```
/*Calling library name where the file got imported*/
libname learn '/home/u47218300/Homework';

data covid19;
infile '/home/u47218300/Homework/Final data set.xlsx';
set learn.covid;
Total_Hosp = sum ('0-4 YR Hosp'n,'5-17 YR Hosp'n,'18-49 YR Hosp'n,
                  '50-64 YR Hosp'n, '65+ YR Hosp'n);
Total_Mortality = Sum ('0-4 YR Mortality'n, '5-17 YR Mortality'n, '18-49 YR Mortality'n,
                  '50-64 YR Mortality'n, '65+ YR Mortality'n);
run;

/*Printing the whole table*/
Title 'COVID-19 DATA of HOSPITALIZATION and MORTALITY ACROSS VARIOUS AGE GROUPS BY WEEK';
proc print data = covid19;
run;

/*Line plot of hospitalization data across various age groups by week*/
Title 'COVID 19 HOSPITALIZATION PLOT ACROSS AGE GROUPS BY WEEK';
proc sgplot data=covid19;
    series x=Week y='0-4 YR Hosp'n / legendlabel= "0-4 YR Hospitalization";
    series x=Week y= '5-17 YR Hosp'n / legendlabel= "5-17 YR Hospitalization";
    series x=Week y='18-49 YR Hosp'n / legendlabel= "18-49 YR Hospitalization";
    series x=Week y='50-64 YR Hosp'n / legendlabel= "50-64 YR Hospitalization";
    series x=Week y='65+ YR Hosp'n / legendlabel= "65+ YR Hospitalization";
    xaxis grid;
    yaxis grid;
run;

/*Line plot of mortality data across various age groups by week*/
Title 'COVID 19 MORTALITY PLOT ACROSS AGE GROUPS BY WEEK';
proc sgplot data=covid19;
    series x=Week y='0-4 YR Mortality'n / legendlabel= "0-4 YR Mortality";
    series x=Week y= '5-17 YR Mortality'n / legendlabel= "5-17 YR Mortality";
    series x=Week y='18-49 YR Mortality'n / legendlabel= "18-49 YR Mortality";
    series x=Week y='50-64 YR Mortality'n / legendlabel= "50-64 YR Mortality";
    series x=Week y='65+ YR Mortality'n / legendlabel= "65+ YR Mortality";
    xaxis grid;
    yaxis grid;
run;

/*Individual age group hospitalization and mortality comparison by week*/
title '0-4 years Hospitalization Vs Mortality rate by Week';
proc sgplot data=covid19;
    series x=Week y='0-4 YR Hosp'n / legendlabel= "0-4 YR Hospitalization";
    series x=Week y='0-4 YR Mortality'n / legendlabel= "0-4 YR Mortality";
    xaxis grid;
    yaxis grid;
run;

title '5-17 years Hospitalization Vs Mortality rate by Week';
proc sgplot data=covid19;
    series x=Week y='5-17 YR Hosp'n / legendlabel= "5-17 YR Hospitalization";
    series x=Week y='5-17 YR Mortality'n / legendlabel= "5-17 YR Mortality";
    xaxis grid;
    yaxis grid;
run;

title '18-49 years Hospitalization Vs Mortality rate by Week';
```

```
proc sgplot data=covid19;
    series x=Week y='18-49 YR Hosp'n / legendlabel= "18-49 YR Hospitalization";
    series x=Week y='18-49 YR Mortality'n / legendlabel= "18-49 YR Mortality";
    xaxis grid;
    yaxis grid;
run;

title '50-64 years Hospitalization Vs Mortality rate by Week';
proc sgplot data=covid19;
    series x=Week y='50-64 YR Hosp'n / legendlabel= "50-64 YR Hospitalization";
    series x=Week y='50-64 YR Mortality'n / legendlabel= "50-64 YR Mortality";
    xaxis grid;
    yaxis grid;
run;

title '65+ years Hospitalization Vs Mortality rate by Week';
proc sgplot data=covid19;
    series x=Week y='65+ YR Hosp'n / legendlabel= "65+YR Hospitalization";
    series x=Week y= '65+ YR Mortality'n / legendlabel= "65+YR Mortality";
    xaxis grid;
    yaxis grid;
run;

/*Summary statistics and forecasting for 5 more weeks*/
title 'COVID 19 HOSPITALIZATION SUMMARY STATISTICS AND FORCAST FOR 5 WEEKS';
proc sort data=covid19;
    by Week_end_Date;
run;

proc varmax data = covid19 plots(only)=(forecasts);
    id Week_end_Date interval=week.7;
    model '0-4 YR Hosp'n '5-17 YR Hosp'n '18-49 YR Hosp'n '50-64 YR Hosp'n
        '65+ YR Hosp'n= / p=1;
    output lead=5 back=0 alpha=0.05;
run;

title 'COVID 19 MORTALITY SUMMARY STATISTICS AND FORCAST FOR 5 WEEKS';
proc sort data=covid19;
    by Week_end_Date;
run;

proc varmax data= covid19 plots(only)=(forecasts);
    id Week_end_Date interval=week.7;
    model '0-4 YR Mortality'n '5-17 YR Mortality'n '18-49 YR Mortality'n '50-64 YR Mortality'n
        '65+ YR Mortality'n= / p=1;
    output lead=5 back=0 alpha=0.05;
run;

/*Correlation between the total hospitalization and age wise hospitalization cases*/
title 'COVID 19 HOSPITALIZATION TOTAL CASES TO INDIVIDUAL AGE GROUPS';
proc corr data=covid19 pearson nosimple noprob plots=matrix(histogram);
    var '0-4 YR Hosp'n '5-17 YR Hosp'n '18-49 YR Hosp'n '50-64 YR Hosp'n
        '65+ YR Hosp'n;
    with Total_Hosp;
run;

/*Correlation between the total mortality and age wise mortality cases*/
title 'COVID 19 HOSPITALIZATION TOTAL CASES TO INDIVIDUAL AGE GROUPS';
proc corr data=covid19 pearson nosimple noprob plots=matrix(histogram);
    var '0-4 YR Mortality'n '5-17 YR Mortality'n '18-49 YR Mortality'n '50-64 YR Mortality'n
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```
        '65+ YR Mortality'n;
    with Total_Mortality;
run;

/*Correlation between the total mortality and total hospitalization cases*/
title 'COVID 19 HOSPITALIZATION TOTAL CASES TO INDIVIDUAL AGE GROUPS';
proc corr data=covid19 pearson nosimple noprob plots=matrix(histogram);
    var Total_Hosp;
    with Total_Mortality;
run;
```