```
% This is code is to convert 8x8 matrix in equalized histogram matrix
clc;
close all;
clear all;
% 8x8 image matrix
I = [52 55 61 59 79 61 76 61;
     62 59 55 104 94 85 59 71;
     63 65 66 113 144 104 63 72;
     64 70 70 126 154 109 71 69;
     67 73 68 106 122 88 68 68;
     68 79 60 70 77 66 58 75;
     69 85 64 58 55 61 65 83;
     70 87 69 68 65 73 78 90];

num_pixels=numel(I);
hist_counts=zeros(1,256);%hist intentsity vector to store freq of
 intensity
for i=1:num_pixels
    val=I(i);%getting element from matrix
    hist_counts(val+1)=hist_counts(val+1)+1;% using +1 b/s indexing
 starts from
    %1 and intesity is from 0 to 255 total(256)
end

cdf=cumsum(hist_counts);% cdf(cummulative distributive function sum of
 freq
%Find CDF min (first non-zero value)
cdf_min=min(cdf(cdf>0));% finding min of all cdf values

% 4. Apply Equalization Formula: h(v) = round((cdf(v) - cdf_min) /
 (total - cdf_min) * 255)
L=256;%Intensity levels
equalized_I=zeros(size(I));
% size(matrix,1) give rows count and size(matrix,2) gives columns
for r=1:size(I,1)
    for c=1:size(I,2)
        v=I(r,c);
        equalized_I(r,c)=round((cdf(v+1)-cdf_min)/(num_pixels-
cdf_min)*(L-1));
    end

end
disp('Original 8x8 Matrix:');
disp(I);
disp('historgram equzlized 8x8 matrix')
disp(equalized_I);
```

```
Original 8x8 Matrix:
    52    55    61    59    79    61    76    61
    62    59    55   104    94    85    59    71
    63    65    66   113   144   104    63    72
    64    70    70   126   154   109    71    69
```

```
    67    73    68   106   122    88    68    68
    68    79    60    70    77    66    58    75
    69    85    64    58    55    61    65    83
    70    87    69    68    65    73    78    90

historgram equzlized 8x8 matrix
     0    12    53    32   190    53   174    53
    57    32    12   227   219   202    32   154
    65    85    93   239   251   227    65   158
    73   146   146   247   255   235   154   130
    97   166   117   231   243   210   117   117
   117   190    36   146   178    93    20   170
   130   202    73    20    12    53    85   194
   146   206   130   117    85   166   182   215
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Published with MATLAB® R2021a