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Code Analyzer IPPcode22

Script reads the code in the language IPPcode22 from STDIN, checks the lexical and syntactic correctness of the program and prints XML representation on STDOUT.

Implementation

The program reads individual lines of code from the file (STDIN) and first of all removes comments and empty lines, replaces white characters with one space using a suitable regex and checks for a header. It uses a global variable that changes only once to check if the header has already been found. If it finds a header, it continues processing lines that now contain only instructions.

Instructions and XML representation

Function `instructionDivider` takes loaded line and in the first step divides it into individual words.

Next calls function `countOfArguments` which checks the correctness of the instruction - it's modified by the `strtoupper` function and the number of arguments. If this function does not end with the appropriate error return code, then we call function `checkTypesOfArgument`.

Function `checkTypesOfArgument` for an individual instruction, determines the type of each argument by function `typeCheck`.

Function `typeCheck` it also controls the restrictions on variable names and literals. The function returns the type and value of the argument as an array.

If the argument types are correct, it adds them to the XML tree by calling the `addToXML` function. This function adds additional successors to the previously created “program” root element using the PHP `addChild` and `addAttribute` functions. The built-in PHP function `htmlspecialchars` converts problematic characters in XML.

After such processing of the last instruction, the resulting XML representation will be generated. This representation will be saved as a `DOMDocument` using `loadXML` and passed to standard output.

Spuštění

```
php parse.php [--help] <file containing code in the language IPPcode22>
```