* libname

```
libname x1 'path1';
libname xlsx1 xlsx 'path2';

libname myref '/folders/myfolders';
proc contents data=myref._all_ nods;
```

* proc contents;

```
libname myxcel xlsx '/folders/myfolders/Q12.xlsx';
proc contents data=myxcel._all_ nods;run;

proc contents data = xlsx1.sheet1;
run;
```

* proc print;

```
proc print data=myxcel.a (firstobs=3 obs=3);
run;

proc print data=dataset;
	var v1 v2;
	by v3;
	title 'string';
run;
```

* proc means;

```
proc means data = xlsx1.sheet1 mean maxdec=3;
	var v1 v2 v3;
run;

proc means data = dataset mean;
	by gv1 gv2;
	var v1;
	output out=dataset2
		sum(v1 v2) = sv1 sv2
		max(v3 v4) = mv3 mv4;
run;
```

* proc sort;

```
proc sort data = inputdata out = temp nodupkey dupout = another;
	by postalcode descending income;
run;

data outputdata;
	set temp;
	if first.postalcode then output;
run;
```

* data step;

```
data test;
	set weather;
	keep station a;
	a = input(substr(station, 4), best12.);
run;

data test;
	set cars;
	keep make model zflag;
	if find(model,'2') ne 0 or find(model,'4') ne 0 then zflag = 1;
	else zflag = 0;
run;

data output1 output2 output3;
	set dataset;
	if expression1 then output output1;
	else if expression2 then output output2;
	else output3;
run;

data new;
	set old;
	where v1='string' and missing(v2) and v3='';
run;

data new (drop=math:); /* remove variables such as math_1 math_2 etc. */
run;
```

* merge;

```
proc sort data=temp1 out=temp1s;
	by v1;
run;

data new;
	merge temps1 temps2;
	by v1;
run;
```

* strings;

```
data old;
	infile cards dsd;
	input v1$ v2$ v3$;
	datalines;
	adadabcdldldg,,,
	aaabcdkkkkkkk,,,
	abcdiiiiiiiii,,,
	;
run;

data new;
	set old;
	keep v1 v2 v3;
	if find(v1, 'abcd') ne 0 then
		do;
			v2 = strip(substr(v1, 1, find(v1,'abcd')-1));
			v3 = strip(substr(v1,find(v1,'abcd')+4));
		end;
run;

data old;
	length v1 $10. v2 $10.;
	infile 'filepath';
	input v1$ v2$;
run;

data new;
	set old;
	v3 = catx(' ', v1, v2);
run;
```

```
data new;
	set old;
	if v1 =: 'abcd' then delete; /* =: starts with */
run;
```

* count, first., last.;

```
data count;
	set cars;
	by origin;
	if first.origin then count = 0;
	count + 1;
	if last.origin;
run;

data countflag;
	set dataset end=myend;
	if zflag = 1 then count1 + 1;
	else if zflag = 0 then count2 + 1;
	if myend=1 then output; /* only output the last observation */
run;


data new;
	set old;
	where v1='string' and missing(v2) and v3='';
run;
```

* proc freq;

```
proc freq data=dataset;
	table v1 v2;
	where expression;

proc freq data= dataset;
	tables v2 v3 / norow nocol nopercent nofreq out=table1;
	tables v1 * v2;
run;

proc freq data = ...;
	table v1 v2  / out = d1;
	table v1 * v2;
	table v1 * (v2 v3);
run;
```

* proc import;

```
proc import datafile='filepath'
                        out = dataset
                        dbms = xlsx /* xls excel */
                        replace;

                        sheet = 'sheetname';
                        range = 'sheetname$ul:lr';
                        getnames = no;
                        guessingrows = 20; /* use this to help determine variable type and length */
                        mixed = yes;
run;

proc import datafile = 'filepath'
                        out = dataset
                        dbms = dlm /* csv tab dlm */
                        replace;

                        datarow = 1;
                        getnames = no;
                        guessingrows = 20; /* use this to help determine variable type and length */
                        delimiter = '&'; /* write this statement only when dbms = dlm */
run;
```

* select a specified observation;

```
proc print data=dataset (firstobs=5 obs=5);run;

data temp;
        n=3;
        set dataset point=n;
        output;
        stop;
RUN;

data temp;
        set dataset end = myend;
        if myend = 1 then output; /* output the last observation */
run;
```

* proc transpose;

```
proc transpose data = olddataset out = newdataset;
        by gv1 gv2;
        id iv1;
        var av1;
run;
```

* macro;

```
%let v1 = string1;
%let v2 = string2;

vs1 = "sss&v1.ssss";
vs2 = "&v1&v2"

%let v3 = 10;
va3 = v3 + 10;
```

* do loop;

```
do until(expression);
        statements;
end;

do x = 1 to 100 by 2;
end;
```

* proc report;

```
proc report data = d1;
        column v1 v2;
        column v1,v2;
        column v1,(v2 v3);
        column v1 v2,(max min) v3,(v4 v5),mean;
        define v1 / display;
        define v2 / order;
        define v3 / group;
        define v4 / sum;
```

* proc format;

```
proc format;
        value levels (fuzz.=0.2) 1 = 'A'
                                                2 = 'B';
run;

proc format;
        value ddd (fuzz.=0.2) 1 = 'A'
                                                2 = 'B'
                                                3 - high = 'C'
                                                3 -< 10  = 'D'
                                                1 <- 10 = 'E'
                                               other = 'F';
```