Week 1 Java Programming Report

# Day 1: Introduction and Basics

## History of Java

An overview of Java's origin, evolution, and its relevance in modern programming.

## Basic Java Concepts

Introduction to Java syntax, data types, variables, and basic input/output operations.

## Sum of Two Numbers

Program to read two integers from the user and output their sum.

## Sum of First and Last Digit of a 4-Digit Number

Logic to extract and add the first and last digits of a given 4-digit number.

## Sum of Digits of a 3-Digit Number

Program to calculate and display the sum of all digits in a 3-digit number.

# Day 2: Decision Making and Looping

## Reverse of a 3-Digit Number

Program to reverse a given 3-digit number and display the result.

## Single Digit Integer Check

Read a single-digit number and:  
- If 0, print "Zero"  
- If even, print "Even"  
- If odd, print "Odd"

## Weird or Not Weird

Implementing logic to categorize numbers based on specified "weird" conditions.

## Trendy Number Check

A number is considered trendy if its middle digit (in a 3-digit number) is divisible by 3.

## Hotel Tariff Calculator

Program to calculate the hotel tariff based on inputs like number of days and room type.

## Introduction to Looping Statements

- Special Numbers in a Range: Identifying numbers with special properties within a given range.  
- Fibonacci Sum: Generating a Fibonacci series and computing its sum.  
- Collatz Sequence: Generate the Collatz sequence for a number and count its steps.

# Day 4: Special Numbers and Conversion

## Adam Number

A number is Adam if the square of the number and the square of its reverse are also reverses of each other.

## Kaprekar Number

A number is Kaprekar if the square of the number can be split into two parts that sum up to the original number.

## Decimal to Binary Conversion

Convert a given decimal number to its binary equivalent.

## Pattern

Program to print a basic pattern (e.g., right-angled triangle using stars or numbers).

# Day 5: Arrays and Pattern Programs

## Pattern Programs

A collection of various pattern printing exercises using loops, such as pyramids, diamonds, etc.

## Introduction to Arrays

Working with arrays: declaration, initialization, accessing elements, and performing basic operations like sum and average.