



# Challenge 8: Find the Shortest Path Between Two Vertices

We've dealt with several graph traversals. Now, we'll find the shortest path traversal between two vertices.

## We'll cover the following



- Problem statement
  - Input
  - Output
  - Sample input
  - Sample output
- Coding exercise

## Problem statement#

Implement the `find_min()` function which will take a directed graph and two vertices, **A** and **B**. The result will be the shortest path from **A** to **B**.

Remember, the shortest path will contain the minimum number of edges.

## Input#

A directed graph, a vertex A and a vertex B.

## Output#



Returns number of edges in the shortest path between A and



## Sample input#

```
graph = {  
    0 -> 1  
    0 -> 2  
    0 -> 3  
    3 -> 5  
    5 -> 4  
    2 -> 4  
}
```

Vertex A = 0

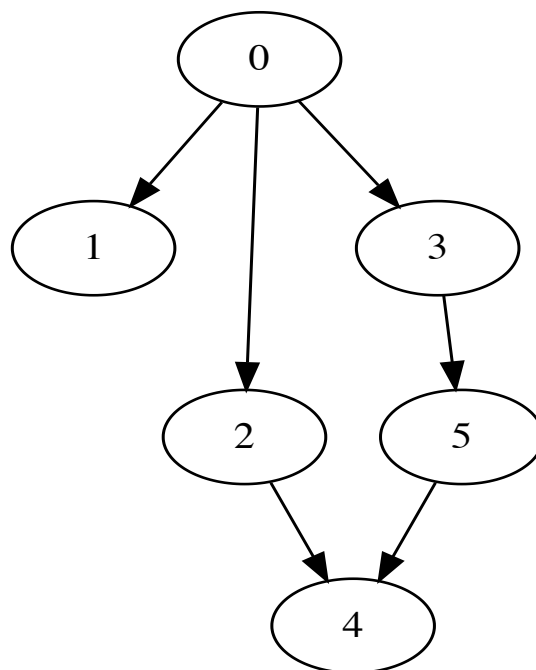
Vertex B = 4

## Sample output#

2

Take a look at the illustration below to understand better.





findMin(0,4) = 2

## Coding exercise#

Take a close look and design a step-by-step algorithm first before jumping on to the implementation.

Think back to all the previous exercises. You'll surely find several hints on how to implement this.

If you get stuck, you can always refer to the solution provided in the next lesson. Good luck!

main.py

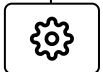
Graph.py

Stack.py

Queue.py

LinkedList.py

Node.py



```
from Graph import Graph
from Queue import MyQueue
from Stack import MyStack
# You can check the input graph in console tab

# Create Stack => stack = MyStack()
# Functions of Stack => push(int), pop(), top(), is_empty()
# Create Queue => queue = MyQueue()
# Functions of Queue => enqueue(int), dequeue(), size(), front(), is_empty()
# class Graph => {int vertices, linkedList[] array}
# class linkedList => {Node head_node}
# class Node => {int data, Node next_element}

def find_min(g, source, destination):
    # Write your code here
    return -1
```



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