HW8 (due on May/29 12:30PM)

Q1. Load x.txt and y.txt to read X and Y.

X and Y are not complete and should start from time 1 and end at time 92. Use four different methods (1. Linear; 2. Nearest;3. Cubic; 4. Spline) that are available in interp1 to fill the gaps in X and Y and calculate the correlation between the two. The correlation of the two complete time series is 0.8. Do you think which method gives the best result? (20 points)

Q2. Use the following code to generate a random 2D pattern and grids for interpolation.

```
m = 5; % example image size
pic = rand(m,m);
 s = 16;     ( !!!! don't use too large number for s)
 [m, n] = size(pic);
 [X,Y] = meshgrid(1:m);     (!!! input grids)
 [XI,YI] = meshgrid(linspace(1,m,s*m-1));    (!!!output grids)
```

Use four methods (1. Linear; 2. Nearest;3. Cubic; 4. Spline) that are available by interp2 to interpolate the randomly generated 2D field (pic) to a higher resolution (determined by s) picture. Plot them together and label each with the corresponding method. (40 points)

Hint: use pic_nearest =interp2(X,Y,pic,XI,YI,'nearest'); imshow(pic_nearest,[0,1])

Q3. Run Kriging.m (40 points)

1. If you could add one new observation sample within the domain, do you think where the best place is to add such new observation to enhance your sampling coverage.

2. If the new observation value you would add over that best plaice is 7.5. Please do this in the code, rerun the Kriging interpolation and calculate and plot the difference between the new result with the old one.