```
clear all
clc
close all
figure,
k=3; %number of colors
n=5; %Domain size
max_ite=1500; %maximum number of iterations
%choose one from the folllowing
    ini_dist=randi([1 k],n,n);  %random initial distribution
    %B=[1 2 1 2 ;2 1 2 1 ;1 2 1 2 ;2 1 2 1] %manual initial distribution
ini_dist_aug=[ini_dist zeros(n,1); zeros(1,n+1)]  %just ignore it
pcolor( ini_dist_aug);  %visualising the initial distribution
colormap jet; axis off; title('Game of Evolution','FontSize',20);
pause(2);
hold on;
A=ini_dist;
for m=1:max_ite   %repeating the iterations
    rand_pos=randi([1 n],1,2);  %searching for a random position
    rand_i =rand_pos(1);
    rand_j=rand_pos(2);
    %%searching for a random neighbour
    if 1<rand_i && rand_i<n && 1<rand_j && rand_j<n
       neighbours=[A(rand_i-1,rand_j-1) A(rand_i-1,rand_j)
A(rand_i-1,rand_j+1) A(rand_i,rand_j-1) A(rand_i,rand_j+1)
A(rand_i+1,rand_j-1) A(rand_i+1,rand_j) A(rand_i+1,rand_j+1)];
       rand_neighbour_pos=randi([1 8],1);
       rand_neighbour=neighbours(rand_neighbour_pos);
       A(rand_i,rand_j)=rand_neighbour;
    else if rand_i==1 && 1<rand_j && rand_j<n
            neighbours=[A(1,rand_j-1) A(1,rand_j+1) A(2,rand_j-1)
A(2,rand_j) A(2,rand_j+1) A(n,rand_j-1) A(n,rand_j) A(n,rand_j+1)];
            rand_neighbour_pos=randi([1 8],1);
            rand_neighbour=neighbours(rand_neighbour_pos);
            A(rand_i,rand_j)=rand_neighbour;
    else if rand_i==n && 1<rand_j && rand_j<n
            neighbours=[A(n,rand_j-1) A(n,rand_j+1) A(n-1,rand_j-1)
A(n-1,rand_j) A(n-1,rand_j+1) A(1,rand_j-1) A(1,rand_j) A(1,rand_j+1)];
            rand_neighbour_pos=randi([1 8],1);
            rand_neighbour=neighbours(rand_neighbour_pos);
            A(rand_i,rand_j)=rand_neighbour;
    else if rand_j==1 && 1<rand_i && rand_i<n
            neighbours=[A(rand_i-1,1) A(rand_i+1,1) A(rand_i-1,2)
A(rand_i,2) A(rand_i+1,2) A(rand_i-1,n) A(rand_i,n) A(rand_i+1,n)];
            rand_neighbour_pos=randi([1 8],1);
            rand_neighbour=neighbours(rand_neighbour_pos);
            A(rand_i,rand_j)=rand_neighbour;
    else if rand_j==n && 1<rand_i && rand_i<n
            neighbours=[A(rand_i-1,n) A(rand_i+1,n) A(rand_i-1,1)
A(rand_i,1) A(rand_i+1,1) A(rand_i-1,n-1) A(rand_i,n-1) A(rand_i+1,n-1)];
            rand_neighbour_pos=randi([1 8],1);
            rand_neighbour=neighbours(rand_neighbour_pos);
            A(rand_i,rand_j)=rand_neighbour;
    else if rand_i==1 && rand_j==1
            neighbours=[A(1,2) A(2,1) A(2,2) A(n,1) A(n,2) A(1,n) A(2,n)
A(n,n)];
            rand_neighbour_pos=randi([1 8],1);
            rand_neighbour=neighbours(rand_neighbour_pos);
            A(rand_i,rand_j)=rand_neighbour;
    else if rand_i==1 && rand_j==n
            neighbours=[A(1,n-1) A(2,n-1) A(1,1) A(2,1) A(2,n) A(n,1) A(n,n-1)
A(n,n)];
            rand_neighbour_pos=randi([1 8],1);
            rand_neighbour=neighbours(rand_neighbour_pos);
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            A(rand_i,rand_j)=rand_neighbour;
    else if rand_i==n && rand_j==1
            neighbours=[A(1,1) A(1,2) A(n-1,1) A(n-1,2) A(n,2) A(n-1,n) A(1,n)
A(n,n)];
            rand_neighbour_pos=randi([1 8],1);
            rand_neighbour=neighbours(rand_neighbour_pos);
            A(rand_i,rand_j)=rand_neighbour;
     else if rand_i==n && rand_j==n
            neighbours=[A(1,1) A(n,n-1) A(n-1,n-1) A(n-1,n) A(n,1) A(n-1,1)
A(1,n) A(1,n-1)];
            rand_neighbour_pos=randi([1 8],1);
            rand_neighbour=neighbours(rand_neighbour_pos);
            A(rand_i,rand_j)=rand_neighbour;
     end
     end
     end
     end
     end
     end
     end
     end
     end
    hold on
    A_aug = [A zeros(n,1); zeros(1,n+1)]  ;
    pcolor(A_aug); %visualising each iteration
    colormap jet; axis off; title('Game of Evolution','FontSize',20);
    pause(0.00001);
end
```