brown fox jumps over the lazy dog. The quick brown fox jumps  
over the lazy dog.";
```

```
String regexStr = "fox";
```

```
String replacementStr = "cat";
```

```
String outputStr = inputStr.replaceAll(regexStr,  
replacementStr);      System.out.println("Output string: " +
```

```
outputStr); vi. Get a substring of a given string between two specified  
positions.      String input = "Hello World";      int startIndex = 1;  
int endIndex = 6;
```

```
String output = input.substring(startIndex, endIndex);
```

```
System.out.println("Substring: " + output);
```

vii. Trim any leading or trailing whitespace from a given string.

```
String strToTrim = " Hello World ";
```

```
String trimmedStr = strToTrim.trim();
```

```
System.out.println("Trimmed string: " + trimmedStr);
```

viii. Convert all the characters in a string to lowercase.

```
String inputString = "Hello World";
```

```
String outputString = inputString.toLowerCase();
```

```
System.out.println("Output string: " + outputString);
```

ix. Get the length of a given string. String lenStr = "Hello

```
World"; int length = lenStr.length();
```

```
System.out.println("Length of the string: " + length);
```

x. Check whether two String objects contain the same data.

```
String strA = "Hello World";
```

```
String strB = "Hello World";
```

```
boolean areEqual = strA.equals(strB);
```

```
if (areEqual) {
```

```
    System.out.println("The two strings contain the same data.");
```

```
} else {
```

```
    System.out.println("The two strings do not contain the same data.");
```

```
}
```

```
}
```

```
}
```

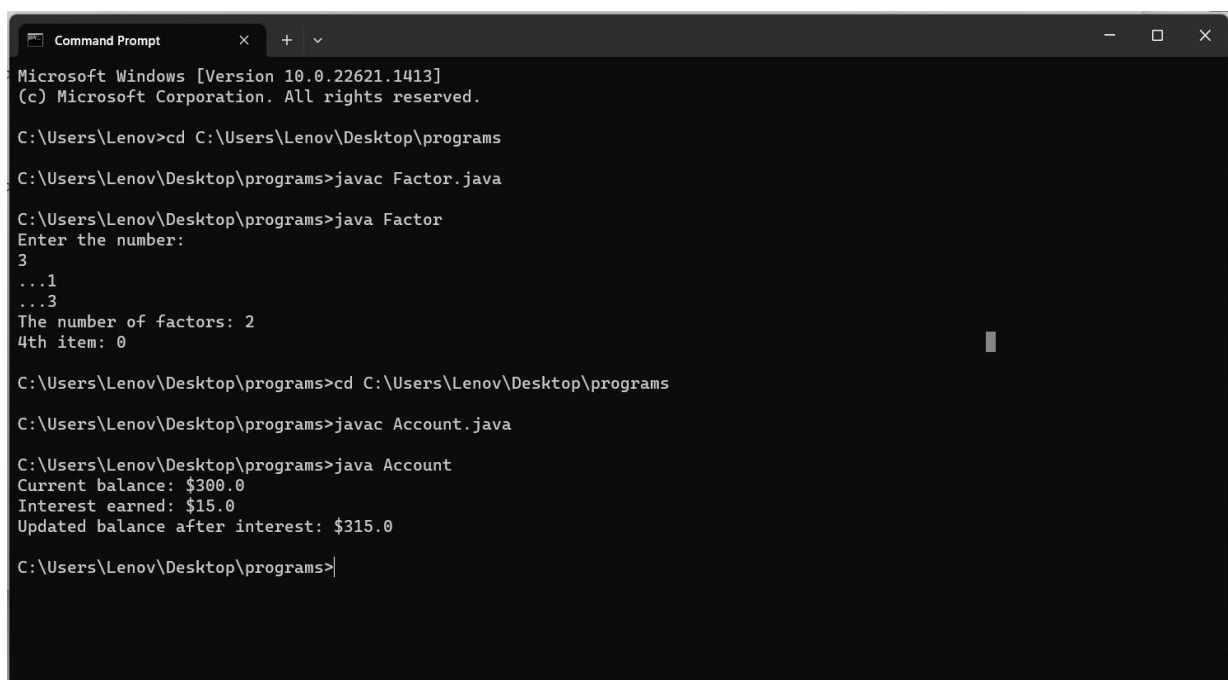
```
PS D:\javamk> java StringOperations.java
PS D:\javamk> java StringOperations
Strings are equal.
Main string ends with the given suffix string.
Current date and time: 05/04/2023 21:39:54
Index of a: 0
Index of b: 1
Index of c: 2
Index of d: 3
Index of e: 4
Index of f: 5
Index of g: 6
Index of h: 7
Index of i: 8
Index of j: 9
Index of k: 10
Index of l: 11
Index of m: 12
Index of n: 13
Index of o: 14
Index of p: 15
Index of q: 16
Index of r: 17
Index of s: 18
Index of t: 19
Index of u: 20
Index of v: 21
Index of w: 22
Index of x: 23
Index of y: 24
Index of z: 25
Output string: The quick brown cat jumps over the lazy dog. The quick brown cat jumps over the lazy dog.
Substring: ello
Trimmed string: Hello World
Output string: hello world
Length of the string: 11
The two strings contain the same data.
PS D:\javamk>
```

## 2. CLASS ACCOUNT

```
public class Account
{
    private double balance; public void
    Account(double initialBalance) {
        this.balance = initialBalance;
    }
    public void Account() {
        this.balance = 0;
    }
    public void addMoney(double amount) {
        this.balance += amount;
    }
    public void withdrawMoney(double amount) {
        if (amount > balance) {
            System.out.println("Insufficient funds. A $5 penalty will be charged.");
            this.balance -= 5;
        } else {
            this.balance -= amount;
        }
    }

    public double getCurrentBalance() {
        return balance;
    }
    public double computeInterest(double interestRate) {
        double interest = balance * interestRate / 100;
        this.balance += interest;    return interest;
    }
}
```

```
public static void main(String[] args) {  
    Account myAccount = new Account();  
    myAccount.addMoney(500);  
    myAccount.withdrawMoney(200);  
  
    double balance = myAccount.getCurrentBalance();  
    System.out.println("Current balance: $" + balance);  
    double interest = myAccount.computeInterest(5);  
    System.out.println("Interest earned: $" + interest);  
    System.out.println("Updated balance after interest: $" + myAccount.getCurrentBalance());  
}  
}
```



The screenshot shows a Windows Command Prompt window with the following text:

```
Microsoft Windows [Version 10.0.22621.1413]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\Users\Lenov>cd C:\Users\Lenov\Desktop\programs  
C:\Users\Lenov\Desktop\programs>javac Factor.java  
C:\Users\Lenov\Desktop\programs>java Factor  
Enter the number:  
3  
...1  
...3  
The number of factors: 2  
4th item: 0  
  
C:\Users\Lenov\Desktop\programs>cd C:\Users\Lenov\Desktop\programs  
C:\Users\Lenov\Desktop\programs>javac Account.java  
C:\Users\Lenov\Desktop\programs>java Account  
Current balance: $300.0  
Interest earned: $15.0  
Updated balance after interest: $315.0  
C:\Users\Lenov\Desktop\programs>
```

### 3. HAYSTACK

```
public class NeedleHaystack {

    public static int findNeedle(String haystack, String needle)
    {
        int n = haystack.length();    int m = needle.length();
        if (m == 0) {
            return 0;
        }
        for (int i = 0; i <= n - m; i++) {
            if
(haystack.substring(i, i + m).equals(needle)) {
                return i;
            }
        }
        return -1;
    }

    public static void main(String[] args) {
        String haystack = "sadbutsad";
        String needle = "sad";    int index =
        findNeedle(haystack, needle);
        System.out.println("Index of the first occurrence of the needle in the haystack: " + index);
    }
}
```

```
Command Prompt
Microsoft Windows [Version 10.0.22621.1413]
(c) Microsoft Corporation. All rights reserved.

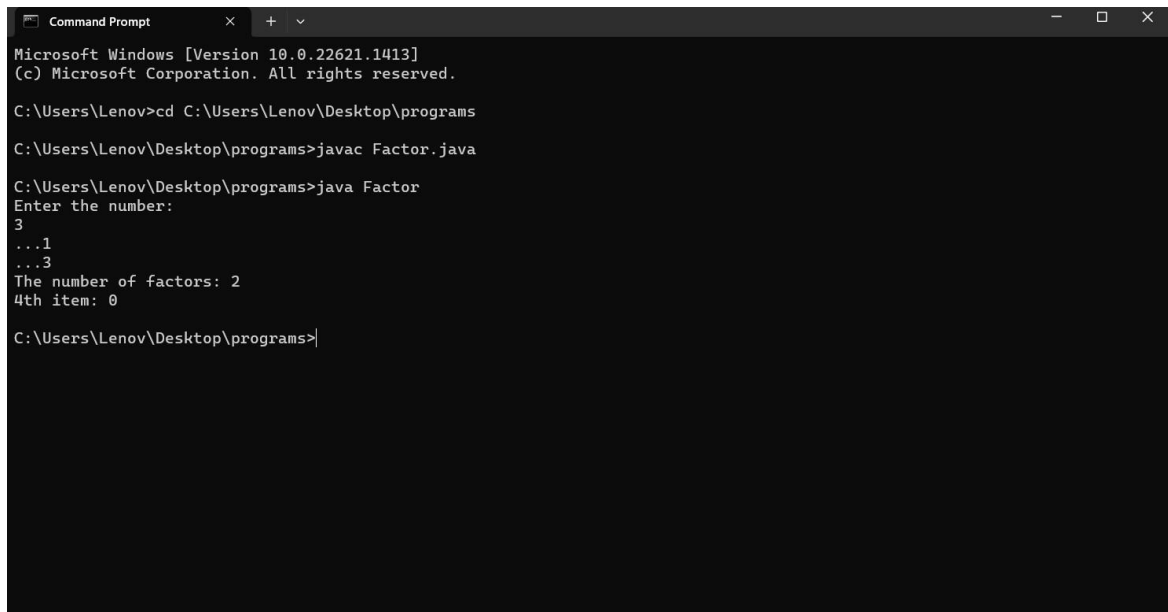
C:\Users\Lenov>cd C:\Users\Lenov\Desktop\programs
C:\Users\Lenov\Desktop\programs>javac NeedleHaystack.java
C:\Users\Lenov\Desktop\programs>java NeedleHaystack
Index of the first occurrence of the needle in the haystack: 0
C:\Users\Lenov\Desktop\programs>
```

## 4.IMPORT

```
java.util.*;
```

```
class Factor {    public static void
main(String args[]) {
    try {
        Scanner sc = new Scanner(System.in);
int count = 0, n = 100, i, j = 0, m = 4;
int[] a = new int[10];
        System.out.println("Enter the number:");
        n = sc.nextInt();
if (n <= 0) {
            System.out.println("Enter valid number");
        } else {
            for (i
= 1; i <= n; i++) {
if (n % i == 0) {
a[j] = i;
            System.out.println("..." +
i);
            count++;
j++;
        }
    }
```

```
    }  
    System.out.println("The number of factors: " + count);  
}  
System.out.println(m + "th item: " + a[m - 1]);  
} catch (Exception e) {  
    System.out.println("Enter only numbers");  
}  
}  
}
```



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C:\Users\Lenov>cd C:\Users\Lenov\Desktop\programs  
C:\Users\Lenov\Desktop\programs>javac Factor.java  
C:\Users\Lenov\Desktop\programs>java Factor  
Enter the number:  
3  
...1  
...3  
The number of factors: 2  
4th item: 0  
C:\Users\Lenov\Desktop\programs>
```