Lambda Assigment-8

1. Write an application to perform basic arithmetic operations like add, subtract, multiply and divide. You need to define a functional interface first.

**Interface: Arithmetic**

**package** org.lambda.app;

**public** **interface** Arithmetic

{

**int** operation(**int** a, **int** b);

}

Class : ArithemticOperation

**package** org.lambda.app;

**public** **class** AirthmeticOperations

{

**public** **static** **void** main(String[] args)

{

// Addition using Lambda expression

Arithmetic addition = (**int** a, **int** b) -> (a + b);

// Arithmetic addition = (int a, int b) -> {return a + b;};

System.***out***.println("Addition = " + addition.operation(5, 6));

// Subtraction using Lambda expression

Arithmetic subtraction = (**int** a, **int** b) -> (a - b);

// Arithmetic addition = (int a, int b) -> {return a - b;};

System.***out***.println("Subtraction = " + subtraction.operation(5, 3));

// Multiplication using Lambda expression

Arithmetic multiplication = (**int** a, **int** b) -> (a \* b);

// Arithmetic addition = (int a, int b) -> {return a \* b;};

System.***out***.println("Multiplication = " + multiplication.operation(4, 6));

// Division using Lambda expression

Arithmetic division = (**int** a, **int** b) -> (a / b);

// Arithmetic addition = (int a, int b) -> {return a \* b;};

System.***out***.println("Division = " + division.operation(12, 6));

}

}

OUTPUT:

Addition = 11

Subtraction = 2

Multiplication = 24

Division = 2

1. Write an application using lambda expressions to print Orders having 2 criteria implemented 1.Order price more than 10000

2.Order status is ACCEPTED or COMPLETED

Interface: Price

**package** org.lambda.app;

**public** **interface** Price

{

**public** String price();

}

Class : FunctionalInterface

**package** org.lambda.app;

**public** **class** FunctionalInterface

{

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

Integer i = 200000;

Price p = () -> {

**if** (i > 10000)

{

**return** "Accepted!";

} **else**

**return** "Not Accepted!";

};

System.***out***.println(p.price());

}

}

OUTPUT :

Accepted!

3. Use the functional interfaces Supplier, consumer, Predicate and Function to invoke built-in

Methods from java API.

Class : Product.java

**package** org.lambda.app;

**import** java.util.function.Consumer;

**import** java.util.function.Function;

**import** java.util.function.Predicate;

**import** java.util.function.Supplier;

**class** Product

{

**private** **double** price = 0.0;

**public** **void** setPrice(**double** price)

{

**this**.price = price;

}

**public** **void** printPrice() {

System.***out***.println("This is Consumer functional interface: "+price);

}

}

Class : ProductMainmethod.java

**package** org.lambda.app;

**import** java.util.function.Consumer;

**import** java.util.function.Function;

**import** java.util.function.Predicate;

**import** java.util.function.Supplier;

**public** **class** ProductMainmethod

{

**public** **static** **void** main(String[] args)

{

//consumer functional interface

Consumer<Product>updatePrice = p ->p.setPrice(9.7);

Product p = **new** Product();

updatePrice.accept(p);

p.printPrice();

//Predicate functional interface

Predicate<String>isALongWord = t ->t.length() > 12;

String s = "successfully";

**boolean** result = isALongWord.test(s);

System.***out***.println("This is predicate functional interface: "+s);

//Function functional interface

Function<Integer, Double>half = a ->a / 4.0;

System.***out***.println("This is Function functional interface: "+half.apply(10));

//Supplier functional interface

Supplier<Double>randomValue = () ->Math.*random*();

System.***out***.println("This is supplier functional interface: "+randomValue.get());

}

}

OUTPUT:

This is Consumer functional interface: 9.7

This is predicate functional interface: successfully

This is Function functional interface: 2.5

This is supplier functional interface: 0.6368305434925969

4.Remove the words that have odd lengths from the list. HINT : Use one of the new methods from JDK 8. Use remove() method from Collection interface.

**package** org.lambda.app;

**import** java.util.\*;

**public** **class** Remove

{

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

List<String> words = **new** ArrayList<>();

words.add("Manisha");

words.add("Pushpa");

words.add("Mounika");

words.add("Raju");

words.add("Venky");

words.add("chinnu");

words.removeIf(w-> w.length()%2!=0);

words.forEach(System.***out***::println);

}

}

OUTPUT:

Pushpa

Raju

chinnu

5. Create a string that consists of the first letter of each word in the list of Strings provide. HINT : Use Consumer interface and a StringBulider to construct the results.

**package** org.lambda.app;

**import** java.util.List;

**import** java.util.function.Consumer;

**public** **class** StringBulider {

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

**var** word = List.*of*("Monkey", "lion", "Cat", "Tiger", "Donkey");

word.forEach(**new** Consumer<String>()

{

**public** **void** accept (String s)

{

StringBuilder s1 = **new** StringBuilder();

**for** (String st : s.split(" "))

{

s1.append(st.charAt(0));

}

System.***out***.println(s1.toString());

}

});

}}

OUTPUT:

M

l

C

T

D

6. Replace every word in the list with its upper case equivalent. Use replaceAll() method and UnaryOperator interface.

Class : UpperCaseConverstion.java

**package** org.lambda.app;

**import** java.util.ArrayList;

**import** java.util.function.UnaryOperator;

**class** UpperCaseConverstion **implements** UnaryOperator<String> {

**public** String apply(String str) {

**return** str.toUpperCase();

}

}

Class : UppercaseMainMethod.java

**package** org.lambda.app;

**import** java.util.ArrayList;

**public** **class** UppercaseMainMethod {

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

ArrayList<String> list = **new** ArrayList<>();

list.add("Java");

list.add("Spring");

list.add("c language");

list.add("python");

list.add("junit");

System.***out***.println("Contents of the list: " + list);

list.replaceAll(**new** UpperCaseConverstion());

System.***out***.println("Contents of the list after replace operation:" + list);

}

}

OUTPUT:

Contents of the list: [Java, Spring, c language, python, junit]

Contents of the list after replace operation:[JAVA, SPRING, C LANGUAGE, PYTHON, JUNIT]

7. Convert every key-value pair of the map into a string and append them all into a single string, in iteration order. HINT : Use Map.entrySet() method & a StringBulider to construct the result String.

**package** org.lambda.app;

**import** java.util.HashMap;

**import** java.util.Map;

**import** java.util.stream.Collectors;

**public** **class** MapToString {

**public** **static** **void** main(String[] cmd\_lineParams) {

Map<String, String> map = **new** HashMap<>(5);

map.put("Manisha", "1");

map.put("Mounika", "2");

map.put("Raji", "3");

map.put("Hari", "6");

map.put("Pushpa", "5");

String s = map.entrySet().stream().map((entry) ->

"" + entry.getKey() + " \"" + entry.getValue().replaceAll("\"", "\\\\\"") + "\"")

.collect(Collectors.*joining*(" "));

System.***out***.println(s);

}

}

OUTPUT:

Manisha "1" Raji "3" Pushpa "5" Mounika "2" Hari "6"

8. Create a new thread that prints the numbers from the list. Use class Thread & interface Consumer.

**package** org.lambda.app;

**import** java.util.ArrayList;

**import** java.util.List;

**public** **class** ListToString {

**public** **static** **void** main(String[] args)

{

List<Integer> n=**new** ArrayList<Integer>()

{{

add(15);

add(65);

add(73);

add(99);

add(89);

} };

Thread mylambda = **new** Thread(()->System.***out***.println(n));

mylambda.run();

}

}

OUTPUT:

[15, 65, 73, 99, 89]