

Introduction to the SAS System

Lab 11

- 11.1 Write a macro `%create(prefix,N,k,l)` that creates N data sets with the names `prefix1,...,prefixN`. Each data set should have k variables and l observations from the uniform distribution on $(-1,1)$.
- 11.2 Write a macro `%count(set,variables,n)` which for every variable from the data set `set` will find the number of observations larger than the number n .
- 11.3 Transform the data set **dots** into **no.dots**. (That is, remove the missing values for every variable in **dots**.)
- 11.4 Assume that a data set **a** contains one numerical variable and 50 observations. Write a macro that creates a data set **averages** with one variable and 50 observations. The i th observation in **average** should be the average of the observations from **a** numbered $\{i, \dots, 50\}$. The problem should be solved in two ways:
 - (a) one can merge a number of copies of **a** (with appropriately shifted observations),
 - (b) one can transpose the set **a** (and count the averages from the relevant columns).
- 11.5 Write a macro that returns the number of words in a given macrovariable and a macro that writes each word from a given macrovariable into a separate macrovariable.
- 11.6 Write a macro that computes the value of $n!$ (the macro should not contain any DATA STEP).
- 11.7 Write a macro that depends on two parameters `names` and `chars` and shows in the Log window all the words from a given string `names` that do not contain the characters listed in the parameter `chars`.
- 11.8 Generate N macrovariables named $z1, \dots, zN$ so as to have a randomly chosen capital letter as the value of each macrovariable. (Clearly, it may happen that the values of distinct macrovariables are identical.) Show in the Log window all the macrovariables with distinct values.
- 11.9 Write a macro `%comb(n,k)` that creates for given $n, k \in \mathbb{N}$ a data set **combinations** with k variables and $\binom{n}{k}$ observations. The rows of **combinations** should contain k -element combinations of the set $\{1, \dots, n\}$.