

Test task for C/C++ developers before applying for a technical interview in Nokia

Estimation time: not more than 90 minutes.

Send results in any text file (*.doc, *.txt, *.cpp, etc.).

Depending on position you apply for, try to demonstrate your embedded programming skills, C or C++ language features and standard library knowledge, testing skills, ability to write maintainable code.

1. Write a function that calculates the first N prime numbers and put these numbers in the array passed to it.
2. Write a function that counts the number of words in the text for each word length (X words with 1-letter length, Y words with 2-letters length, etc..)
3. There is a list:

```
struct List {  
    struct List* next;  
    SomeDataType payload;  
}
```

Write a function that removes every fifth (5) element from this list.

4. The input of the function receives an unsigned integer 32-bit number. Write a code to display the maximum and minimum unsigned integer 32-bit number, which can be obtained using the same number of units in the binary representation, as well as the original number.
5. There is a binary tree:

```
struct TreeNode {  
    struct TreeNode* leftChild;  
    struct TreeNode* rightChild;  
}
```

Write a function that calculates the depth of the tree (the maximum number of nodes in the path from the root to the leaf). Print paths in the tree that have such depth.