Final Exam, Question 2 Script

Stats 506, Fall 2019

12/16/2019

```
/* Final Exam, Question 2
 * Stats 506, Fall 2019
 *
 * Description:
 *
 * Data: This script relies on a subset of the NOAA Atlantic
 *       hurricane database best track data, distributed with the R package
 *       dplyr as `dplyr::storms`.  It has been previously imported into a
 *       SAS library and resides at './storms.sas7bdat'.
 *??
 *??
 */
/* 80: ---------------------------------------------------------------------- */
/* <Task 1>: complete the header information above. */

/* library: ----------------------------------------------------------------- */
libname mylib './';

/* macro variables: --------------------------------------------------------- */
%let z = quantile("NORMAL", .975);

/* sort data into working memory: ------------------------------------------- */
proc sort data=mylib.storms out=storms;
 by year name month day hour;
run;

/* concatenate name and year to form unique id: ----------------------------- */
data storms;
 set storms;
 id = cats(year, '-', name); /* Like paste() in R */
run;

/* Find rows corresponding to the maximum category for each storm: ---------- */
proc summary data=storms;
 by id;
 output out=max_cat
  max(category) = max_category;

data storms;
 merge storms max_cat;
 by id;
 where category = max_category;
run;

proc sort data=storms out=storms;
 by category id;
run;
```

“‘sas /* macro for computing the

, by category, for variable “var”: ——- */

%macro task3(var);

proc summary data=storms; by category id; output out = max_&var. max(&var.) = max_&var.;

proc summary data=max_&var.; by category; output out = summary_&var. mean(max_&var.) = xbar std(max_&var.) = sd;

data mylib.task3_&var.; set summary_&var; n = *FREQ*; task3_&var. = xbar; lwr = xbar - &z.*sd / sqrt(n); upr = xbar + &z.*sd / sqrt(n); keep category n task3_&var. lwr upr;

%mend; run;

/* use the macro to compute

for wind and pressure: ————- */ %task3(wind); run;

%task3(pressure); run;

/* 80: ——————————————————————————- */ “‘