Image Convolution Activity

Below is a grey-scale image of 16 pixels (4x4)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | | 128 | 255 | 196 | 64 | | 20 | 128 | 255 | 96 | | 210 | 20 | 128 | 255 | | 210 | 210 | 20 | 128 | |  |

1) Using the following Image Kernel, calculate the product of each pixel and complete the empty grid below.

Kernel:

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 1 |
| 0 | 0 | 0 |
| -1 | -2 | -1 |

Result:

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

2) How did you handle the edges and corners?   
3) Can you write a program in C# or Python that solves question 1 for you?