
Solution 1: Hello World!

Kattis id: hello

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The problem does not have any input and the output should be the “secret message.”

1.1 Solution

The trick is to realize that the secret message is “Hello World!” and not to forget `std::endl` or `\n` if you are using C++ or C.

1.2 Pseudo code

Using the `algorithm`-environment one can typeset pseudo-code fairly easily with a reasonable result.

Algorithm 1: Hello World solution.

Input: There is no input

Output: The secret message

HELLOWORLD()

(1) **print** "Hello World\n"

Lemma 2.2.1.

$$\forall x : x \in \mathbb{Z} \Rightarrow x^2 \in \mathbb{N}$$

Theorem 2.2.2.

$$\forall x : A(x) \Rightarrow B(X)$$

2.3 An Algorithm

Using the `algorithm`-environment one can typeset pseudo-code fairly easily with a reasonable result.

Algorithm 2: An example of the `algorithm`-environment.

Input: A non-empty set $U = \{u_1, u_2, \dots, u_n\}$ of integers

Output: The largest element and a set A , $|A| = \log n$, containing the second largest element. (If $n = 1$, then $A = \emptyset$).

MAX2(U)

- (1) **if** $|U| = 1$
- (2) **return** (u_1, \emptyset)
- (3) **else if** $|U| = 2$
- (4) **if** $u_1 > u_2$ **then return** $(u_1, \{u_2\})$
- (5) **else return** $(u_2, \{u_1\})$
- (6) **else**
- (7) $(b, B) \leftarrow \text{MAX2}(\{u_i\}_{i=1}^{\lfloor n/2 \rfloor})$
- (8) $(c, C) \leftarrow \text{MAX2}(\{u_i\}_{i=\lfloor n/2 \rfloor+1}^n)$
- (9) **if** $b > c$ **then return** $(b, \{c\} \cup B)$
- (10) **else return** $(c, \{b\} \cup C)$