The asymptotic space complexity of my IntGrid2D implementation:

It has an upper bound of O(n) and a lower bound of Ω(n)

So the tight bound is Θ(n)

Where n = (lowerRightX – upperLeftX + 1) * (upperLeftY – lowerRightY + 1) + 5   Equation 1

Explanation:

The first term of Eq 1. calculates the number of values (characters in this case) that has been stored by multiplying the grid's width by its height.

The second term of Eq 1. (the constant 5) represents the 5 variables declared during the instantiation of my IntGrid2D class.

Since class does not create more variables during instantiation, the tight bound of Θ(n) can be deduced.