# CS2023 - In class Lab

Week 12 – SSSP

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**GitHub Link :** https://github.com/TishanSathruwan/CS2023_inclass

**Question 01**

| | City 0 | City 1 | City 2 | City 3 | City 4 | City 5 |
|---|---|---|---|---|---|---|
| City 0 | 0 | 10 | 0 | 0 | 15 | 5 |
| City 1 | 10 | 0 | 10 | 30 | 0 | 0 |
| City 2 | 0 | 10 | 0 | 12 | 5 | 0 |
| City 3 | 0 | 30 | 12 | 0 | 0 | 20 |
| City 4 | 15 | 0 | 5 | 0 | 0 | 0 |
| City 5 | 5 | 0 | 0 | 20 | 0 | 0 |

**Question 03**

1) Select City 0 as the starting point.

```
PS C:\Users\ASUS\Desktop\inclass - week 12\output> & .\'Inclass_week_12 _Q_3.exe'
Starting City: 0

from City 0 to City 0   ->      Distance: 0
from City 0 to City 1   ->      Distance: 10
from City 0 to City 2   ->      Distance: 20
from City 0 to City 3   ->      Distance: 25
from City 0 to City 4   ->      Distance: 15
from City 0 to City 5   ->      Distance: 5
```

2) Select City 1 as the starting point.

```
PS C:\Users\ASUS\Desktop\inclass - week 12\output> & .\'Inclass_week_12 _Q_3.exe'
Starting City: 1

from City 1 to City 0   ->      Distance: 10
from City 1 to City 1   ->      Distance: 0
from City 1 to City 2   ->      Distance: 10
from City 1 to City 3   ->      Distance: 22
from City 1 to City 4   ->      Distance: 15
from City 1 to City 5   ->      Distance: 15
```

3) Select City 2 as the starting point.

```
PS C:\Users\ASUS\Desktop\inclass - week 12\output> & .\'Inclass_week_12 _Q_3.exe'
Starting City: 2

from City 2 to City 0   ->      Distance: 20
from City 2 to City 1   ->      Distance: 10
from City 2 to City 2   ->      Distance: 0
from City 2 to City 3   ->      Distance: 12
from City 2 to City 4   ->      Distance: 5
from City 2 to City 5   ->      Distance: 25
```

4) Select City 3 as the starting point.

```
PS C:\Users\ASUS\Desktop\inclass - week 12\output> & .\'Inclass_week_12 _Q_3.exe'
Starting City: 3

from City 3 to City 0   ->      Distance: 25
from City 3 to City 1   ->      Distance: 22
from City 3 to City 2   ->      Distance: 12
from City 3 to City 3   ->      Distance: 0
from City 3 to City 4   ->      Distance: 17
from City 3 to City 5   ->      Distance: 20
```

5) Select City 4 as the starting point.

```
PS C:\Users\ASUS\Desktop\inclass - week 12\output> & .\'Inclass_week_12 _Q_3.exe'
Starting City: 4

from City 4 to City 0   ->      Distance: 15
from City 4 to City 1   ->      Distance: 15
from City 4 to City 2   ->      Distance: 5
from City 4 to City 3   ->      Distance: 17
from City 4 to City 4   ->      Distance: 0
from City 4 to City 5   ->      Distance: 20
```

6) Select City 5 as the starting point.

```
PS C:\Users\ASUS\Desktop\inclass - week 12\output> & .\'Inclass_week_12 _Q_3.exe'
Starting City: 5

from City 5 to City 0   ->      Distance: 5
from City 5 to City 1   ->      Distance: 15
from City 5 to City 2   ->      Distance: 25
from City 5 to City 3   ->      Distance: 20
from City 5 to City 4   ->      Distance: 20
from City 5 to City 5   ->      Distance: 0
```

**Question 04**

```
PS C:\Users\ASUS\Desktop\inclass - week 12\output> & .\'Inclass_week_12_Q_4.exe'

Average Minimum Time: 14.4
The city with the smallest average time:
City 1
City 2
City 4
```