```
function weight_vector = generate_weight_matrix(N, region_matrix, S_mat)

[a b max_val] = find_max(region_matrix);

weight_vector = zeros(1, max_val);

for k = 1 : max_val

  avg = 0;
  count = 0;

  for i = 0 : N - 1

    for j = 0 : N - 1

      if(region_matrix(i + 1,j + 1) == k)

        avg = avg + S_mat(i + 1,j + 1);
        count = count + 1;

      endif

    endfor

  endfor

  weight_vector(k) = min(1,avg/count);

endfor

endfunction
```