

Assignment #5

1. Take **input** from the user in 6x6 array.

| | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 0 | 3 | 4 | 1 | 1 | 1 | 0 |
| 1 | 4 | 5 | 7 | 0 | 0 | 0 |
| 2 | 1 | 5 | 2 | 7 | 8 | 1 |
| 3 | 1 | 3 | 2 | 2 | 5 | 1 |
| 4 | 3 | 0 | 4 | 5 | 0 | 5 |
| 5 | 1 | 6 | 9 | 7 | 5 | 1 |

2. Take **seed** and **dimension**.

Seed defines the index of cell from where the query rectangle starts. That is, top left cell of the query rectangle.

Dimension defines the number of cells to consider both horizontally and vertically.

e.g.

seed point location (x,y): 2 3 *2 is the row index and 3 is the column index*

dimension: 3 *(i.e. you have to consider 3x3 cells window starting from (2,3) location)*

3. Print the **original matrix** and **query rectangle**.

| | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 0 | 3 | 4 | 1 | 1 | 1 | 0 |
| 1 | 4 | 5 | 7 | 0 | 0 | 0 |
| 2 | 1 | 5 | 2 | 7 | 8 | 1 |
| 3 | 1 | 3 | 2 | 2 | 5 | 1 |
| 4 | 3 | 0 | 4 | 5 | 0 | 5 |
| 5 | 1 | 6 | 9 | 7 | 5 | 1 |

Query rectangle:

| | | |
|---|---|---|
| 7 | 8 | 1 |
| 2 | 5 | 1 |
| 5 | 0 | 5 |

Bonus part:

Initialize query rectangle. After initializing the query rectangle, find 4 directional sums using query rectangle:

- Directional_1 sum (depicted in yellow) -> $2+0+3$
- Directional_2 sum (depicted in green) -> $6+0+0$
- Directional_3 sum (depicted in red)....
- Directional_4 sum (depicted in purple)...

| | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| 1 | | | | | | |
| 2 | | | | 2 | 3 | 6 |
| 3 | | | | 8 | 0 | 1 |
| 4 | | | | 0 | 1 | 3 |
| 5 | | | | | | |

Then find and display the sorted directional sums (i.e. first smallest, second smallest, third smallest, and largest (forth smallest)).