# University of Waterloo
## CS240R Fall 2017
## Tutorial 7

**Monday, November 6**

## Range Search

Given the following set of points:

$$(23, 13), (49, 23), (31, 19), (28, 37), (19, 67), (13, 43), (79, 89),$$
$$(82, 2), (7, 7), (10, 31), (70, 5), (68, 17), (1, 3), (44, 11), (32, 47),$$

construct the following structures:

a) Quadtree with the initial region being the rectangle from $(0, 0)$ to $(100, 100)$,

b) 2-dimensional $k$d-tree,

c) 2-dimensional range tree.

Then perform the following range search queries:

i) Rectangle from $(23, 8)$ to $(75, 20)$,

ii) Rectangle from $(0, 50)$ to $(20, 80)$.