
Lab 4 - Statements in C

1. Real numbers of a sequence of size n are read from the standard input. Find and print to standard output: the minimum and the maximum values of this sequence, and their positions (indices) in the sequence. ★
2. Given a sequence of n real numbers sorted in ascending order, verify if a given value, x , exists in the given sequence, and display this value and its position. ★
3. Write a program to generate all the prime numbers less than or equal to a natural number, n . ★
4. Read from the standard input a natural number, n . Find the greatest perfect square that is less than or equal to n . Then find the least prime number that is greater than or equal to n . ★
5. Read from the standard input a natural number, n . Check if this number is palindrome. ★★
6. Given a matrix of $n \times n$ elements verify if this matrix is symmetric. ★★
7. Given 2 lists of integers compute the following:
 - (a) The intersection of the 2 lists. ★
 - (b) The union of the 2 lists. ★★
 - (c) The elements of the first list that are not present in the second list. ★
8. Read from the standard input the hexadecimal digits of an integer hexadecimal number. Find and display the equivalent decimal number. ★★
9. Read from the standard input the degree and the coefficients of the polynomial $p(x) = a_0 + a_1 * x^1 + a_2 * x^2 + \dots + a_n * x^n$. Compute and display the value of the polynomial for $x = x_0$ (x_0 is read from the standard input). ★★
10. Write a program to perform the operations $+$, $-$, $*$ on two polynomials:
$$A(x) = a_0 + a_1 * x^1 + a_2 * x^2 + \dots + a_n * x^n$$
$$B(x) = b_0 + b_1 * x^1 + b_2 * x^2 + \dots + b_n * x^n$$
The degrees and the coefficients are read from the keyboard. ★★★
11. Given a sequence of n integer numbers, extract the maximum length subsequence which is in ascending order. ★★★
12. Given a real number a written in base 10, write a program to convert this number in base B , where $B \leq 16$. ★★★
13. Given a natural number n :
 - (a) Find the number obtained by eliminating those digits that appear more than once in that number. ★★★
 - (b) Find the number obtained by switching the first digit with the last one, the second with the next to last one, and so on. ★★
 - (c) Find the biggest number that could be obtained by a combination of its digits. ★★★

References

- Pb. 1-13 [\[1\]](#)

[1] Iosif Ignat & Marius Joldoş. *CP Laboratory Guide 4: Statements in C*.