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# Computer Vision Homework 6

## How to run it

```
python image.py lena.bmp
```

## Principal code fragment

```
def hFunc( b, c, d, e ):
  if b == c and (d!=b or e!=b):
    return 'q'
  elif b == c and (d==b or e==b):
    return 'r'
  elif b != c:
    return 's'

def fFunc(a1,a2,a3,a4):
  neighbors = [a1,a2,a3,a4]
  if( neighbors.count('r') == len(neighbors) ): # all neighbors are equal to r
    return 5
  else:
    return neighbors.count('q')

def Yokoi( neighbors ):
  return fFunc( \
              hFunc(neighbors[0],neighbors[1],neighbors[6],neighbors[2]), \
              hFunc(neighbors[0],neighbors[2],neighbors[7],neighbors[3]), \
              hFunc(neighbors[0],neighbors[3],neighbors[8],neighbors[4]), \
              hFunc(neighbors[0],neighbors[4],neighbors[5],neighbors[1]), \
          )
```

## Description

First, using 8x8 blocks and take topmost-left pixel to down sample origin image as 64x64 size image. (The sample image is left one )

Next, Search every pixel's neighbors to get 4-connected value, them if all neighbors are 'r', Yokoi' number is 5. Otherwise the number is equal to amount of 'q' in neighbors.

## Result