```matlab
%%
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% Lab Section #202
% Project 2: Chaos Game, Spring 2019

clear;clc

%%

% Asking the user for the type of game they would like to play and how many
% vertices they would like the figure to have. Also formating the section
% asking the user for input.
fprintf('*****************************************\n');
fprintf('Welcome to the Chaos Game!\n');
fprintf('*****************************************\n');
fprintf('              Unrestricted Chaos (1)\n');
fprintf('      Restricted Previous Vertex (2)\n');
fprintf('Restricted Clockwise Vertex Away (3)\n');
fprintf('      Restricted One Vertex Away (4)\n');
fprintf('                Barnsley''s Fern (5)\n');
fprintf('*****************************************\n');

% Asking the user for input

gameName = input('Pick a game: ');

% Using an if statement to see if we need this imput because we do not need
% this input for game 5

if gameName<= 4
numVert = input('Number of vertices: ');


% Using the function provided to us to get the cordinates of the verties
vertices = getVerticesCoordinates(numVert);

% Using the input of the number of vertieces from the user to determain the
% cutting fraction
cutFraction = getCutFraction(numVert);

% Intializing the printVec vector and the counter vecter
printVec = zeros(10000, 2);
prevPoint = [0,0];

elseif gameName == 5 % conditions for the Barn Fern game since it has different inputs
    prevPoint = [0,0];
    printVec = zeros(10000,2);

end

% writing a swtich case to assign the game name to the game chossen by the
% user

switch gameName
    case 1
        for count = 1:10000
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            nextPoint = unrestrictedChaos(prevPoint, vertices, cutFraction);
            prevPoint = nextPoint;
            printVec(count, :) = prevPoint;
             end
             printName = 'Unrestricted Chaos';
        case 2
            for count = 1:10000
            nextPoint = restrictedPrev(prevPoint, vertices, cutFraction);
            prevPoint = nextPoint;
            printVec(count, :) = prevPoint;
            end
            printName = 'Restricted Previous Vertex';
        case 3
            for count = 1:10000
            nextPoint = restrictedClockWise(prevPoint, vertices, cutFraction);
            prevPoint = nextPoint;
            printVec(count, :) = prevPoint;
            end
            printName = 'Restricted Clockwise Vertex Away';
        case 4
            for count = 1:10000
            nextPoint = restrictedOneAway(prevPoint, vertices, cutFraction);
            prevPoint = nextPoint;
            printVec(count, :) = prevPoint;
            end
            printName = 'Restricted One Vertex Away';
        case 5
            for count = 1:10000
            [x,y] = BarnsleysFern(prevPoint);
            prevPoint = [x y];
            printVec(count, :) = prevPoint;
            end
    otherwise
            disp('Incorrect game.');
end

% writing the code to print the above information

% Writing the string to use for the title. Have to use if statement
% because the fifth game has a different title
%
if gameName == 5
    str = sprintf('Barnsley''s Fern');
else
    str = sprintf('%s\nVertices: %d, CutFraction: %4.2f', printName, numVert,↙
cutFraction);
end

% puting the print vec into two different arrays so it is easier to index
% into
printX = printVec(:, 1);
printY = printVec(:, 2);

% intializing the figure and using the plot command
figure(1)
plot(printX, printY, '.');

% puting the axis constraints on the plot
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axis tight;
axis equal;

% creating the title of the graph
title(str);
```