In the name of God

For doing triangulation we prepared a MATLAB code and we will explain how to use in in the following:

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| Data format: control, check and normal points must be in specific range. | Normal points = 0  Target points = range [1,24]  Control points = raining falls |
| clc  clear  data = csvread("data.csv");  [m,n] = size(data);  points(6,3)=0;  p =1;  for i=1:m  for j=1:n  if data(i,j)~=0  points(p,1) = i;  points(p,2) = j;  points(p,3) = data(i,j);  p=p+1;  end  end  end | Normal points have zero values and we save control points in points MATRIX. |
| DT = DelaunayTri(points(:,[1,2]));  tri = DT.Triangulation;  %tri angular equations  [tm,tn] = size(tri);  equtions(tm,3)=0;  syms a b c  for i=1:tm  eq\_1= a\*points(tri(i,1),1)+b\*points(tri(i,1),2)+c==points(tri(i,1),3);  eq\_2= a\*points(tri(i,2),1)+b\*points(tri(i,2),2)+c==points(tri(i,2),3);  eq\_3= a\*points(tri(i,3),1)+b\*points(tri(i,3),2)+c==points(tri(i,3),3);  [A,B,C] = solve([eq\_1,eq\_2,eq\_3],[a,b,c]);  equtions(i,1) = A ;  equtions(i,2) = B ;  equtions(i,3) = C ;  end | At this section we used triangulation and solved triangle equations for each triangle. |
| for i=1:m  for j=1:n  if data(i,j)==0  for k=1:tm  p= [i,j];  a = [points(tri(k,1),1),points(tri(k,1),2)];  b = [points(tri(k,2),1),points(tri(k,2),2)];  c = [points(tri(k,3),1),points(tri(k,3),2)];  result = isinside(p,a,b,c);  if result ==1  data(i,j) = i\*equtions(k,1)+j\*equtions(k,2)+equtions(k,3);  end  end    end  end  end | If any point is inside the triangle we will calculate its value with triangle equation. |



Repot of triangulation with MAATLAB