Assignment-3

1. Explain a lambda expression and a nested class.
2. What are the advantages and disadvantages of using lambda expressions anonymous classes?
3. Write a simple Java program that demonstrates the use of a lambda expression to sort a list of integers.
4. Create a Java class with a nested class that implements a specific interface. Explain the access privileges of the nested class to the outer class members.
5. You are given a Java interface with a single abstract method. Simulate the implementation of this interface using both a lambda expression and a nested class.
6. Rewrite the following code snippet using a lambda expression, assuming the context allows it. Explain the benefits of using a lambda expression in this case.

public class MyClass {

public void performAction(int x, int y) {

new MyInnerClass() {

@Override

public void doSomething() {

System.out.println("Result: " + (x + y));

}

}.doSomething();

}

}

class MyInnerClass {

public void doSomething() {

// Implementation

}

}

1. Develop a Java program that utilizes a lambda expression to filter a list of objects based on a specific criteria.
2. Implement a program that solves a problem using functional programming paradigms like immutability, pure functions, and higher-order functions (functions that take other functions as arguments or return functions). Utilize lambda expressions extensively to achieve this goal.

Example: Implement a function to reverse a string using recursion and lambda expressions, ensuring the original string remains unchanged.

1. Write a function using recursion and lambda expressions that checks if a given number is a palindrome. The function should not convert the number to a string and instead operate on the digits directly. Use lambda expressions to define logic for digit extraction and comparison.