

Exercise 1 (15 minutes)

Write a program using **while loop** to determine a prime number. (A prime number is a number which is divisible by 1 or itself without leaving any remainder. Example: 4, 9, 15 and 16 are NOT prime numbers while 2, 3, 5 and 7 are prime numbers)

Exercise 2 (20 minutes)

Write a program using **while loop** that can read an integer number and determine whether the sum of the cubes of the digits is equal to the number itself. Display a message indicating whether the sum of the cubes is equal or not equal to the number.

For example, if the number is **563** is entered as input, the sum of the cubes of the digits is

$$5^3 + 6^3 + 3^3 = 125 + 216 + 27 = 368$$

which is not equal to **563**.

On the other hand, if the number is **371** entered as input, the sum of the cubes of the digits is

$$3^3 + 7^3 + 1^3 = 27 + 343 + 1 = 371$$

which is equal to **371**.

Exercise 3 (10 minutes)

Write a program using **do...while loop** that calculates and prints the average of several integers. Continue reading values until the sentinel 9999 is read. A typical set of input values might be

10 8 11 7 9 14 9999

indicating that the average values preceding 9999 is to be calculated.