Previous Lecture:
- Conditional statement
- for loop, while loop

Today’s Lecture:
- Random walk—vector version, plotting graphs
- User-defined functions
- 2-d array—matrix

Reading: MATLAB Essentials, Part III (handout)
Local minimum in a neighborhood

- Write a function \textit{minInNeighborhood}
- Input parameters:
  - \textbf{m}: matrix of numeric values
  - \textbf{loc}: location of the middle of the neighborhood
    - \texttt{loc(1)} and \texttt{loc(2)} are row, column numbers
- Output parameter: \texttt{minValue}
  - The minimum value of the neighborhood
Local minimum in a neighborhood

Cell (2,3)

Neighborhood of cell (2,3)
Local minimum in a neighborhood

Neighborhood of cell (3,5)
Develop an algorithm!

- Can you find the min of a (sub)matrix?

- Given the indices r, c (representing cell m(r,c)), is it easy to define the neighborhood?

- Can we get rid of the border cases?
Local minimum in a neighborhood

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Want to be able to use the general case,
\[ m(r-1:r+1, c-1:c+1) \]