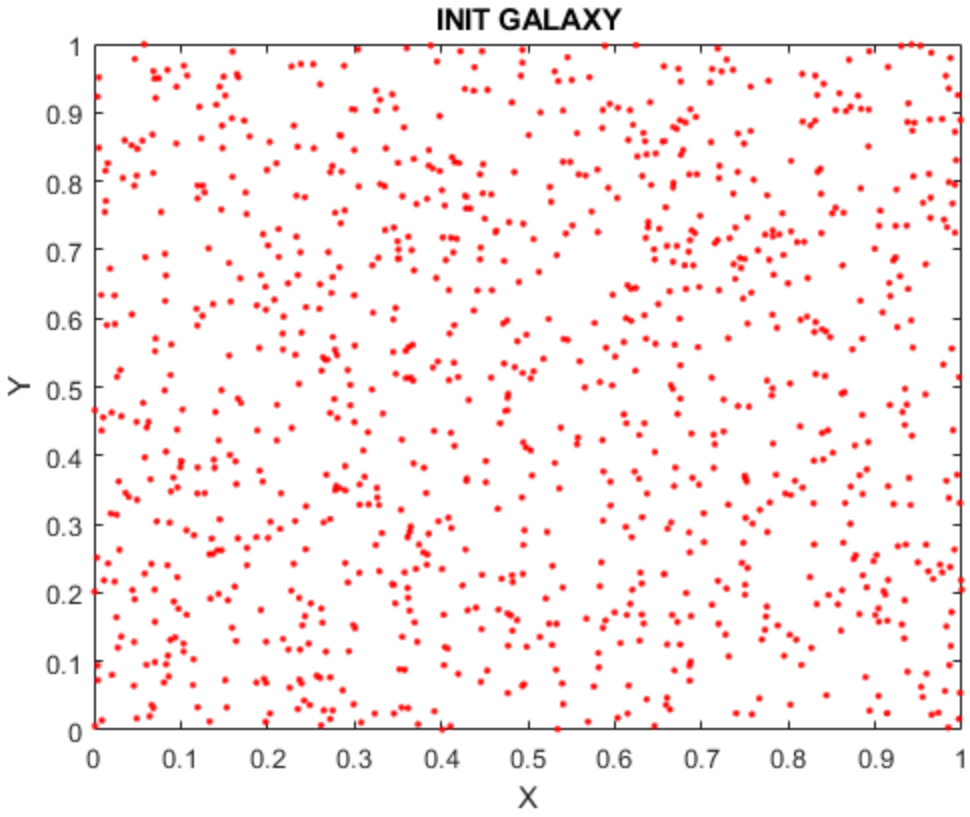
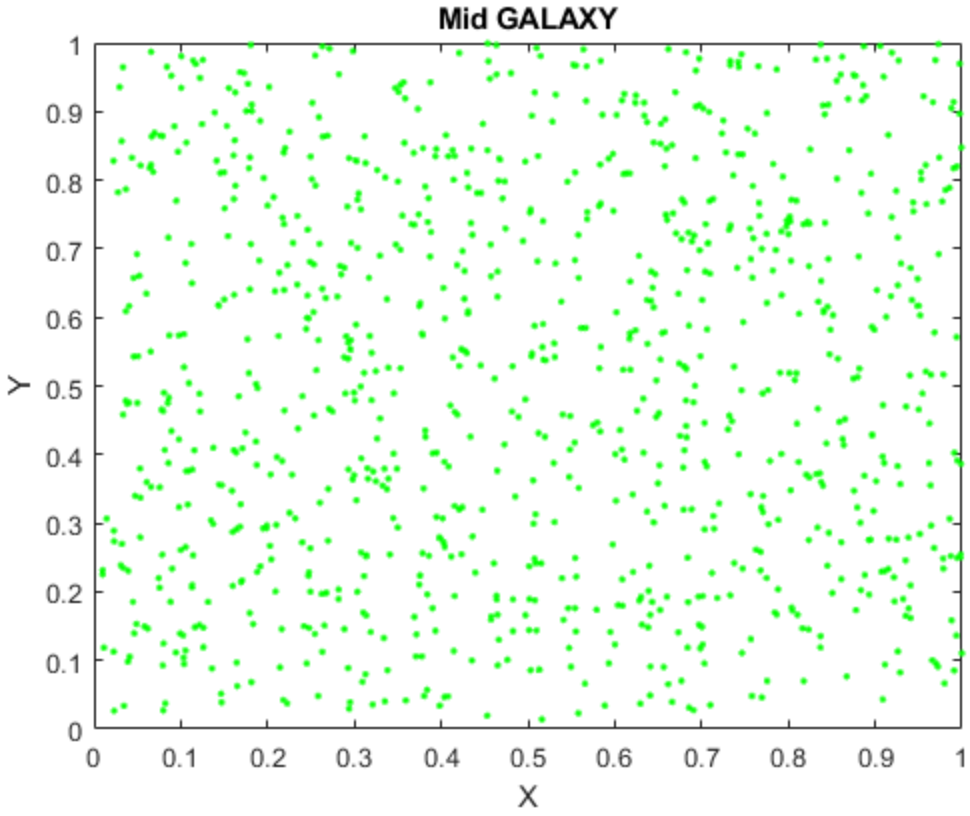
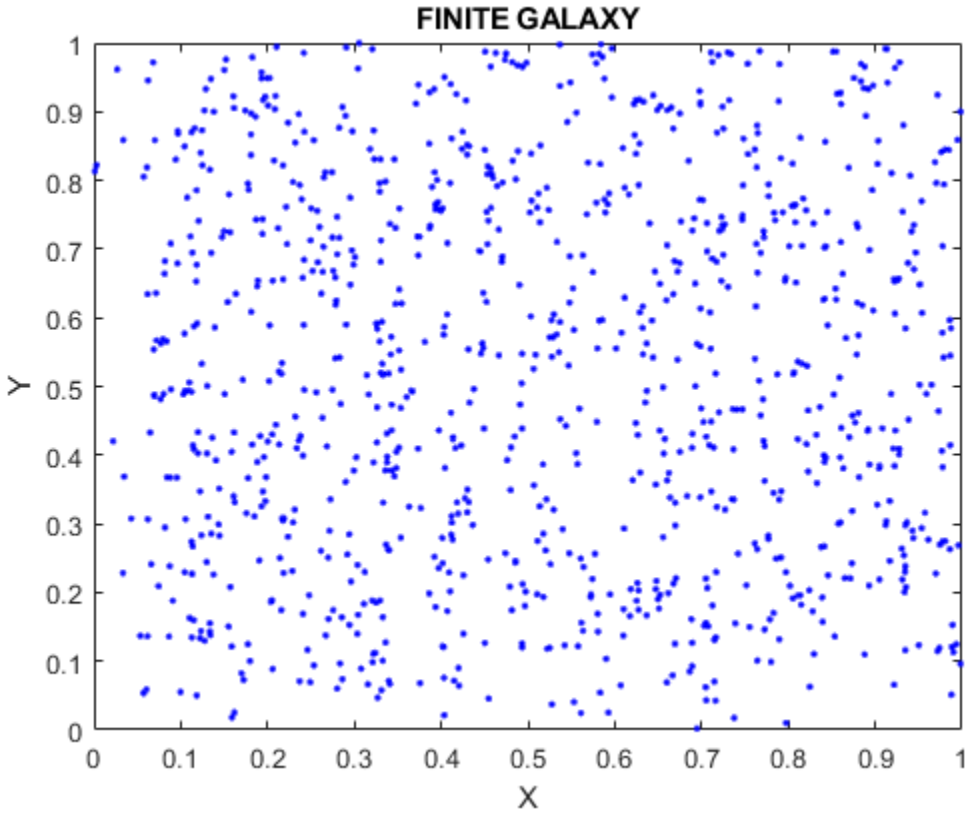
```
% Read the text file
fileID = fopen('outputsub.txt', 'r');
data = textscan(fileID, '%s', 'Delimiter', '\n');
fclose(fileID);

% Extract the values of "pos x" using regular expressions
pattern = 'pos x=(-?\d+\.\d+)';
posX_values = [];
stopRow=993;
for i = 2:numel(data{1}) % Starting from index 2 to skip the first line
    if i <= stopRow
        matches = regexp(data{1}{i}, pattern, 'tokens');
        if ~isempty(matches)
            posX_values(end+1) = str2double(matches{1}{1});
        end
    else
        break;  % Exit the loop when reaching the stopRow
    end
end


% Display the extracted values
%disp(posX_values);

% Extract the values of "pos x" using regular expressions
patterny = 'pos y=(-?\d+\.\d+)';
posY_values = [];
stopRow=993;
for i = 2:numel(data{1}) % Starting from index 2 to skip the first line
    if i <= stopRow
        matches = regexp(data{1}{i}, patterny, 'tokens');
        if ~isempty(matches)
            posY_values(end+1) = str2double(matches{1}{1});
        end
    else
        break;  % Exit the loop when reaching the stopRow
    end
end

% Display the extracted values
%disp(posY_values);

% Extract the values of "pos x" using regular expressions
patternmid = 'pos x=(-?\d+\.\d+)';
posXmid_values = [];
for i = 994:numel(data{1}) % Starting from index 2 to skip the first line
    if i <= 1985
        matches = regexp(data{1}{i}, patternmid, 'tokens');
        if ~isempty(matches)
            posXmid_values(end+1) = str2double(matches{1}{1});
        end
    else
```

```
        break;  % Exit the loop when reaching the stopRow
    end
end

% Display the extracted values
%disp(posXmid_values);

patternymid = 'pos y=(-?\d+\.\d+)';
posYmid_values = [];
for i = 994:numel(data{1}) % Starting from index 2 to skip the first line
    if i <= 1985
    matches = regexp(data{1}{i}, patternymid, 'tokens');
        if ~isempty(matches)
            posYmid_values(end+1) = str2double(matches{1}{1});
        end
     else
        break;  % Exit the loop when reaching the stopRow
    end
end

%disp(posYmid_values);
% Extract the values of "pos x" using regular expressions
patternend = 'pos x=(-?\d+\.\d+)';
posXend_values = [];
for i = 1986:numel(data{1}) % Starting from index 2 to skip the first line
    matches = regexp(data{1}{i}, patternend, 'tokens');
    if ~isempty(matches)
        posXend_values(end+1) = str2double(matches{1}{1});
    end
end


% Display the extracted values
%disp(posXend_values);

patternyend = 'pos y=(-?\d+\.\d+)';
posYend_values = [];
for i = 1986:numel(data{1}) % Starting from index 2 to skip the first line
    matches = regexp(data{1}{i}, patternyend, 'tokens');
    if ~isempty(matches)
        posYend_values(end+1) = str2double(matches{1}{1});
    end
end

%disp(posYend_values);


% Display the extracted values
%disp(posYend_values);

% Plot the locations
figure()
plot(posX_values, posY_values, 'r.');
```

```
% Add labels and title
xlabel('X');
ylabel('Y');

title('INIT GALAXY');

figure()
plot(posXmid_values, posYmid_values, 'g.');

% Add labels and title
xlabel('X');
ylabel('Y');

title('Mid GALAXY');

figure()
plot(posXend_values, posYend_values, 'b.');

% Add labels and title
xlabel('X');
ylabel('Y');

title('FINITE GALAXY');
```




Mid GALAXY
Y
X
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1


FINITE GALAXY
Y
X
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1

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