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Proc format;
    value fmtins      0 = "Memorial Sloan-Kettering"
                     1 = "Mayo Clinic"
                     2 = "John Hopkins" ;

    value fmtgp       1 = "Study"
                     0 = "Control";

    value fmtmd       0 = "Routine Cytology"
                     1 = "Routine X-ray"
                     2 = "Both X-ray and Cytology"
                     3 = "Interval" ;

    value fmtsc       0 = "Alive"
                     1 = "Dead of lung cancer"
                     2 = "Dead of other causes";

    value fmtct       0 = 'Epidermoid'
                     1 = 'Adenocarcinoma'
                     2 = 'Large Cell'
                     3 = 'Oat Cell'
                     4 = 'Other';

    value fmtyn       1 = 'yes'
                     0 = 'no';

run;

*1 and 2 ,Label and Format SAS variables and read permanent SAS data set;
libname IN 'E:\Fall 2021\HandsOn\handson2';

data tumor;
    set IN.tumor;

    Label ptid = "Patient ID"
           detectiontype = "Means of Detection"
           celltype = "Cell Type"
           survivalcat = "Survival Category";

format institution fmtins. group fmtgp. detectiontype fmtmd. survivalcat
fmtsc. celltype fmtct.
Operated fmtyn.;

proc print data=tumor label;
    run;

    * 3;
proc contents data=tumor varnum short;
    run;

    *4;
proc freq data=tumor;
tables group survivalcat group*survivalcat/   nocol norow;* nopercents;
*out=IN.temp ;* table and tables are same;
run;

*5;

proc means data=tumor n mean std median;* noprint;

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class group;
var survival;
output out=outmean mean=ave_surv max=max_surv min = min_surv;
run;

proc sort data=tumor;
by group;
proc means data=tumor n mean std median;
var survival;
by group;
*output out=outmean mean=ave_surv max=max_surv min = min_surv;
run;

*6;
proc univariate data=tumor plot normal;
class group;
var survival;
title 'Descriptive Statistics on Survival';
title2 'By Treatment Group';
run;

proc sort data=tumor;
by group;
run;

proc plot data=tumor;
plot survival*stagea="o";
by group;
run;

*7;
proc ttest data=tumor;
class group;
var survival;
title ' T-test to compare the mean difference between treatment group';
footnote 'Hands on section 2';
run;

*8 and 9;
proc ttest data=tumor;
where stagea = 2;
class group;
var survival;
title ' T-test to compare the mean difference between treatment group in
Stage = 2';
footnote 'Hands on section 2';
run;

** Question2;
data OB;
input gender infection count;
datalines;
1 19 90
1 20 12
1 23 9
1 25 4

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2 21 3
2 23 10
2 25 4
2 29 30
;
proc print;
run;

*1;
proc sort;
by gender;
;

proc means data=ob;
by gender;
freq count;
run;

proc ttest data=ob;
class gender;
var infection;
freq count;
title "T-test using 'freq' option";
run;

*2;
proc freq data=ob;
table gender;
weight count;
title "Frequency table using 'weight' option";
run;

```