```sas
*libname learn 'C:\Users\Victor H\Documents\My SAS Files';
*libname myfmts 'C:\Users\Victor H\Documents\My SAS Files\formats';
*options fmtsearch=(myfmts);

proc format;
value agegrp 0 - 30 = '0 to 30'
31 - 50 = '31 to 50'
51 - 70 = '50 to 70'
71 - high = '71 and older';
value $party 'D' = 'Democrat'
'R' = 'Republican';
value $likert '1' = 'Strongly Disagree'
'2' = 'Disagree'
'3' = 'No Opinion'
'4' = 'Agree'
'5' = 'Strongly Agree';
value $three '1','2' = 'Disagreement'
'3' = 'No opinion'
'4','5' = 'Agreement';
run;
data voter;
input Age Party : $1. (Ques1-Ques4)($1. + 1);
label Ques1 = 'The president is doing a good job'
Ques2 = 'Congress is doing a good job'
Ques3 = 'Taxes are too high'
Ques4 = 'Government should cut spending';
format Age agegrp.
Party $party.
Ques1-Ques4 $likert.
Ques1-Ques4 $three.;
datalines;
23 D 1 1 2 2
45 R 5 5 4 1
67 D 2 4 3 3
39 R 4 4 4 4
19 D 2 1 2 1
75 D 3 3 2 3
57 R 4 3 4 4
;
title "Listing of Voter";
proc print data=voter;
run;
title "Frequencies on the Four Questions";
proc freq data=voter;
tables Ques1-Ques4;
run;
```

1)

Subj	Drug	Total Cholesterol	LDL	HDL
1	Placebo	250	140	40
2	Active	200	110	54
3	Active	180	90	48
4	Placebo	233	127	34
5	Active	210	127	46
6	Placebo	260	150	59

```
data drugtest;
input
          Subject $
          Drug $
          TotChol
          LDL
          HDL;
run;


datalines;
1      Placebo      250    140    40
2      Active       200    110    54
3      Active       180    90     48
4      Placebo      233    127    34
5      Active       210    127    46
6      Placebo      260    150    59


;

proc print data=drugtest;
run;
```

1)

```sas
data school;
input Age Quiz : $1. Midterm Final;

if Age eq 12 then AgeGroup = 6;
     else if Age eq 13 then AgeGroup = 8;

if Quiz = 'A'
     then QuizRange = 95;
if Quiz = 'B'
     then QuizRange = 85;
if Quiz = 'C'
     then QuizRange = 75;
if Quiz = 'D'
     then QuizRange = 70;
if Quiz = 'F'
     then QuizRange = 65;

Grade = QuizRange*.2 + Midterm*.3 + Final*.5 ;

datalines;
12 A 92 95
12 B 88 88
13 C 78 75
13 A 92 93
12 F 55 62
13 B 88 82
;

title "Listing of School";
proc print data=school;
run;
```

1)

```sas
data vitals;
input ID : $3.
Age
Pulse
SBP
DBP;
label SBP = "Systolic Blood Pressure"
DBP = "Diastolic Blood Pressure";
datalines;
001 23 68 120 80
002 55 72 188 96
003 78 82 200 100
004 18 58 110 70
005 43 52 120 82
006 37 74 150 98
007 . 82 140 100
;

data newvitals;
set vitals;
if Age lt 50 and not missing(Age) then do;
if Pulse lt 70 then PulseGroup = 'Low ';
else PulseGroup = 'High';
if SBP lt 140 then SBPGroup = 'Low ';
else SBPGroup = 'High';
end;
else if Age ge 50 then do;
if Pulse lt 74 then PulseGroup = 'Low';
else PulseGroup = 'High';
if SBP lt 140 then SBPGroup = 'Low';
else SBPGroup = 'High';
end;
run;
title "Listing of NEWVITALS";
proc print data=newvitals noobs;
run;
```

2)

```sas
data monthsales;
input month sales @@;
sumsales+sales;
retain sumsales 0;
datalines;
1 4000 2 5000 3 . 4 5500 5 5000 6 6000
7 6500 8 4500 9 5100 10 5700 11 6500 12 7500
;
proc print data=monthsales;
run;
```


7)

```sas
data plotit;
do x = 0 to 10 by .1;
y = 3*x**2 - 5*x + 10;
output;
end;
run;
goptions reset=all
ftext='arial'
htext=1.0
ftitle='arial/bo'
htitle=1.5
colors=(black);
symbol v=none i=sm;
title "Problem 7";
proc gplot data=plotit;
plot y * x;
run;
quit;
```

8)

```sas
data logitplot;
do p=0 to 1 by 0.05;
Logit=LOG(p/(1-p));
output;
end;
run;
goptions reset=all ftext='arial' htext=1.0 ftitle='arial/bo' htitle=1.5
colors=(black);
symbol v=none i=sm;
title "Logit Plot";
proc gplot data=logitplot;
plot Logit * p;
run;
quit;
```

11)

```sas
data temperature;
length City $ 7;
do City = 'Dallas','Houston';
do Hour = 1 to 24;
input Temp @;
output;
end;
end;
datalines;
80 81 82 83 84 84 87 88 89 89
91 93 93 95 96 97 99 95 92 90 88
86 84 80 78 76 77 78
80 81 82 82 86
88 90 92 92 93 96 94 92 90
88 84 82 78 76 74
;
title "Temperatures in Dallas and Houston";
proc print data=temperature;
run;
```

13)

```sas
data money;
do Year = 1 to 999 until (Amount ge 30000);
Amount + 1000;
do Quarter = 1 to 4;
Amount + Amount*(.0425/4);
output;
end;
end;
format Amount dollar10.;
run;
title "Listing of MONEY";
proc print data=money;
run;
```

8)

```sas
data dataset;
input Day Month Year;
datalines;
25 12 2005
1 1 1960
21 10 1946
;

data sevenques8;
set dataset;
Date = mdy(Month,Day,Year);
format Date mmddyy10.;
run;

proc print data=sevenques8;
run;
```

9)

```sas
data dates;
input Day Month Year;
if missing(Day) then Date = mdy(Month,15,Year);
else Date = mdy(Month,Day,Year);
format Date mmddyy10.;
datalines;
25 12 2005
. 5 2002
12 8     2006
;

title "Listing of DATES";
proc print data=dates noobs;
run;
```

1)

```sas
data subset_a;
set learn.blood;
where Gender eq 'Female' and BloodType='AB'; Combined = .001*WBC + RBC;
run;
title "Listing of SUBSET_A"; proc print data=subset_a noobs; run;
data subset_b;
set learn.blood;
Combined = .001*WBC + RBC;
if Gender eq 'Female' and BloodType='AB' and Combined ge 14;
run;
title "Listing of SUBSET_B";
proc print data=subset_b noobs;
run;
title "Listing of SUBSET_B";
proc print data=subset_b noobs;
run;
```

2)

```sas
data work.monday2002;
set work.hosp;
where year(AdmitDate) eq 2002 and
weekday(AdmitDate) eq 2;
Age = round(yrdif(DOB,AdmitDate,'Actual'));
run;
title "Listing of MONDAY2002";
proc print data=work.monday2002;
run;
```

3)

```sas
data lowmale lowfemale;
set learn.blood;
where Chol lt 100 and Chol is not missing;

if Gender = 'Female' then output lowfemale;
else if Gender = 'Male' then output lowmale;
run;

title "Listing of LOWMALE";
proc print data=lowmale noobs;
run;

title "Listing of LOWFEMALE";
proc print data=lowfemale noobs;
run;
```

1)

```sas
data health;
set learn.health;
BMI = (Weight/2.2) / (Height*.0254)**2; BMIRound = round(BMI);
BMIRound_tenth = round(BMI,.1); BMIGroup = round(BMI,5); BMITrunc = int(BMI);
run;

title "Listing of HEALTH"; proc print data=health noobs;
run;
```

5)

```sas
data psychscore;
set learn.psych;
ScoreAve = mean(largest(1,of Score1-Score5),
largest(2,of Score1-Score5), largest(3,of Score1-Score5));
if n(of Ques1-Ques10) ge 7 then QuesAve = mean(of Ques1-Ques10);
Composit = ScoreAve + 10*QuesAve; keep ID ScoreAve QuesAve Composit;
run;

title "Listing of PSYCHSCORE";
proc print data=psychscore noobs;
run;
```

8)

```sas
data random;
  do i=1 to 1000;
  x=int(rand('uniform')*5)+1 /*OR*/ x=int(ranuni(0)*5+1);output ;end;
  run;
  proc freq data=random;
  tables x/missing;

run;
```

2)

```sas
data mixed;
set mixed;
length First Last $ 15 NameHard $ 20;
NameLow = lowcase(Name);
NameProp = propcase(Name);
First = lowcase(scan(Name,1,' '));
Last = lowcase(scan(Name,2,' '));
substr(First,1,1) = upcase(substr(First,1,1));
substr(Last,1,1) = upcase(substr(Last,1,1));
NameHard = catx(' ',First,Last);
drop First Last;
run;

proc print data=mixed;
run;
```

6)

```sas
data study;
set study;
length GroupDose $ 6;
GroupDose = catx('-',Group,Dose);
run;

proc print data=study;
run;

data study;
set study;
length GroupDose $ 6;
GroupDose = trim(Group) || '-' || Dose;
run;

proc print data=study;
run;
```

13)

```sas
data exact within25;
set learn.social;
if SS1 eq SS2 then output exact;
else if spedis(SS1,SS2) le 25 and
not missing(SS1) and
not missing(SS2) then output
within25;
run;
title "Listing of EXACT";
proc print data=exact noobs;
run;
title "Listing of WITHIN25";
proc print data=within25 noobs;
run;
```

17)

```
data personal;
set learn.personal(drop=Food1-Food8);
substr(SS,1,7) = '******';
substr(AcctNum,5,1) = '-';
run;
title "Listing of PERSONAL (with masked values)";
proc print data=personal noobs;
run;
```

3)

```
data nonines;
set learn.nines;
array nums{*} _numeric_;
do i = 1 to dim(nums);
if nums{i} = 999 then
call missing(nums{i});
end;
drop i;
run;
title "Listing of NONINES";
proc print data=nonines;
run;
```

2)

```sas
proc sort data=sales out=sales;
by Region;
run;

proc print data=sales;
by Region;
id Region;
var Quantity TotalSales;
sumby Region;
run;
```

4)

```sas
proc print data=blood(obs=5) noobs;
var SrNo Gender BloodGroup;
run
```

Chapter 15:

1)

```sas
title "First 5 Observations from Blood Data Set";
proc report data=learn.blood(obs=5) nowd headline;
column Subject WBC RBC;
define Subject / display "Subject Number" width=7;
define WBC / "White Blood Cells" width=6 format=comma6.0;
define RBC / "Red Blood Cells" width=5 format=5.2;
run;
quit;
```

4)

```
proc report data=bloodpressure nowd;
column Gender SBP DBP Hypertensive;
define Gender / Group width=6;
define SBP / display width=5;
define DBP / display width=5;
define Hypertensive / computed "Hypertensive?" width=13;
compute Hypertensive / character length=3;
if Gender = 'F' and (SBP gt 138 or DBP gt 88)
then Hypertensive = 'Yes';
else Hypertensive='No';
if Gender = 'M' and
(SBP gt 140 or DBP gt 90)
then Hypertensive = 'Yes';
else Hypertensive = 'No';
endcomp;
run;
quit;
```

5)

```
title "Patient Age Groups";
proc report data=learn.bloodpressure nowd;
column Gender Age AgeGroup;
define Gender / width=6;
define Age / display width=5;
define AgeGroup / computed "Age Group";
compute AgeGroup / character length=5;
if Age gt 50 then AgeGroup = '> 50';
else if not missing(Age) then AgeGroup = '<= 50';
endcomp;
run;
quit;
```

1)

```sas
options fmtsearch=(learn);

title "Statistics on the College Data Set";
proc means data=learn.college
n nmiss mean median min max maxdec=2;
var ClassRank GPA;
run;
```

2)

```sas
proc format library=learn;
value $yesno 'Y','1' = 'Yes'
'N','0' = 'No'
' '     = 'Not Given'; value $size 'S' = 'Small'
'M' = 'Medium'
'L' = 'Large'
' ' = 'Missing'; value $gender 'F' = 'Female'
'M' = 'Male'
' ' = 'Not Given';
run;
data learn.college;
length StudentID $ 5 Gender SchoolSize $ 1; do i = 1 to 100;
StudentID = put(round(ranuni(123456)*10000),z5.); if ranuni(0) lt .4 then
Gender = 'M';
else Gender = 'F';
if ranuni(0) lt .3 then SchoolSize = 'S';
else if ranuni(0) lt .7 then SchoolSize = 'M'; else SchoolSize = 'L';
if ranuni(0) lt .2 then Scholarship = 'Y'; else Scholarship = 'N';
GPA = round(rannor(0)*.5 + 3.5,.01); if GPA gt 4 then GPA = 4;
ClassRank = int(ranuni(0)*60 + 41);
if ranuni(0) lt .1 then call missing(ClassRank); if ranuni(0) lt .05 then
call missing(SchoolSize);
if ranuni(0) lt .05 then call missing(GPA); output;
end;
format Gender $gender1.
SchoolSize $size. Scholarship $yesno.;
drop i;
run;
options nofmterr;
format catalog;
proc sort data=learn.college out=learn.college2; by Gender SchoolSize;
run;
title "Statistics on the College Data Set - Using BY"; title2 "Broken down by
Gender and School
Size";
proc means data=learn.college2 n
```

```sas
nmiss mean median min max
maxdec=2;
by Gender SchoolSize; var ClassRank GPA; run;
title "Statistics on the College Data Set - Using CLASS"; title2 "Broken down
by Gender and School
Size";
proc means data=learn.college n
nmiss mean median min max
maxdec=2;
class Gender SchoolSize; var ClassRank GPA;
run;
```


3)

```sas
proc sort data=learn.college out=college;
by SchoolSize;
run;
title "Statistics on the College Data Set - Using BY";
title2 "Broken down by School Size";
proc means data=college
n
mean
median
min
max
maxdec=2;
by SchoolSize;
var ClassRank GPA;run;
title "Statistics on the College Data Set - Using CLASS";
title2 "Broken down by School Size";
proc means data=learn.college
n
mean
median
min
max
maxdec=2;
class SchoolSize;
var ClassRank GPA;
run;
```


5)

```sas
proc format;
value rank low-70 = 'Low to 70'
71-high = '71 and higher';
run;
title "Scholarship by Class Rank";
proc freq data=learn.college;
tables Scholarship*ClassRank;
format ClassRank rank.;
run;
```