**TD3**

**Exercise 1**

**1)**

import java.util.Collections;  
import java.util.List;  
import java.util.function.BiFunction;  
  
public class TD3Exo1 {  
  
 public static void main(String[] args)  
 {  
 List<String> list = List.*of*("hello", "world", "hello", "lambda", "hello");  
  
 System.*out*.println(*count*(list, "hello"));  
 }  
  
 private static long count(List<String> list, String word) {  
 BiFunction<List, String, Long> biFunction = (li, s) -> Long.*parseLong*(String.*valueOf*(Collections.*frequency*(li, s)));  
 return biFunction.apply(list, word);  
 }

**2)**

import java.util.Collections;  
import java.util.List;  
import java.util.function.BiFunction;  
  
public class TD3Exo1 {  
  
 public static void main(String[] args)  
 {  
 List<String> list = List.*of*("hello", "world", "hello", "lambda", "hello");  
  
 System.*out*.println(*count*(list, "hello"));  
 System.*out*.println(*count2*(list, "hello"));  
 }  
  
 private static long count(List<String> list, String word) {  
 BiFunction<List, String, Long> biFunction = (li, s) -> Long.*parseLong*(String.*valueOf*(Collections.*frequency*(li, s)));  
 return biFunction.apply(list, word);  
 }  
  
 private static long count2(List<String> list, String word) {  
 BiFunction<List, String, Long> biFunction = (li, s) -> li.stream().filter(x -> x.equals(s)).count();  
 return biFunction.apply(list, word);  
 }  
}

**Exercise 2**

**1)**

import java.util.ArrayList;  
import java.util.List;  
  
public class TD3Exo2 {  
  
 public static void main(String[] args)  
 {  
 List<String> list = List.*of*("hello", "world", "hello", "lambda", "hello");  
  
 System.*out*.println(*upperCase*(list));  
 }  
  
 private static List<String> upperCase(List<String> list){  
 List<String> uppercases = new ArrayList<String>(list);  
  
 uppercases.replaceAll(s -> s.toUpperCase());  
 return uppercases;  
 }  
}

**2)**

import java.util.ArrayList;  
import java.util.List;  
  
public class TD3Exo2 {  
  
 public static void main(String[] args)  
 {  
 List<String> list = List.*of*("hello", "world", "hello", "lambda", "hello");  
  
 System.*out*.println(*upperCase*(list));  
 System.*out*.println(*upperCase2*(list));  
 }  
  
 private static List<String> upperCase(List<String> list){  
 List<String> uppercases = new ArrayList<String>(list);  
  
 uppercases.replaceAll(s -> s.toUpperCase());  
 return uppercases;  
 }  
  
 private static List<String> upperCase2(List<String> list){  
 List<String> uppercases = new ArrayList<String>();  
  
 list.stream().map(s -> s.toUpperCase()).forEach(s -> uppercases.add(s));  
 return uppercases;  
 }  
}

**3)**

import java.util.ArrayList;  
import java.util.List;  
  
public class TD3Exo2 {  
  
 public static void main(String[] args)  
 {  
 List<String> list = List.*of*("hello", "world", "hello", "lambda", "hello");  
  
 System.*out*.println(*upperCase*(list));  
 System.*out*.println(*upperCase2*(list));  
 System.*out*.println(*upperCase3*(list));  
 }  
  
 private static List<String> upperCase(List<String> list){  
 List<String> uppercases = new ArrayList<String>(list);  
  
 uppercases.replaceAll(s -> s.toUpperCase());  
 return uppercases;  
 }  
  
 private static List<String> upperCase2(List<String> list){  
 List<String> uppercases = new ArrayList<String>();  
  
 list.stream().map(s -> s.toUpperCase()).forEach(s -> uppercases.add(s));  
 return uppercases;  
 }  
  
 private static List<String> upperCase3(List<String> list){  
 List<String> uppercases = new ArrayList<String>(list);  
  
 uppercases.replaceAll(String::toUpperCase);  
 return uppercases;  
 }  
}

**4)**

import java.util.ArrayList;  
import java.util.List;  
import java.util.stream.Collectors;  
  
public class TD3Exo2 {  
  
 public static void main(String[] args)  
 {  
 List<String> list = List.*of*("hello", "world", "hello", "lambda", "hello");  
  
 System.*out*.println(*upperCase*(list));  
 System.*out*.println(*upperCase2*(list));  
 System.*out*.println(*upperCase3*(list));  
 System.*out*.println(*upperCase4*(list));  
 }  
  
 private static List<String> upperCase(List<String> list){  
 List<String> uppercases = new ArrayList<String>(list);  
  
 uppercases.replaceAll(s -> s.toUpperCase());  
 return uppercases;  
 }  
  
 private static List<String> upperCase2(List<String> list){  
 List<String> uppercases = new ArrayList<String>();  
  
 list.stream().map(s -> s.toUpperCase()).forEach(s -> uppercases.add(s));  
 return uppercases;  
 }  
  
 private static List<String> upperCase3(List<String> list){  
 List<String> uppercases = new ArrayList<String>(list);  
  
 uppercases.replaceAll(String::toUpperCase);  
 return uppercases;  
 }  
  
 private static List<String> upperCase4(List<String> list){  
 List<String> uppercases = new ArrayList<String>();  
  
 uppercases = list.stream().map(s -> s.toUpperCase()).collect(Collectors.*toList*());  
 return uppercases;  
 }  
}

**Exercise 3**

1. Car celle-ci va nous permettre de récupérer directement les bits de la list

**2)**

import java.util.List;  
import java.util.function.BiFunction;  
  
public class TD3Exo3 {  
  
 public static void main(String[] args)  
 {  
 List<String> list = List.*of*("hello", "world", "hello", "lambda", "hello");  
  
 System.*out*.println(*count3*(list, "hello"));  
 }  
  
 private static long count3(List<String> list, String word){  
  
 BiFunction<List, String, Long> biFunction = (li, w) -> list.stream().filter(x -> x.equals(word)).mapToLong(x -> 1).sum();  
 return biFunction.apply(list, word);  
 }  
  
}

**Exercice 4**

**1) La variable locale list2 contient 1 million d’entier compris entre 1 et 100 réparties de façon aléatoire.**

**2)**