# **GUIDELINES**

**· All Assignment should be in separate class. Class name should be assignment\_1, assignment\_2 and so on**

**· Follow Java best practices**

**· Use maven project with group id as com.impetus.rampup and artifacts id as java8.<your name>**

# JAVA Pre Reads

## Java Nio API's

* 1) Pick any PDF files of size more than 10 KB
* 2) Read the file using java nio API
* 3) split the file in chunks of 5KB
* 4) Read splitted chunks and write the file
* 5) New file which is created at step 4, should be of same size and should be able to read using acrobat reader

## **Java concurrency**

### **Assignment 1**

* **You have a server where we need to populate 3 caches from Databases. This scenario need to be simulated without using executor service.**
* **You can use main class as your server. for DB connection just use sleep for 40 sec.**

### **Assignment 2**

* **You are working on creating the validation server where you need to execute 100 rules. Simulate this scenario using executor service.**
* **Decide on number of threads as number of rules to be executed can vary.**
* **Every thread should not take more than 2 sec to execute the rule. if it is taking more then handle it in code**
* **Each thread should return boolean to confirm whether rule is exeucted or not**
* **For business logic just keep thread. sleep for 1 sec**
* **consider your main from where you will be executing and generating threads.**

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# **JDK 8**

## **Assignment 1 – Search Criteria using Lambda Expression**

**1. Create an array 1000 Person Object with 3 attributes as Id, Name, Age, Sex**

**2. Outcome should return the people whose age is in the range with in the range specified from command prompt.**

**3. Code should be written with following approaches**

**Approach 1 : create a method which accept List<Person> object and second parameter as age range. It should return person objects.**

**public static List<Person> processPersons(List<Person> object, int low, int high)**

**Approach 2 : create a searchcriteria class and use that in the method**

**public static List<Person> processPersons(List<Person> object, CheckPerson tester)**

**Approach 3 : specify criteria code in CheckPerson as anonymous class**

**public static List<Person> processPersons(List<Person> object)**

**Approach 4 : use lambda Expression for search**

**public static List<Person> processPersons(List<Person> object)**

**Approach 4 : use Predicate**

**public static void printPersonsWithPredicate(List<Person> object, Predicate<Person> tester)**

## **Assignment 2 – Using Collectors & Peek**

**1. Create an array 10,000 Employee Object with 3 attributes as Id, Name and Salary**

**2. For each employee increment the salary by 20%**

**3. Sort the object based on incremented salary in descending order and return the map with key as Id & value as Employee object**

## **Assignment 3 – Using Reducing in Parallel**

**1. Create an array 10,000 Employee Object with 3 attributes as Id, Name, Salary and Department Id**

**2. 10,000 employees are divided into 4 departments**

**3. Need to compute the sum of salaries for each department and create a map with key as department id & value as max salary**

## **Assignment 4 – Using map**

**Write a method that returns a comma-separated string based on a given list of integers. Each element should be preceded by the letter 'e' if the number is even, and preceded by the letter 'o' if the number is odd. For example, if the input list is (3,44), the output should be 'o3,e44'.**

## **Assignment 5 – Using lambda**

**return a lambda expression performing a specified action:**

**· PerformOperation isOdd(): The lambda expression must return true if a number is odd or false if it is even.**

**· PerformOperation isPrime(): The lambda expression must return true if a number is prime or false if it is composite.**

**· PerformOperation isPalindrome(): The lambda expression must return true if a number is a palindrome or false if it is not.**

**Input : list of integers**

## **Assignment 6 – Use method reference**

**1. Create an array of Employee Object with 3 attributes as Id, Name and Salary**

**2. Sort the object based on salary in descending order**

**Assignment 7**

**public class Hello {  
 String firstname;  
 String lastname;  
 public Hello() {}  
 public Hello(String firstname, String lastname) {  
 this.firstname = firstname;  
 this.lastname = lastname;}  
 public void hello() {  
 System.out.println("Hello " + firstname + " " + lastname);}  
 public static void main(String[] args) {  
 Hello hello = new Hello(args[0], args[1]);  
 hello.hello();  
 }  
 }**

**Please rewrite above method hello using lambda**

**Assignment 8 -jdk 14, lambda, stream**

1. **Get student with exact match name "jayesh"**
2. **Get student with matching address "1235"**
3. **Get all student having mobile numbers 3333.**
4. **Get all student having mobile number 1233 and 1234**
5. **Create a List<Student> from the List<TempStudent>**
6. **Convert List<Student> to List<String> of student name**
7. **Convert List<students> to String**
8. **Change the case of List<String>**
9. **Sort List<String>**
10. **Conditionally apply Filter condition, say if flag is enabled then.**

**Assume**

**Record TempStudent(String name, int age, Address address, List<MobileNumber> mobileNumbers)**

**Record Student(String name, int age, Address address, List<MobileNumber> mobileNumbers)**

**Record Address(String zipcode)**

**Record MobileNumber(String number)**

**Assignment 9 : JDK8,Lambda,Stream**

**You have below sample apache server access txt log files,**

**109.169.248.247 - - [12/Dec/2015:18:25:11 +0100] "GET /administrator/ HTTP/1.1" 200 4263 "-" "Mozilla/5.0 (Windows NT 6.0; rv:34.0) Gecko/20100101 Firefox/34.0" "-"**

**109.169.248.247 - - [12/Dec/2015:18:25:11 +0100] "POST /administrator/index.php HTTP/1.1" 200 4494 "**[**http://almhuette-raith.at/administrator/**](http://almhuette-raith.at/administrator/)**" "Mozilla/5.0 (Windows NT 6.0; rv:34.0) Gecko/20100101 Firefox/34.0" "-"**

**109.169.248.247 - - [12/Dec/2015:18:31:08 +0100] "GET /administrator/ HTTP/1.1" 200 4263 "-" "Mozilla/5.0 (Windows NT 6.0; rv:34.0) Gecko/20100101 Firefox/34.0" "-"**

**46.72.177.4 - - [12/Dec/2015:18:31:08 +0100] "POST /administrator/index.php HTTP/1.1" 200 4494 "**[**http://almhuette-raith.at/administrator/**](http://almhuette-raith.at/administrator/)**" "Mozilla/5.0 (Windows NT 6.0; rv:34.0) Gecko/20100101 Firefox/34.0" "-"**

**83.167.113.100 - - [12/Dec/2015:18:31:25 +0100] "GET /administrator/ HTTP/1.1" 200 4263 "-" "Mozilla/5.0 (Windows NT 6.0; rv:34.0) Gecko/20100101 Firefox/34.0" "-"**

**83.167.113.100 - - [12/Dec/2015:18:31:25 +0100] "POST /administrator/index.php HTTP/1.1" 200 4494 "**[**http://almhuette-raith.at/administrator/**](http://almhuette-raith.at/administrator/)**" "Mozilla/5.0 (Windows NT 6.0; rv:34.0) Gecko/20100101 Firefox/34.0" "-"**

**1. Use the Java 8 API to read the file and extract IP fields**

**2. Find out top 10 IP address which have access the apache server most**

**3. Group the IP address with same hit/access count**

## **Assignment 10 -Java 9 Reactive Stream Use Case**

**1) Create employee class with 2 properties id and name**

**2) Create Utility or helper class to create List of Employee Objects**

**3) Create a subscriber to subscribe to Employee Object whenever it is published using publisher.**

**4) Whenever new EMployee object is published**

**Print SYSOut "NEW Message Received"**

**Print the total count of messages published till yet create a folder with name as <yyyyMMddHHmmss> Persist the object on file system in json format**

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