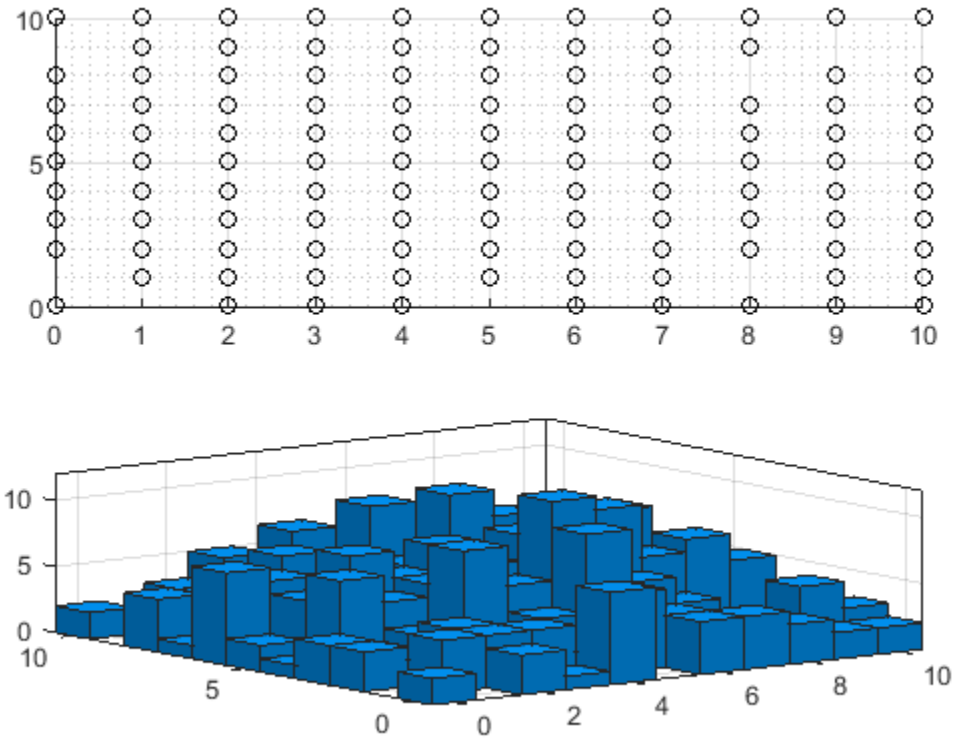
```
clear
clc
L=10;
rmat=500;
xpos(1:rmat)=0;
ypos(1:rmat)=0;
k=1;
n=1;

while n<=rmat

    xdisplacement=randi([1 4]);
    ydisplacement=randi([1 4]);
    a=randi([1 2]);
    b=randi([1 2]);

    if xpos(k)+xdisplacement<=L && a==1
        xpos(k+1)=xpos(k)+xdisplacement;
    elseif xpos(k)+xdisplacement>L && a==1
        xpos(k+1)=xpos(k)-xdisplacement;
    elseif xpos(k)-xdisplacement>=0 && a==2
        xpos(k+1)=xpos(k)-xdisplacement;
    elseif xpos(k)-xdisplacement<0 && a==2
        xpos(k+1)=xpos(k)+xdisplacement;

    end

    if ypos(k)+ydisplacement<=L && b==1
        ypos(k+1)=ypos(k)+ydisplacement;
    elseif ypos(k)+ydisplacement>L && b==1
        ypos(k+1)=ypos(k)-ydisplacement;
    elseif ypos(k)-ydisplacement>=0 && b==2
        ypos(k+1)=ypos(k)-ydisplacement;
    elseif ypos(k)-ydisplacement<0 && b==2
        ypos(k+1)=ypos(k)+ydisplacement;
    end
    n=n+1;
    k=k+1;
end
coordinates=[xpos;ypos]';
subplot(2,1,1)
grid on
grid minor
hold on
plot(xpos,ypos,'ok')
subplot(2,1,2)
h=histogram2(xpos,ypos)
```

```
h =

  Histogram2 with properties:
```

```
              Data: [501×2 double]
            Values: [11×11 double]
           NumBins: [11 11]
        XBinEdges: [1×12 double]
        YBinEdges: [1×12 double]
         BinWidth: [1 1]
    Normalization: 'count'
        FaceColor: 'auto'
        EdgeColor: [0.1500 0.1500 0.1500]

  Use GET to show all properties
```



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