EECE 5639- Homework 3

Sreejith Sreekumar: 001277209

October 12, 2018

1 Question 1

```
%Creating the image in the question
function image = get_image()
  image = zeros(8, 8);

  for x = 1:8
      for y = 1:8
          image(x,y) = abs(x-y);
      end
  end
end
```

1.1 Prewitt Mask

```
[PGmag, PGdir] = imgradient(image,'prewitt');
disp(PGmag);
disp(PGdir);

% Output - Disregarding boundaries

      % Gradient Magnitude

            0    5.6569    8.4853    8.4853    8.4853    8.4853
       5.6569         0    5.6569    8.4853    8.4853    8.4853
       8.4853    5.6569         0    5.6569    8.4853    8.4853
       8.4853    8.4853    5.6569         0    5.6569    8.4853
       8.4853    8.4853    8.4853    5.6569         0    5.6569
       8.4853    8.4853    8.4853    8.4853    5.6569         0

      % Gradient Orientation

            0   45.0000   45.0000   45.0000   45.0000   45.0000
    -135.0000         0   45.0000   45.0000   45.0000   45.0000
    -135.0000 -135.0000         0   45.0000   45.0000   45.0000
    -135.0000 -135.0000 -135.0000         0   45.0000   45.0000
    -135.0000 -135.0000 -135.0000 -135.0000         0   45.0000
    -135.0000 -135.0000 -135.0000 -135.0000 -135.0000         0
```

1.2 Sobel Mask

```matlab
[SGmag, SGdir] = imgradientxy(image);
disp(SGmag);
disp(SGdir);

% Output - Disregarding boundaries

        % Gradient Magnitude

            0       6       8       8       8       8
           -6       0       6       8       8       8
           -8      -6       0       6       8       8
           -8      -8      -6       0       6       8
           -8      -8      -8      -6       0       6
           -8      -8      -8      -8      -6       0
           -8      -8      -8      -8      -8      -6


        % Gradient Orientation

            0      -6      -8      -8      -8      -8
            6       0      -6      -8      -8      -8
            8       6       0      -6      -8      -8
            8       8       6       0      -6      -8
            8       8       8       6       0      -6
            8       8       8       8       6       0
```