```
% Original rectangle coordinates
original_coords = [2, 2; 6, 2; 6, 4; 2, 4];

% Calculate center of the rectangle
center = mean(original_coords);

original_coords = [original_coords;[2,2]];

% Translate the rectangle to the origin
translated_coords = original_coords - center;

% Rotate the rectangle by 90 degrees counterclockwise
theta = -pi/2;
rotation_matrix = [cos(theta), -sin(theta); sin(theta), cos(theta)];
rotated_coords = (rotation_matrix * translated_coords')';

% Scale the rotated rectangle by (1, 2) about its center
scaled_coords = rotated_coords .* [1, 2];

% Reflect the scaled rectangle about the y-axis
reflected_coords = scaled_coords .* [-1, 1];

% Translate the rectangle back to its original position
final_coords = reflected_coords + center;

% Combine all transformation points
all_points = [original_coords; scaled_coords; final_coords];

% Plot all positions in one graph
figure;
%plot(all_points(:, 1), all_points(:, 2), 'o-');

hold on;
% Mark the different stages with different colors
plot(original_coords(:, 1), original_coords(:, 2), 'bo-');
plot(rotated_coords(:, 1), rotated_coords(:, 2), 'ro-');
plot(final_coords(:, 1), final_coords(:, 2), 'go-');
axis equal;


title('Rectangle Transformations by Deepak Bansal UE219017');
legend('Original', 'Intermediate', 'Final');
grid on;
```