```matlab
% Numerical approximation to Poisson's equation over the square [a,b]x[a,b] with
% Dirichlet boundary conditions.  Uses a uniform mesh with (n+2)x(n+2) total
% points (i.e, n interior grid points) on nine node.
% Input:
%      ffun : the RHS of poisson equation (i.e. the Laplacian of u).
%      gfun : the boundary function representing the Dirichlet B.C.
%       a,b : the interval defining the square
%         m : m+2 is the number of points in either direction of the mesh.
% Ouput:
%         u : the numerical solution of Poisson equation at the mesh points.
%       x,y : the uniform mesh.

function [u,x,y] = SOR(ffun,gfun,a,b,m,w)

h = (b-a)/(m+1); %mesh spacing

tol = 1e-16;    %relative residual

maxiter = 10000;   %maximum value of k

[x,y] = meshgrid(a:h:b); %Uniform mesh, including boundary points.

idx = 2:m+1;
idy = 2:m+1;
dx = 1:m+2;
dy = 1:m+2;

u = zeros(m+2);

% Compute boundary terms, south, north, east, west
u(1,1:m+2)    = feval(gfun,x(1,1:m+2),y(1,1:m+2));        % Include corners
u(m+2, 1:m+2) = feval(gfun,x(m+2,1:m+2),y(m+2,1:m+2)); % Include corners
u(idy,m+2)    = feval(gfun,x(idx,m+2),y(idy,m+2));       % No corners
u(idy,1)      = feval(gfun,x(idy,1),y(idy,1));             % No corners

% Evaluate the RHS of Poisson's equation at the interior points.
f = feval(ffun,x(dy,dx),y(dy,dx));

for k = 0:maxiter
    %Iterate
    for j = 2:m+1
        for i = 2:m+1
            u(i,j) = (1-w)*u(i,j)+(w/5)*(u(i-1,j)+u(i+1,j)+u(i,j-1)+u(i,j+1))...
                +(w/20)*(u(i-1,j-1)+u(i+1,j-1)+u(i+1,j+1)+u(i-1,j+1))...
            -(h^2/20)*w*(4*f(i,j)+0.5*(f(i-1,j)+f(i+1,j)+f(i,j-1)+f(i,j+1)));
        end
    end

    %Compute the residual
    residual = zeros(m+2);

    for j = 2:m+1
        for i = 2:m+1
            residual(i,j) = -20*u(i,j)+4*(u(i-1,j)+u(i+1,j)+u(i,j-1)+u(i,j+1))...
            +(u(i-1,j-1)+u(i+1,j-1)+u(i+1,j+1)+u(i-1,j+1))...
            -(h^2)*(4*f(i,j)+0.5*(f(i-1,j)+f(i+1,j)+f(i,j-1)+f(i,j+1)));
        end
    end

    %Determine if convergence has been reached
        if norm(residual(:),2) < tol*norm(f(:),2)
                break
    end
```

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    end
end
```

Not enough input arguments.

Error in SOR (line 15)
h = (b-a)/(m+1); %mesh spacing

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