

1. Write a program that reads in a Fahrenheit temperature. Convert the temperature to Celsius using the formula:

$$\text{Celsius} = 5 * (\text{Fahu} - 32) / 9$$

If the temperature is higher than 30oC, print "It is too hot!" if the temperature is lower than 10oC, print "It is too cold!" otherwise, print "It is so good!".

2. Write a program to read in 7 integers from the user and store in an array. Find the maximum, mean, and minimum of these 7 integers and output their corresponding indices.
3. Read in a positive integer N. If the user inputs 0 or a negative integer, quit the program directly. If the user inputs a positive integer, use while statements to calculate three values:

$$1 - \sum_{i=1}^N i = 1 + 2 + \dots + N \quad 2 - \sum_{i=1}^N i^2 = 1^2 + 2^2 + \dots + N^2 \quad 3 - \sum_{i=1}^N i^3 = 1^3 + 2^3 + \dots + N^3$$

And print these three values.

Write a pseudo code to solve the above problem.

4. Assume you make an investment of HK\$20,000 at the beginning of every year. The yearly return rate is 10%. For example, at the end of the first year, you will have HK\$22,000; then you invest another HK\$20,000; at the end of the second year, you will have HK\$46,200. Write a program to determine after how many years you will have HK\$10million.
5. Write a function integerPower(char base, char exponent) that returns the value of $\text{base}^{\text{exponent}}$. For example, integerPower(3, 4) = 3*3*3*3 = 81. Assume the exponent is a positive, nonzero integer. Write a C program to use your function integerPower() to calculate and print 2^i for all i that $1 \leq i \leq 30$.
6. Write a function with prototype char multiple (char a, char b), which returns 1 if b is a multiple of a, and 0 otherwise. Then write a C program, which prompts the user to input a pair of integers. If one of the integers is a multiple of another integer, the program stops and quits; otherwise, the program keeps on prompting the user to input a pair of integers, until one integer is a multiple of another.