

1. Basic Single-Path, Positive Costs

```
Input Data's': {'a': {'capacity': 10, 'cost': 1}, 'a': {'t': {'capacity': 10, 'cost': 1}}
```

Ans :: Max Flow: 10, Min Cost: $10 \times (1+1) = 20$

2. Multi-Path Choice

```
Input Data's': {'a': {'capacity': 1, 'cost': 1}, 'b': {'capacity': 10, 'cost': 10}, 'a': {'t': {'capacity': 1, 'cost': 1}}, 'b': {'t': {'capacity': 10, 'cost': 10}}}
```

Ans :: Max Flow: 11, Min Cost: $(1 \times 2) + (10 \times 20) = 202$

3. Negative Cost Edge

```
Input Data's': {'a': {'capacity': 5, 'cost': 10}, 'b': {'capacity': 5, 'cost': 5}, 'a': {'t': {'capacity': 5, 'cost': 10}}, 'b': {'a': {'capacity': 5, 'cost': -10}}}
```

Ans :: Max Flow : 5 , MinCost : 25

4. Residual Graph & Path Re-Routing

```
Input Data's': {'a': {'capacity': 1, 'cost': 1}, 'b': {'capacity': 10, 'cost': 5}, 'a': {'t': {'capacity': 1, 'cost': 1}}}
```

```
10}, 'b': {'capacity': 1, 'cost': 0}}, 'b':  
{'t': {'capacity': 10, 'cost': 5}}
```

Ans :: Max Flow: 11, Min Cost:

$$(10 \times 10) + (1 \times 6) = 106$$

5. Capacity Bottleneck and Multiple Augmentations

```
Input Data's': {'a': {'capacity': 2, 'cost':  
1}}, 'a': {'b': {'capacity': 10, 'cost':  
1}}, 'b': {'t': {'capacity': 3, 'cost': 1}}}
```

Ans :: Max Flow: $2+1=3$, Min Cost: $3 \times 3 = 9$