

# THE GRAPH REPRESENTATION

ADJACENCY MATRIX

ADJACENCY LIST

ADJACENCY SET

# THE GRAPH REPRESENTATION

## ADJACENCY MATRIX

THIS WORKS WELL WHEN THE GRAPH IS WELL CONNECTED I.E. MANY NODES ARE CONNECTED WITH MANY OTHER NODES

THE OVERHEAD OF  $V^2$  SPACE IS WORTH IT WHEN THE NUMBER OF CONNECTIONS ARE LARGE

## ADJACENCY LIST ADJACENCY SET

A SPARSE GRAPH WITH FEW CONNECTIONS BETWEEN NODES MIGHT BE MORE EFFICIENTLY REPRESENTED USING ADJACENCY LIST OR SET

# THE GRAPH REPRESENTATION

E = NUMBER  
OF EDGES

V = NUMBER  
OF VERTICES

ADJACENCY MATRIX

ADJACENCY LIST

ADJACENCY SET

SPACE

$V^2$

$E + V$

$E + V$

IS EDGE PRESENT

1

DEGREE OF V

LG(DEGREE OF V)

ITERATE OVER EDGES  
ON A VERTEX

V

DEGREE OF V

DEGREE OF V