

# WHAT IS A GRAPH?

LET'S FORMALLY DEFINE WHAT A GRAPH IS...

# WHAT IS A GRAPH?

A GRAPH IS A SET OF VERTICES AND  
EDGES

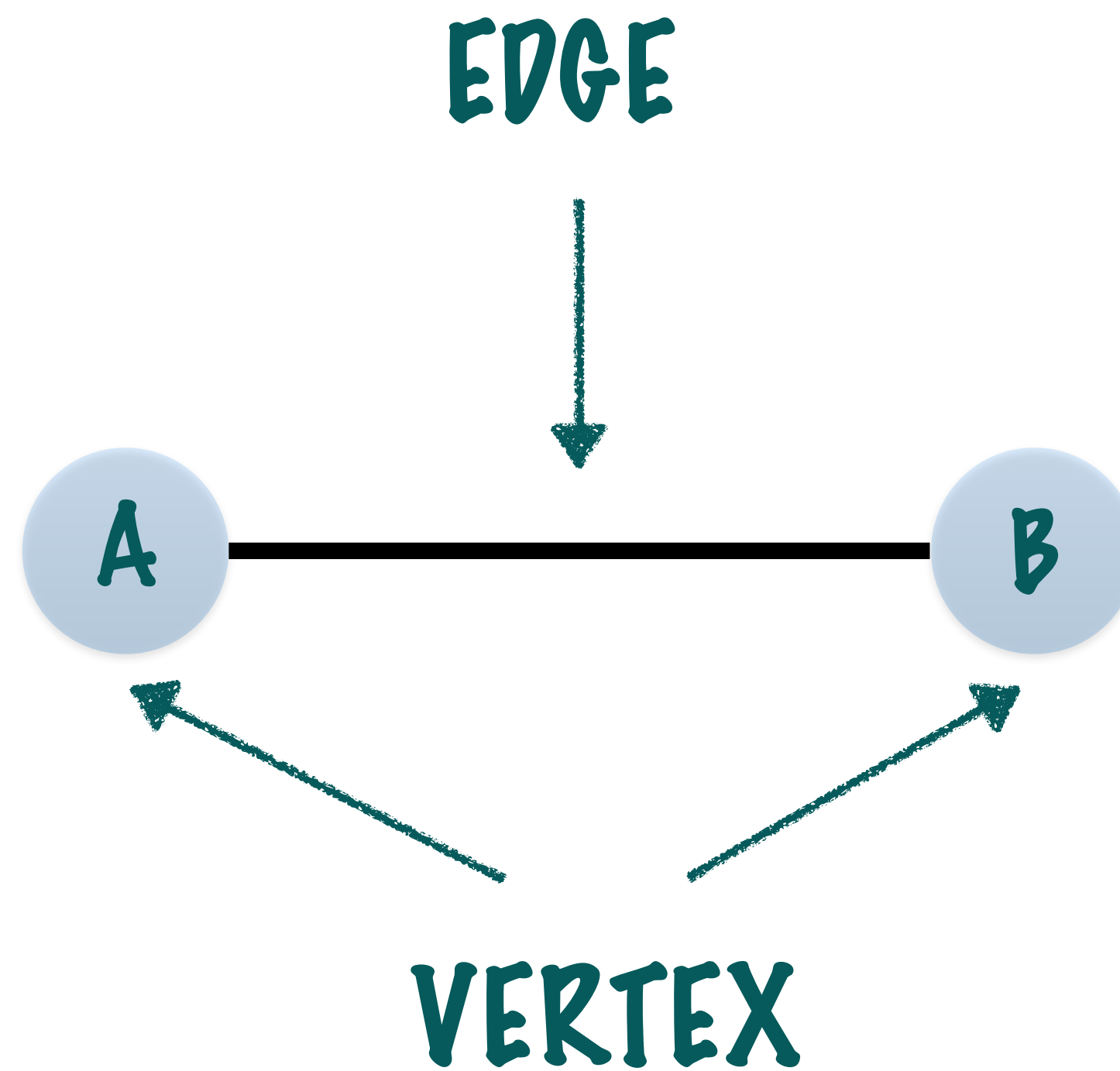
$(V, E)$



TWO VERTICES AND A SINGLE EDGE  
IS ALSO A VALID GRAPH

# WHAT IS A GRAPH?

$(V, E)$



# WHAT IS A GRAPH?

$(V, E)$



DESTINATION

THIS IS ALSO A GRAPH



SOURCE

NOTE THE ARROW ON THE EDGE

THIS MEANS THAT THE RELATION SHIP  
BETWEEN THE TWO VERTICES IS  
DIRECTED - THE EDGE IS A **DIRECTED EDGE**

# WHAT IS A GRAPH?



**UNDIRECTED** EDGES REPRESENT  
2-WAY RELATIONSHIPS SUCH AS:

1. TWO WAY ROADS
2. I AM HIS FRIEND AND HE IS MINE

**UNDIRECTED**



**DIRECTED** EDGES REPRESENT  
1-WAY RELATIONSHIPS SUCH AS:

1. ONE WAY ROADS
2. I REPORT TO MY MANAGER

**DIRECTED**