

Core Java – L2: Trend.Nxt Hands-on Assignments

Estimated Efforts: 2 PDs

For detailed ToC and other Details: https://wipro365.sharepoint.com/sites/ku-practice-4101/KMSitesContent/gdo1/JavaSkills/Skills_TOC/CoreJava_L2_LG.aspx

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ToC :

Topic No.	Topic	Sub Topics	Min No.of Assignments to be Done
1	Java.lang package	1. Assertions 2. Enums 3. Object Class, Behaviour of equals/hashcode 4. Variable Argument Lists	2
2	Java.util package	1. Wrapper Classes, Auto boxing, Unboxing 2. Dates, Numbers, Currency	2
3	Java.io package	1. File I/O 2. Java Logging Framework 3. Serialization	2
4	Lambda Expressions	1. Lambda Expressions 2. Streams API (Aggregate Operations)	2
Total Min No.of Assignments to be Done			8

Topic 1: Java.lang package

Assignment 1:

Write a program to calculate the number of objects created at a given point using user defined class.

Assignment 2:

Develop a java class that has finalize method which displays “Finalize method called”. Create another class which creates objects of the previous class and it uses the same object reference for creating these objects. For example, if A1 is the class name, then the objects are created as below:

```
A1 a = new A1();
```

```
a = new A1();
```

```
a = new A1();
```

When the statement `Runtime.getRuntime().gc()` is invoked, how many times the `finalize` method is called?

Assignment 3:

Write a java program to create enum type all the days of the week and a method that prints a String corresponding to the day value that passed in as argument.[Hint: Use Switch Case]

Assignment 4:

Write and run `AssertExample` program to display below pattern with `Assert` disabled first and then enabled [Note : Accept number of rows from user]

```
      *
    *   *
  *     *   *
 *       *   *
  *     *   *
    *   *
      *
```

And also Run the program without assertion so that you can catch user errors through exceptions.

If a user enters a negative value, throw a `MyOwnNegativeValueEnteredException`, which is an extension of `ArithmeticException`. The display of the error information should display the negative number that was entered.

If a user enters zero, throw a `MyOwnZeroValueEnteredException`, which is an extension of `ArithmeticException`.

Topic 2: Java.util package

Assignment 1:

Write a program to Write 1) Date object 2) a Double object and 3) A Long object to file and again reading it back from file.

Assignment 2:

Create an `ArrayList` which will be able to store only numbers like `int`,`float`,`double`,etc, but not any other data type.

Assignment 3:

Write a Java program to get year and months between two dates.

Assignment 4:

Write a java program to display list of available currencies, currency codes, and display the currency symbol based on user currency input. For example, for USD, the symbol is "\$".

[Hint : use Currency class]

Topic 3 : Java.io package**Assignment 1:**

Write a program to create a sequential file that could store details about the six products. Details include product id, cost & number of items available & are provided through the keyboard.

Perform following operations on it

- a. Compute and print the total value of all six products.
- b. Add new products
- c. Display alternate products stored in the file.

Assignment 2:

Create a file named the Numbers and populate it with 30 random numbers in the range 1 to 30 including the end points. Place 1 number per line. Open the file and print the numbers 10 per line Find and print the following.

1. Average of the numbers
2. Sum of the numbers

Assignment 3:

Write a program which copies the content of one file to a new file by removing unnecessarily spaces between words.

Topic 4 : Lambda Expressions

Assignment 1:

Create an interface CharacterOccurrence with **int findOccurence(String str, char c)** to find no.of occurrences of a given character within the given string. Implement findOccurence(String str, char c) method by using Lambda expression in an implementation class ImplClassWithLambda & invoke it to display the result on the console. [Hint: str="How was your day today?" & c='a' the no.of occurrences of 'a' will be 3]

Assignment 2 :

Create an interface WordCount with single abstract method **int count(String str)** to count no.of words in a given string. Implement count(String str) method by using Lambda expression in an implementation class MyClassWithLambda & invoke it to display the result on the console.

Assignment 3:

Create a java class to create a list of string objects

- i. Count no.strings whose length is > 5
- ii. Count no.of empty strings
- iii. Find out empty strings & store them into new list by using Stream API

Assignment 4:

Write a java program to

- i. Create an array list to store group of student marks(99,98,97,100,92,84,80,89,90) in Student class
- ii. Create a method calculateAvg() in Student class to calculate average marks of students by using **stream api** .