Lab 11
Dijkstra

2019. 05. 23

lab 11. Dijkstra

- **Data Structure Specification**

```
use array for d[v], pred[v], w[u][v]

typedef struct Node{
        int key;
        int weight;
};

typedef struct Heap{
        int capacity;
        int size;
        Node* element;
};
```

You can change it if you want.

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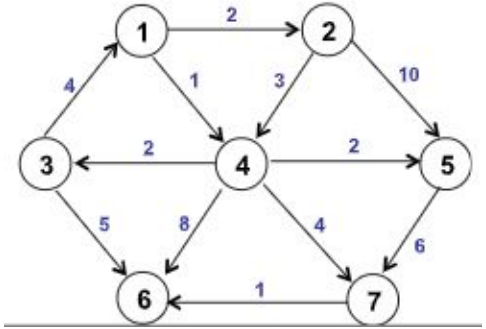
- **adjacency matrix**




```
# define INF = 99999;
```

	1	2	3	4	5	6	7
1	Inf	2	Inf	1	Inf	Inf	Inf
2	Inf	Inf	Inf	3	10	Inf	Inf
3	4	Inf	inf	Inf	Inf	5	Inf
4	Inf	Inf	2	Inf	2	8	4
5	Inf	Inf	Inf	Inf	Inf	Inf	6
6	Inf	Inf	Inf	Inf	Inf	Inf	Inf
7	Inf	Inf	Inf	Inf	Inf	1	Inf

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- **Function specification**
  - Heap* createMinHeap(int heapSize)
    - create a new heap with the size of heapSize.
  - void insert(Heap* minHeap, int vertex, int distance)
    - insert a new vertex to heap.
  - int deleteMin(Heap* minHeap)
    - delete the smallest distance node for calculation.
  - void printShortestPath(int[] pred)
    - print shortest path.

You should make other function if you need.

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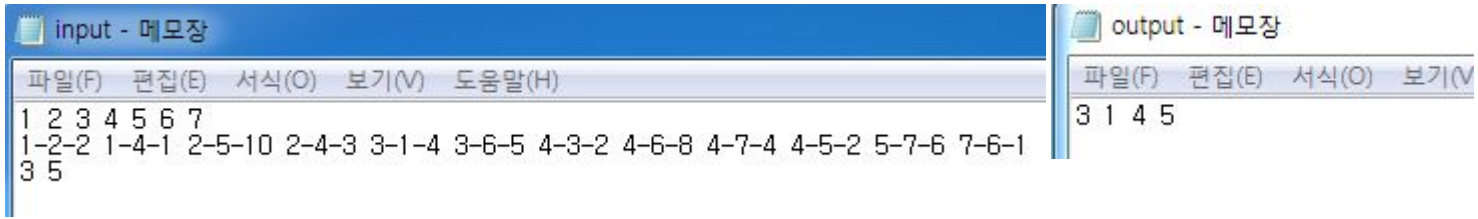
- **Input**
  - The first line contains a set of vertices. (max number of vertices is 100)
  - The Second line contains a set of edges with weight. (node 세 자리수까지 ok)
  - The Third line contains start vertex and end vertex.(if there is no path, print ‘no path’)
  - All vertices is represented by an integer.
- **Output**
  - **shortest path (start vertex → end vertex)**
- **You have to use file I/O like the previous assignment.**



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- Submission
  - Project directory name : lab11
  - Source file name : p11.c
  - Executable file name : p11.out
  - You should upload in the hconnect (Gitlab) server.

DeadLine

Wednesday, 29 May, 23 : 59 pm