

# Data Structures

Condensed Notes

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# Contents

<b>1</b>	<b>Formula</b>	<b>3</b>
1.1	Address calculation . . . . .	3

# Chapter 1

## Formula

### 1.1 Address calculation

**Single dimension** :  $base + size * (j - lowerBound)$

for a two dimensional matrix whose row index starts at  $r_f$  and ends at  $r_l$

and whose column index starts at  $c_f$  and ends at  $c_l$

the matrix is  $M[r_l - r_f + 1, c_l - c_f + 1]$

Address of  $M[i, j]$  is

- **Row Major** :  $base + [(c_l - c_f + 1)(i - r_f) + (j - c_f)] * size$
- **Column Major** :  $base + [(r_l - r_f + 1)(j - c_f) + (i - r_f)] * size$