

With the given coordinates $(x, y) \in \{1, 2, 3, \dots\} \times \{0, 1, 2, \dots\}$, let's define the ID value of the cell (x, y) with the following function:

$$f(x, y) = f(x - 1, y) + (x - 1) + y$$

Let's find a closed form for the function $f(x, y)$:

$$g(y) \triangleq f(1, y)$$

$$f(2, y) = f(1, y) + 1 + y = g(y) + 1 + y$$

$$f(3, y) = f(2, y) + 2 + y = g(y) + 1 + y + 2 + y = g(y) + 2y + \sum_{n=1}^2 n$$

$$f(4, y) = f(3, y) + 3 + y = g(y) + 1 + y + 2 + y + 3 + y = g(y) + 3y + \sum_{n=1}^3 n$$

$\vdots$

$$f(x, y) = g(y) + (x - 1)y + \sum_{n=1}^{x-1} n$$

Where:

$$g(y) = f(1, y) = f(1, y - 1) + (y - 1) = g(y - 1) + (y - 1)$$

Let's find a closed form for the function $g(y)$:

$$g(2) = g(1) + 1$$

$$g(3) = g(2) + 2 = g(1) + 1 + 2$$

$$g(4) = g(3) + 3 = g(1) + 1 + 2 + 3$$

$\vdots$

$$g(y) = g(1) + \sum_{n=1}^{y-1} n = 1 + \sum_{n=1}^{y-1} n$$

Therefore:

$$f(x, y) = 1 + (x - 1)y + \sum_{n=1}^{x-1} n + \sum_{n=1}^{y-1} n$$

Where:

$$\sum_{n=1}^{x-1} n = \frac{(x-1)(x-2)}{2} = \frac{1}{2}x^2 - \frac{3}{2}x + 1$$

So finally we get:

$$f(x, y) = 1 + xy - y + 0.5x^2 - 1.5x + 1 + 0.5y^2 - 1.5y + 1$$

$$f(x, y) = \frac{x^2 + y^2 + 2xy - 3x - 5y + 6}{2}$$