Imran Ashraf.

Date: ..... Quiz No. 01

M T W T F S S

arr [3, 2, 1, 4, 5, 6]

```
import java.util.*;
class myclass {
    public static void main (String args[]) {
        for (int i=6; i>=0; i--) {
            for (int j=0; j<=5; j++) {
                if (arr[j] < arr[j+1]) {
                    int t = arr[j];
                    arr[j] = arr[j+1];
                    arr[j+1] = t;
                }
            }
        }
    }
```

BSI ISO 7221006

i<5 >=0 ✓
j<0 <=5 ✓
3<2 ✗
j<1 <=5 ✓
2<1 ✗
j<2 <=5 ✓
1<4 ✓
t<1
arr[2]<4
arr[3]<1
j<3 <=5 ✓
4<5 ✓

j<4 <=5 ✓
1<6 ✓
j<5 <=5 ✓
i<4 >=0 ✓
j<0 <=5 ✓
3<2 ✗
j<1 <=5
2<4 ✓
j<2 <=5
2<5 ✓
j<3 <=5 ✓
2<6 ✓

0	1	2	3	4	5
3	2	4	1	5	6
3	2	4	5	1	6
3	2	4	5	6	1
3	4	2	5	6	1
3	4	5	2	6	1
3	4	Infinity	2	1	

Date:...../...../20..... M T W T F S

j ← 4 <= 5 ✓
2 < 1 ✗
i ← 3 >= 0 ✓
j ← 0 <= 5 ✓
3 < 4 ✓
j ← 1 <= 5 ✓
3 < 5 ✓
j ← 2 <= 5 ✓
3 < 6 ✓
j ← 3 <= 5 ✓
3 < 2 ✗
j ← 4 <= 5
2 < 1 ✗
i ← 2 >= 0 ✓
j ← 0 <= 5 ✓
4 < 5 ✓
j ← 1 <= 5 ✓
4 < 6 ✓
j ← 2 <= 5
4 < 3 ✗
j ← 3 <= 5 ✓
3 < 2 ✗
i ← 1 >= 0 ✓
j ← 0 <= 5 ✓
5 < 6 ✓
j ← 1 <= 5 ✓
5 < 4 ✓
j ← 2 <= 5 ✓
4 < 5 ✓

All wrong conditions.

0	1	2	3	4	5
4	3	5	6	2	1

0	1	2	3	4	5
4	5	3	6	2	1

0	1	2	3	4	5
4	5	6	3	2	1

0	1	2	3	4	5
5	4	6	3	2	1

0	1	2	3	4	5
5	6	4	3	2	1

0	1	2	3	4	5
6	5	4	3	2	1

0	1	2	3	4	5
6	4	5	3	2	1

0	1	2	3	4	5
6	5	4	3	2	1

arr

0	1	2	3	4	5
6	5	4	3	2	1

Infinity Notes

Date:...../...../20..... M□T□W□T□F□S□

Quiz No. 02

Imran Ashraf
BSITS072210006

① Identity law

$P \vee F \equiv P$

$P \wedge T \equiv F$

P	F	$P \wedge T$
T	T	T
F	T	F

P	F	$P \vee F$
T	F	T
F	F	F

② Domination law:

$P \vee T \equiv T$

$P \wedge F \equiv F$

P	T	$P \vee T$
T	T	T
F	T	T

P	F	$P \wedge F$
T	F	F
F	F	F

③ Idempotent law:

$P \vee P \equiv P$

$P \wedge P \equiv P$

P	P	$P \vee P$
T	T	T
F	F	F

P	P	$P \wedge P$
T	T	T
F	F	F

④ Double negation:

$\neg(\neg P) \equiv P$

P	$\neg P$	$\neg(\neg P)$
T	F	T
F	T	F

⑤ Commutative law:

$P \vee q = q \vee P$

$P \wedge q = q \wedge P$

P	q	$P \vee q$	$q \vee P$
T	F	T	T
T	F	T	T
F	T	T	T
F	T	T	T

P	q	$P \wedge q$	$q \wedge P$
T	T	T	T
T	F	F	F
F	T	F	F
F	F	F	F

Date:...../...../20..... M T W T F S

(6) Associative laws

$p \vee (q \vee r) \equiv (p \vee q) \vee r$

$p \wedge (q \wedge r) \equiv (p \wedge q) \wedge r$

p	q	r	$p \wedge r$	$p \wedge q$	$p \wedge (q \wedge r)$	$(p \wedge q) \wedge r$
T	T	T	T	T	T	T
T	T	F	F	T	F	F
T	F	T	F	F	F	F
T	F	F	F	F	F	F
F	T	T	F	F	F	F
F	T	F	F	F	F	F
F	F	T	F	F	F	F
F	F	F	F	F	F	F

p	q	r	$p \vee (q \vee r)$	$(q \vee r)$	$(p \vee q)$	$(p \vee q) \vee r$
T	T	T	T	T	T	T
T	T	F	T	T	T	T
T	F	T	T	T	T	T
T	F	F	T	F	T	T
F	T	T	T	T	T	T
F	T	F	T	T	T	T
F	F	T	T	T	F	T
F	F	F	F	F	F	F

(7) Distributive laws:

$(p \vee q) \wedge (p \vee r) \equiv p \vee (q \wedge r)$

p	q	r	$p \vee q$	$p \vee r$	$(p \vee q) \wedge (p \vee r)$	$q \wedge r$	$p \vee (q \wedge r)$
T	T	T	T	T	T	T	T
T	T	F	T	T	T	F	T
T	F	T	T	T	T	F	T
T	F	F	T	T	T	F	T
F	T	T	T	T	T	T	T
F	T	F	T	F	F	F	F
F	F	T	F	T	F	F	F
F	F	F	F	F	F	F	F

$(p \wedge q) \vee (p \wedge r) \equiv p \wedge (q \vee r)$

p	q	r	$p \wedge q$	$p \wedge r$	$(p \wedge q) \vee (p \wedge r)$	$(q \vee r)$	$p \wedge (q \vee r)$
T	T	T	T	T	T	T	T
T	T	F	T	F	T	T	T
T	F	T	F	T	T	T	T
T	F	F	F	F	F	F	F
F	T	T	F	F	F	T	F
F	T	F	F	F	F	T	F
F	F	T	F	F	F	T	F
F	F	F	F	F	F	F	F

Infinity Notes

Date:...../...../20..... M□T□W□T□F□S□

⑧ Demorgan's Law:

$\neg(p \wedge q) \equiv \neg p \vee \neg q$

p	q	¬p	¬q	p∧q	¬(p∧q)	¬p ∨ ¬q
T	T	F	F	T	F	F
T	F	F	T	F	T	T
F	T	T	F	F	T	T
F	F	T	T	F	T	T

$\neg(p \vee q) \equiv \neg p \wedge \neg q$

p	q	¬p	¬q	p∨q	¬(p∨q)	¬p ∧ ¬q
T	T	F	F	T	F	F
T	F	F	T	T	F	F
F	T	T	F	T	F	F
F	F	T	T	F	T	T

⑨ Absorbtion Law:

$p \vee (p \wedge q) \equiv p$

p	q	p∧q	p∨(p∧q)
T	T	T	T
T	F	F	T
F	T	F	F
F	F	F	F

$p \wedge (p \vee q) \equiv p$

p	q	p∨q	p∧(p∨q)
T	T	T	T
T	F	T	T
F	T	T	F
F	F	F	F

Infinity Notes

Imran Ashraf
BSITS072210006

	1	2	3	4	5	6
P	5	3	2	6	2	4

Quiz # 03:

IT-(III)

Algorithm:

```
n ← P.length - 1
let m be a matrix of size m[n×n] & s[n×n]
for i ← 1 to n
    m[i,i] ← 0
    s[i,i] ← 0
for l ← 2 to n
    for i ← 1 to n-l+1
        j ← i+l-1
        m[i,j] ← ∞
            for k ← i to j-1
                q ← m[i,k] + m[k+1,j] + Pi Pk+1 Pj+1
                    if q < m[i,j]
                        m[i,j] ← q
                        s[i,j] ← k
return s and m.
```

Date:...../...../20..... M□T□W□T□F□S□

Optimal way to calculate matrices:

To find optimal way to calculate the matrices, use the matrix 's'. Start with the top-left element of 's' and traverse it diagnally until you reach the bottom right. This will give you the split points for multiplying the matrices optimally.

```
printOptimalBrackets (int [][] s, int i, int j)

    if  i == j

        Show "M" + i

    else

        show "("

    PrintOptimalBrackets (s, i, s[i][j])
    PrintOptimalBrakets (s, s[i][j]+1, j)

    Show ")"
```

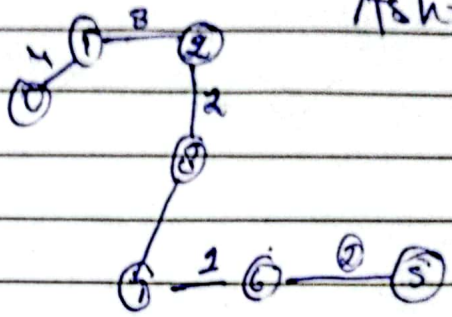
Date:...../...../20..... M T W T F S

Kruskal:

u	v	
7 — 1	6	✓
6 — 2	5	✓
8 — 2	2	✓
6 — 4	1	✓
2 — 4	5	✓
2 — 7	3	✗
7 — 7	8	✗
0 — 8	2	✗
1 — 8	7	✗
3 — 9	4	✓
5 — 10	4	✓
7 — 11	1	✓
5 — 14	5	✗

Quiz # 04

Imran Ashraf



A { 0 } { 1 } { 2 } { 3 } { 4 } { 5 } { 6 } { 7 } { 8 }

A { (7,6), (6,5), (8,2), (2,5), (8,6), (2,3), (3,4) }

{ 0,1,2,3,4,5,8 } { 7,6 }

A { 0,1,2,3,4,8 } { 5,6,7 }

A { 0,1,2,3,4, } { 5,6,7,8 }

A { 2,3,4, } { 0,1,5,6,7,8 }

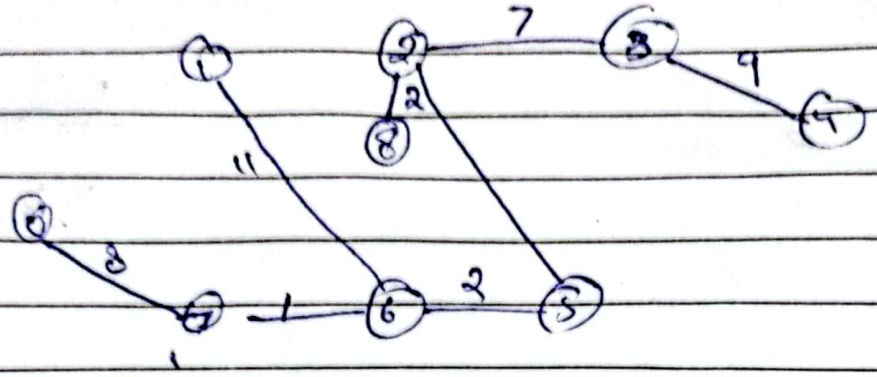
A { 3,4 } { 0,1,2,5,6,7,8 }

A { 4, } { 0,1,2,3,5,6,7,

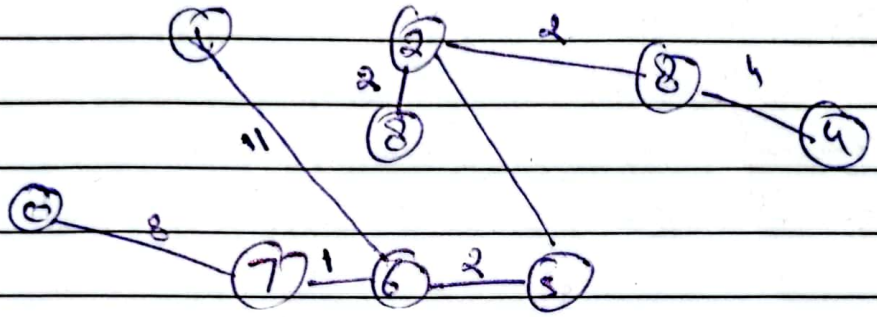
A { 0,1,2,3,4,5,6,7,8 }

Date:...../...../20..... M□T□W□T□F□S□

(7,6), (2,8), (6,1), (6,5), (2,5), (0,7), (8,4), (2,5)



Prim's



In prim all vertices with minimum weight are connected with each other.

Both graph will be same but their procedure of drawing spanning tree will must be different

Infinity Notes