Basic Core Programs

1. Flip Coin and print percentage of Heads and Tails

a. I/P -> The number of times to Flip Coin. *Ensure it is a positive integer*. b. Logic -> Use Random Function to get value between 0 and 1. If < 0.5 then tails or heads
c. O/P -> Percentage of Head vs Tails

2. Leap Year

a. I/P -> Year, ensure it is a 4 digit number.
b. Logic -> Determine if it is a Leap Year.
c. O/P -> Print the year is a Leap Year or not.

3. Power of 2

a. 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.
b. I/P -> The Power Value N. *Only works if 0 <= N < 31 since 2^31 overflows an int*
c. Logic -> repeat until i equals N.
d. O/P -> Print the year is a Leap Year or not.

4. Harmonic Number

a. Desc -> Prints the Nth harmonic number: 1/1 + 1/2 + ... + 1/N (http://users.encs.concordia.ca/~chvatal/notes/harmonic.html).
b. I/P -> The Harmonic Value N. *Ensure N != 0*
c. Logic -> compute 1/1 + 1/2 + 1/3 + ... + 1/N
d. O/P -> Print the Nth Harmonic Value.

5. Factors

a. Desc -> Computes the prime factorization of N using brute force.
b. I/P -> Number to find the prime factors
c. Logic -> Traverse till i*i <= N instead of i <= N for efficiency.
d. O/P -> Print the prime factors of number N.

6. C# Program to Compute Quotient and Remainder
7. C# Program to Swap Two Numbers
8. C# Program to Check Whether a Number is Even or Odd
9. C# Program to Check Whether an Alphabet is Vowel or Consonant
10. C# Program to Find the Largest Among Three Numbers