Disclaimer

I'm not a native speaker but I'm doing my best.

If I say something that may be interpreted as either negative or positive (e.g. a joke vs. an offense) I always, always, mean the positive.

A SAS Code Hidden in Plain Sight

Paper 189-2023

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The Question

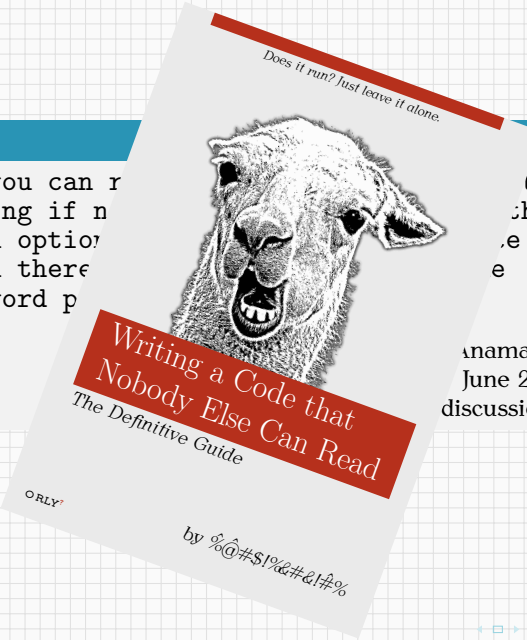
"Is there any way you can run a code, without seeing the program ? I am asking if needed to share the code with someone, we can add options to not display the source code to the log, but can there be any restrictions on the program, like password protected?"

Anamaria Dinu,
June 24th, 2021,
at sasensei discussion group

The Question

"Is there any way you can r … the
program ? I am asking if n … ch
someone, we can add optio… e code
to the log, but can there … e
program, like password p…

… namaria Dinu,
June 24th, 2021,
discussion group



The Quote

"If you know the system well enough, you can do things that aren't supposed to be possible."

Linus Torvalds

The Code

"Good programming presentation should contain a code snippet and a joke, but it’s essential to tell which is which."

Konstanty Junosza-Szaniawski

Macros

```
%macro notSecretMacro(question) ;
  data _null_;
    x = 42;
    put "The answer for &question. is: " x;
  run;
%mend;

%macro secretMacro(question) / SECURE ;
  data _null_;
    x = rank("*");
    put "The answer for &question. is: " x;
  run;
%mend;
```

Functions

```
proc FCMP outlib=work.notSecret.p;
  function notSecret(question $);
    x = 42;
    return(x);
  endsub;
run;

proc FCMP outlib=work.secret.p ENCRYPT ;
  function secret(question $);
    x = rank("*");
    return(x);
  endsub;
run;
```

Challenge

```
proc FCMP outlib = work.secretFunction.p ENCRYPT ;
  function secretFunction();
    %macro littleSecretMacro(question) / SECURE ;
      data _null_;
        x = rank("*");
        put "The answer for &question. is: " x;
      run;
    %mend;
  endsub;
run;
```

Challenge

```
proc FCMP outlib = work.secretFunction.p ENCRYPT ;
  function secretFunction();
    %macro littleSecretMacro(question) / SECURE ;
      data _null_;
        x = rank("*");
        put "The answer for &question. is: " x;
      run;
    %mend;
  endsub;
run;
```

How to solve this task?

Challenge

```
proc FCMP outlib = work.secretFunction.p ENCRYPT ;
  function secretFunction();
    %macro littleSecretMacro(question) / SECURE ;
      data _null_;
        x = rank("*");
        put "The answer for &question. is: " x;
      run;
    %mend;
  endsub;
run;
```

How to solve this task?

```
data _null_;
   rc = RESOLVE();
run;
```

The Code

```
proc FCMP outlib = work.gsm.secure ENCRYPT ;
  function generateMacro() $;
    rc = RESOLVE('
      %macro ultimateSecretMacro(question) / SECURE ;
        data _null_;
          x = rank("*");
          put "Dear user, the answer for &question. is: " x;
          put "So long, and thanks for all the fish!";
        run;
      %mend;
    ');
    return (rc);
  endsub;
run;
```

The Code (fixing limitations)

```
proc FCMP outlib = work.gsm.secure ENCRYPT ;
  function generateFinalMacro() $;
    rc = RESOLVE('
      %macro finalUltimateSecretMacro(question) / SECURE ;
        %local rc;
        %let rc = %sysfunc(doSubL(%str(
        options ps=min nonotes nomprint nosymbolgen nomlogic nosource;
          data _null_;
            x = rank("*");
            put "Dear user, the answer for &question. is: " x;
            put "So long, and thanks for all the fish!";
          run;
        )));
      %mend;
    ');
    return (rc);
  endsub;
run;
```

Is there a SAS package for this job?

Of course there is!

The GSM package..

github.com/yabwon/SAS_PACKAGES

github.com/SASPAC/gsm

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dziękuję

Polish SAS Users Group