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% hw4_demo.m 27-oct-2016
% program skeleton for hw4

% define the point coordinates
x=[...7 x coordinates ...];
y=[...7 y coordinates ...];

% enter the angle observations
adms=[36 5 14.1;
87 3 15.7;
...
40 44 49.7];

% make index array, order at-from-to or i,j,k
andx=[2 1 3;
2 3 6;
...
6 5 7];

% enter distance observations
d=[133.544;
258.709;
...
165.042];

% make index array, order from-to or i,j
dndx=[2 3;
2 5;
...
6 7];

define n,n0,r,c,u
define sigmas
create W

for iter=1:10
    initialize B,f
    % loop through the angles and generate coefficients for each one
    for i=1:13
        idx=andx(i,1);
        jdx=andx(i,2);
        kdx=andx(i,3);
        [b,F,comp_obs]=ang(x,y,idx,jdx,kdx,adms(i,1),adms(i,2),adms(i,3));
        if((idx>2) & (idx<7))
            bcdx=(idx-3)*2 + 1;
            B(i,bcdx:bcdx+1)=b(1:2);
            end
        if((jdx>2) & (jdx<7))
            bcdx=(jdx-3)*2 + 1;
            B(i,bcdx:bcdx+1)=b(3:4);
            end
        if((kdx>2) & (kdx<7))
            bcdx=(kdx-3)*2 + 1;
            B(i,bcdx:bcdx+1)=b(5:6);
            end
        f(i)=-F;
    end

    % loop through the distances and generate coefficients for each one
    for i=1:9
        ii=13+i;
        dobs=d(i);
        idx=dndx(i,1);
        jdx=dndx(i,2);
        [b,F,comp_obs]=dist2d(x,y,idx,jdx,dobs);
        if((idx>2) & (idx<7))
            bcdx=(idx-3)*2 + 1;
            B(ii,bcdx:bcdx+1)=b(1:2);
            end
        if((jdx>2) & (jdx<7))
            bcdx=(jdx-3)*2 + 1;
            B(ii,bcdx:bcdx+1)=b(3:4);
            end
        f(ii)=-F;
    end

    if(iter==1)
        print out B,f,diag(W)
    end
end

```

hw4_demo

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*****  
* do the LS computations, get del from B,f,W *  
*****  
  
for i=1:4  
    delndx=(i-1)*2+1;  
    x(i+2)=x(i+2) + del(delndx);  
    y(i+2)=y(i+2) + del(delndx+1);  
end  
  
display final results  
do statistical tests  
compute and show confidence intervals & regions
```