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%date - 21/01/2026
%created by - Vedant Shahare
clc;
clear;
close all;

M = zeros(3,9);

% Ensure no column is empty
for col = 1:9
    row = randi(3);      % random row (1-3)
    M(row, col) = 1;
end

% Ensure each row has exactly 5 ones
for row = 1:3
    while sum(M(row,:)) < 5
        col = randi(9);
        if M(row,col) == 0
            % Ensure column won't exceed 3 entries
            if sum(M(:,col)) < 3
                M(row,col) = 1;
            end
        end
    end
end
end

disp('Tambola Structure (M):');
disp(M);

Ticket = zeros(3,9);

for ii = 1:9

    %Column ranges
    if ii == 1
        start = 1;    endv = 9;
    elseif ii == 9
        start = 80;   endv = 90;
    else
        start = (ii-1)*10;
        endv = start + 9;
    end

    %Count numbers in this column
    cnt = sum(M(:,ii));

    %Generate unique numbers
    nums = start:endv;
    nums = nums(randperm(length(nums)));
    nums = nums(1:cnt);
end
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%Manual ascending sort
for a = 1:cnt
    for b = 1:cnt-a
        if nums(b) > nums(b+1)
            temp = nums(b);
            nums(b) = nums(b+1);
            nums(b+1) = temp;
        end
    end
end

%Assign top to bottom
k = 1;
for r = 1:3
    if M(r,ii) == 1
        Ticket(r,ii) = nums(k);
        k = k + 1;
    end
end
end

disp('Final Tambola Ticket:');
disp(Ticket);

Tambola Structure (M):
    1     0     1     1     0     1     0     0     1
    1     1     0     1     0     0     1     1     0
    1     0     1     0     1     0     1     0     1

Final Tambola Ticket:
    4     0    20    31     0    57     0     0    87
    6    17     0    36     0     0    61    76     0
    7     0    23     0    45     0    67     0    89

```

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