Telerik Academy Alpha / C# - 17 July 2017

Task 1: Count them

Description

- Your task is to count the variables in a programming language called **@lpha.ts**
- All the variables start with **@**
- The variables names are case sensitive
  - **@test** is different from **@Test**
- The variables must start with _ **or any latin letter**
- The allowed symbols are **latin letters and digits and underscores [A-Za-z0-9_]**
  - Valid variables
    - **@test**
    - **@Johnie**
    - **@_test121**
    - **@tes_ta**
  - Invalid variables
    - **@123**
    - **@test\**
    - **@test-a**
- Arrays are declared as you know them from C#
  - **@arr[0]**
  - **@arr["test"]**
  - **@arr[@index]**
- The strings are enclosed in **"** (double) or in **'** (single) quotes
- You are allowed to use variables in strings if they are preceded by **@**

```
@test = 'Random string @valid_variable';
```

- The comments are as in C#. All variables and strings inside comments must be ignored
  - single line comment starts with **//** or with **#**

```
// this is a comment @test and the @test is not a variable
```

  - multi-line comment starts with **/*** and ends with ***/**

```
/* this is a comment @test
and the @test is not a variable */
```

- Some symbols in **@lpha.ts** must be escaped
  - Escaping is done with a backslash \
  - If you escape a variable inside a string with \ it is not a variable

```
$test = 'Random string \$valid_var';
```

  - If a string is within single quotes you can use double quotes inside it without escaping
  - If a string is within double quotes you can use single quotes inside it without escaping

Input

- The input data should be read from the console. The input will be valid @lpha.ts code. The last line of the code will alway be **{!}**. The input data will always be valid and in the format described. There is no need to check it explicitly.

Output

- The output data should be printed on the console. On the first output line you must print count of the found variables **N**. On the next **N** lines you should print the variables without the **@** sign sorted in alphabetical order.

Constraints

- The input string will always be valid
- All variable names in the code will be valid, there is no need to check them explicitly.
- The input string will max 1 000 000 characters.
- **Time limit: 0.8 s**
- **Memory limit: 32 MB**

Sample Tests

Sample Input 1

```
  @variable = @_arr['key']   ;
  @arr =    [];
  @arr[@index]    = @variable;
    print(@arr);
{!}
```

Sample Output 1

```
4
_arr
arr
index
variable
```

Sample Input 2

```


/* This is @test in comment */
@myVar = "Some string \@var4 with var escaped.";
print(@test); print("@foo, @bar");
// Another comment with variable @invalid
{!}

```

Sample Output 2

```
4
bar
foo
myVar
test
```

Sample Input 3

```
@valid='Random string @valid_new';  // this is a comment @invalid
@test="Just another var @Test..."; @Test=@new_var;
{!}
```

Sample Output 3

```
5
new_var
test
Test
valid
valid_new
```