Edge Detection Algorithm

CODE:

```
def mag_del_i(k, j, I, del_x, del_y):
	i1 = (abs(I[k + 1][j] - I[k][j]) + abs(I[k + 1][j + 1] - I[k][j + 1])) /
del_x
	i2 = (abs(I[k][j + 1] - I[k][j]) + abs(I[k + 1][j + 1] - I[k + 1][j])) /
del_y
	i1 /= 2
	i2 /= 2
	return abs(i1 + 1j * i2)


def algo(img, del_x, del_y):
	m = len(img)
	n = len(img[0])
	k = j = 0
	epsilon = 2
	dp = [[0 for j in range(n)] for i in range(m)]
	for k in range(m - 1):
	for j in range(n - 1):
		if mag_del_i(k, j, img, del_x, del_y) >= epsilon:
		dp[k][j] = 1
	return dp

if __name__ == '__main__':
	img_intensities = [
	[0, 0, 5, 0],
	[0, 0, 4, 0],
	[0, 0, 3, 0],
	[0, 0, 4, 0],
	[0, 0, 0, 0]
	]
	print(*algo(img_intensities, 1, 1), sep="\n")
```

OUTPUT:

```
[0, 1, 1, 0]
[0, 1, 1, 0]
[0, 1, 1, 0]
[0, 1, 1, 0]
[0, 0, 0, 0]
```