

# Repetition Practice Problems with for loop

1. Write a program that takes a command-line argument  $n$  and prints a table of the powers of 2 that are less than or equal to  $2^n$ .
2. Write a program that takes a command-line argument  $n$  and prints the  $n$ th harmonic number. Harmonic Number is of the form
$$H_n = \frac{1}{1} + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \dots + \frac{1}{n}$$
3. Write a program that takes a input and determines if the number is a prime.
4. Extend the program to take a range of number as input and output the Prime Numbers in that range.
5. Write a program that computes a factorial of a number taken as input.  
5 Factorial –  $5! = 1 * 2 * 3 * 4 * 5$
6. Write a program to compute Factors of a number  $N$  using prime factorization method.  
Logic -> Traverse till  $i*i \leq N$  instead of  $i \leq N$  for efficiency.  
O/P -> Print the prime factors of number  $N$ .