Web Engineering Lab

Lab 04 **Marks 100**

Instructions

Work on this quiz/lab individually.

You are **NOT** allowed to use internet, mobile phone. However, you can use you books, notes, handouts etc.

You are **NOT** allowed to borrow anything from your peer student.

What you have to do

Program the following tasks in Java, compile and execute them. The name of your files will be according to the task given in this lab.

Task 1 [40]

Write a program that calls the factorial method to compute the factorial for small positive integer (whose value < 17) entered by the user. Your program must throw an exception indicating that something went wrong if the value is either negative or >= 17.

Run your code to compute the factorial and check that the entered value is over 16 as well as for a negative data. You program should throw a `tooLargeNumberException` or `toosmallNumberException` if the entered value does not meet the criteria.

Task 2 [60]

Write a code for class `Health` with data-members `name`, `weight`, `height` and `BMI` [Formula: weight (kg) / [height (m)^2]] of a person. You need to make an **Array of N** people where `N` will be an input from the user. Your program must throw a `NegativeArraySizeException` if the user enters negative value of `N`.

Create a class `Driver` with following functionalities:

- `Save()`: This method should input the person's attributes and an index of array to save the data on respective index/location. It must throw back an `indexOccupiedException`, if the index is already occupied. Moreover, it must throw back a `nonPositiveException` to its caller method, if either weight or height is negative number.

  You must have to provide the exception handling code in your program.

- `Retrieve()`: This method should input the index number from user and print the respective values from the object in array. This method must throw back an `indexException` to its caller method, if the index is not valid.

- `main()`: Provide a switch-based menu to execute this program in the following way:
  1. Add value in the array
  2. Print the information of specific User at index n.
  3. Print the information of all the users
  4. Exit

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