```
/*Tyler Edwards*/
/*12-5-2019*/
/*H.W.4*/

/*8.1*/
data P1;
    input min @@;
    datalines;
65 82 84 54 85 58 79 57 88 68 76 78 74 85 75
65 76 58 83 50 87 78 78 74 66 84 84 98 93 59
;
run;

proc univariate data = P1;
    var min;
    output out = P1out n = n_obs mean = P1Mean;
run;

proc print data = P1out;
run;

data _null_;
    set P1out;
    call symput ('n_obs', n_obs);
    call symput ("P1Mean", P1Mean);
run;

data jackknife_samples;
    do sample = 1 to &n_obs;
        do record = 1 to &n_obs;
            set P1 point = record;
                if sample ne record then output;
        end;
    end;
        stop;
run;

proc univariate data = jackknife_samples;
    var min;
        by sample;
    output out=jackknife_replicates mean = mean_revenue;
run;


data jackknife_replicates;
    set jackknife_replicates;
        pseudomean=&n_obs*&P1Mean-(&n_obs-1)*mean_revenue;
    by sample;
        keep pseudomean;
run;

proc means data=jackknife_replicates;
    var pseudomean;
    output out=CI LCLM=CI_95_lower UCLM=CI_95_upper;
run;

proc print data = CI;
run;
/* [70.1424, 79.2576] */

/*8.6*/
data P2;
    input Husband Wife @@;
    Diff = Husband - Wife;
```

```
    datalines;
66 63 64 68 77 67
66 65 76 67 64 66
75 62 69 67 72 68
64 68 68 64 68 65
80 71 72 62 76 68
72 69 62 62 65 66
72 66 76 69 68 66
78 70 83 70 77 66
65 61 66 66 77 63
73 70 70 64 75 66
63 63 63 65 73 70
70 68 70 63 76 62
75 69 67 61 64 64
79 66 75 68 77 65
77 64 76 62 63 66
73 70 76 62 74 63
69 68 69 64 80 64
67 70 72 62 64 61
77 71 70 61 69 70
72 62 74 63 79 64
;
run;

proc surveyselect data = P2 out = bootstrap_samples
    outhits seed=234567 method=urs samprate=1 rep=5000;
run;

proc corr noprint data=bootstrap_samples
    outs=bootstrap_replicates;
    var Husband Wife;
    by replicate;
run;

data bootstrap_replicates;
    set bootstrap_replicates;
    if(_type_='CORR' and _name_='Husband');
        spearman_corr = Wife;
    keep spearman_corr;
run;

proc univariate data=bootstrap_replicates;
    var spearman_corr;
    output out=CI2 pctlpre=CI_99_ pctlpts=0.5 99.5
        pctlname=lower upper;
run;

proc print data=CI2;
run;

/*6.2*/
    /*b*/
data P3;
    input years censored @@;
    datalines;
1.1 0 2.6 0 2.8 0 3.1 0 3.4 0 3.5 0 3.5 0
3.6 0 3.7 0 3.8 0 3.8 0 4.0 0 4.1 0 5.6 0
;

symbol color=black;
proc lifetest data = P3 plots=(survival);
    time years*censored(1);
run;

    /*c*/
```

```
/* 3.5 Years, About 2.5 years*/

/*6.5*/
data P4;
    input FirstName $ LastName $ InagurationAge StartYear InOffice LifeSpan Assasinated @@;
    datalines;
Washington George 57.2 1789 7.8 67.8 0
Adams John 61.3 1797 4.0 90.7 0
Jefferson Thomas 57.9 1801 8.0 83.2 0
Madison James 58.0 1809 8.0 85.3 0
Monroe James 58.8 1817 8.0 73.2 0
Adams Quincy 57.6 1825 4.0 80.6 0
Jackson Andrew 62.0 1829 8.0 78.2 0
VanBuren Martin 54.2 1837 4.0 79.6 0
Harrison William 68.1 1841 0.1 68.1 0
Tyler John 51.0 1841 3.9 71.8 0
Polk James 49.3 1845 4.0 53.6 0
Taylor Zachary 64.3 1849 1.3 65.6 0
Fillmore Millard 50.5 1850 2.7 74.2 0
Pierce Franklin 48.3 1853 4.0 64.9 0
Buchanan James 65.9 1857 4.0 77.1 0
Lincoln Abraham 52.1 1861 4.1 56.2 1
Johnson Andrew 56.3 1865 3.9 66.6 0
Grant Ulysses 46.9 1869 8.0 63.2 0
Hayes Rutherford 54.4 1877 4.0 70.3 0
Garfield James 49.3 1881 0.5 49.8 1
Arthur Chester 52.0 1881 3.5 57.1 0
Cleveland Grover 48.0 1885 8.0 71.3 0
Harrison Benjamin 55.5 1889 4.0 67.6 0
McKinley William 54.1 1897 4.5 58.6 1
Roosevelt Theodore 42.9 1901 7.5 60.2 0
Taft William 51.5 1909 4.0 72.5 0
Wilson Woodrow 56.2 1913 8.0 67.1 0
Harding Warren 55.3 1921 2.4 57.7 0
Coolidge Calvin 51.1 1923 5.6 60.5 0
Hoover Herbert 54.6 1929 4.0 90.2 0
Roosevelt Franklin 51.1 1933 12.1 63.2 0
Truman Harry 60.9 1945 7.8 88.6 0
Eisenhower Dwight 62.3 1953 8.0 78.5 0
;
run;

    /*a*/
proc phreg data = P4 outest=betas;
    model LifeSpan*Assasinated(1) = InagurationAge StartYear InOffice;
    baseline out = outdata survival = Sbar;
run;
/* Years in office and the year the were sworn into office aren't significant varibles in the model. */

    /*b*/
proc phreg data = P4 outest=betas2;
    model LifeSpan*Assasinated(1) = InagurationAge;
    baseline out = outdata2 survival = Sbar2;
run;
/* Hazard of Dying = exp(-0.13058(InagurationAge - 55.3895 */
/* A person's hazard of dying decreases by 12.24% for every year they've been alive. */

    /*c*/
/*  P(Jefferson living past 83.2 Years) = 0.20635
```