Basic Core Programs

1. Flip Coin and print percentage of Heads and Tails

• I/P → The number of times to Flip Coin. Ensure it is a positive integer.

• Logic → Use Random Function to get value between 0 and 1. If < 0.5 then tails or heads.

• O/P → Percentage of Head vs Tails.

2. Leap Year

• I/P → Year, ensure it is a 4 digit number.

• Logic → Determine if it is a Leap Year.

• O/P → Print the year is a Leap Year or not.

3. Power of 2

• Desc → This program takes a command-line argument N and prints a table of the powers of 2 that are less than or equal to 2^N.

• I/P → The Power Value N. Only works if $0 \leq N < 31$ since 2^{31} overflows an int.

• Logic → Repeat until i equals N.

• O/P → Print the year is a Leap Year or not.

4. Harmonic Number

• Desc → Prints the Nth harmonic number: $1/1 + 1/2 + 1/3 + \ldots + 1/N$.

• I/P → Harmonic Value N. Ensure $N \neq 0$.

• Logic → Compute $1/1 + 1/2 + 1/3 + \ldots + 1/N$.

• O/P → Print the Nth Harmonic Value.

5. Factors

• Desc → Computes the prime factorization of N using brute force.

• I/P → Number to find the prime factors.

• Logic → Traverse till $i*i \leq N$ instead of $i \leq N$ for efficiency.

• O/P → Print the prime factors of number N.

6. Java Program to Compute Quotient and Remainder

7. Java Program to Swap Two Numbers

8. Java Program to Check Whether a Number is Even or Odd

9. Java Program to Check Whether an Alphabet is Vowel or Consonant

10. Java Program to Find the Largest Among Three Numbers