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clc;
clear;
close all;

pattern=zeros(3,9);%binarystructure

%ensure no empty column
for c=1:9
    r=randi(3);%random row
    pattern(r,c)=1;
end

%ensure each row has exactly 5 ones
for r=1:3
    while sum(pattern(r,:))<5
        c=randi(9);
        if pattern(r,c)==0
            if sum(pattern(:,c))<3%max 3 entries per column
                pattern(r,c)=1;
            end
        end
    end
end

disp('Binary Tambola Ticket');
disp(pattern);

ticket=zeros(3,9);%final ticket

for col=1:9

    %column ranges
    if col==1
        startv=1;endv=9;
    elseif col==9
        startv=80;endv=90;
    else
        startv=(col-1)*10;
        endv=startv+9;
    end

    %count numbers in column
    cnt=sum(pattern(:,col));

    %generate unique numbers
    nums=startv:endv;
    nums=nums(randperm(length(nums)));
    nums=nums(1:cnt);

    %manual ascending order
    for a=1:cnt
        for b=1:cnt-a

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        if nums(b)>nums(b+1)
            temp=nums(b);
            nums(b)=nums(b+1);
            nums(b+1)=temp;
        end
    end
end

%assigntopbottom
k=1;
for r=1:3
    if pattern(r,col)==1
        ticket(r,col)=nums(k);
        k=k+1;
    end
end
end

disp('The Tambola Ticket:');
disp(ticket);

Binary Tambola Ticket
0      1      1      1      0      1      0      0      1
1      0      1      1      1      0      1      0      0
1      1      0      0      0      1      0      1      1

The Tambola Ticket:
0      15     23     30      0      50      0      0      80
2      0      29     34     47      0      68      0      0
6      16      0      0      0      56      0      70      82

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