```
int   a;    row  column
int   a [8][5];
int   b [40];

for (i = 0;  i < 8;  i++)          ——— ROW
  {
      for (j = 0;  i < 5;  j++),      — COLUMN
         { b [(i*5) + j]  = a [i][j]
         }                              row  column
  }
```

row 1

b[0] = a[0][0]   b[1] = a[0][1]
b[1] = a[0][1]
b[2] = a[0][2]   row 4
b[3] = a[0][3]   b[15] = a[3][0],
b[4] = a[0][4]   b[19] = a[3][4] :
b[5] = a[0][5]
b[6] = a[0][6]   row 5
b[7] = a[0][7]   b[20] = a[4][0] :
                           b[24] = a[4][4] :
similarly
                        row 6
b[8] = a[1][0] :   b[25] = a[5][0],
b[15] = a[1][7]   b[29] = a[5][4] :

b[16] = a[2]   row 7
                           b[30] = a[6][0] :
                           b[34] = a[6][4] :

row 2
b[5] = a[1][0] :   row 8
b[9] = a[1][4] :   b[35] = a[7][0],
                           b[39] = a[7][4] !

row 3
b[10] = a[2][0] :
b[14] = a[2][4] !
```

| for i | j | b[value] | runs (i) loop | runs (j) loop | result |
|-------|---|----------|---------------|---------------|--------|
| 0 0 | | b[0] | ✓ | ✓ | a[0][0]  0*5+1 |
| 0 ~~2~~1 | | b[1] | ✗ | ✓ | a[0][1]  0*5+2 |
| 0 ~~3~~2 | | b[2] | ✗ | ✓ | a[0][2]  0*5+3 |
| 0 ~~4~~3 | | b[3] | ✗ | ✓ | a[0][3]  0*5+4 |
| 0 ~~5~~4 | | b[4] | ✗ | ✓ | |

EXITS (j) loop
ENTERS (i) loop

i++ gives
0+1 → 1

| 1 | 0 | b[5] | ✓ | ✓ | a[1][0]  1*5+0 |
| 1 | 1 | b[6] | ✗ | ✓ | a[1][1]  1*5+1 |
| 1 | 2 | b[7] | ✗ | ✓ | a[1][2]  1*5+2 |
| 1 | 3 | b[8] | ✗ | ✓ | a[1][3]  1*5+3 |
| 1 | 4 | b[9] | ✗ | ✓ | a[1][4]  1*5+4 |

EXITS (j) loop
ENTERS (i) loop

i++ gives
1+1 → +2

| 2 | 0 | b[10] | ✓ | ✓ | a[2][0]  2*5+0 |
| 2 | 1 | b[11] | ✗ | ✓ | a[2][1]  2*5+1 |
| 2 | 2 | b[12] | ✗ | ✓ | a[2][2]  2*5+2 |
| 2 | 3 | b[13] | ✗ | ✓ | a[2][3]  2*5+3 |
| 2 | 4 | b[14] | ✗ | ✓ | a[2][4]  2*5+4 |

EXITS (j) loop
ENTERS (i) loop

i++ gives
2+1 → 3

| 3 | 0 | b[15] | ✓ | ✓ | a[3][0]  3*5+0 |
| 3 | 1 | b[16] | ✗ | ✓ | a[3][1]  3*5+1 |
| 3 | 2 | b[17] | ✗ | ✓ | a[3][2]  3*5+2 |
| 3 | 3 | b[18] | ✗ | ✓ | a[3][3]  3*5+3 |
| 3 | 4 | b[19] | ✗ | ✓ | a[3][4]  3*5+4 |

EXITS (j) loop
ENTERS (i) loop

i++ gives
3+1 → 4

~~4~~ ~~a~~
~~4~~.

| for i | j | b[value] | runs(i) loop | runs(j) loop | result | calc |
|---|---|---|---|---|---|---|
| 4 | 0 | b[20] | ✓ | ✓ | a[4][0] | 4*5+ |
| 4 | 1 | b[21] | α | ✓ | a[4][1] | 4*5+1 |
| 4 | 2 | b[22] | α | ✓ | a[4][2] | 4*5+2 |
| 4 | 3 | b[23] | α | ✓ | a[4][3] | 4*5+3 |
| 4 | 4 | b[24] | α | ✓ | a[4][4] | 4*5+4 |

EXITS (j) loop
ENTERS (i) loop          i++ gives  4+1 → 5

| 5 | 0 | b[25] | ✓ | ✓ | a[5][0] | 5*5+0 |
| 5 | 1 | b[26] | α | ✓ | a[5][1] | 5*5+1 |
| 5 | 2 | b[27] | α | ✓ | a[5][2] | 5*5+2 |
| 5 | 3 | b[28] | α | ✓ | a[5][3] | 5*5+3 |
| 5 | 4 | b[29] | α | ✓ | a[5][4] | 5*5+4 |

EXITS (j) loop
ENTERS (i) loop          i++ gives  5+1 → 6

| 6 | 0 | b[30] | ✓ | ✓ | a[6][0] | 6*5+0 |
| 6 | 1 | b[31] | α | ✓ | a[6][1] | 6*5+1 |
| 6 | 2 | b[32] | α | ✓ | a[6][2] | 6*5+2 |
| 6 | 3 | b[33] | α | ✓ | a[6][3] | 6*5+3 |
| 6 | 4 | b[34] | α | ✓ | a[6][4] | 6*5+4 |

EXITS j loop
ENTERS (i) loop          i++ gives  6+1 → 7

| 7 | 0 | b[35] | ✓ | ✓ | a[7][0] | 7*5+0 |
| 7 | 1 | b[36] | α | ✓ | a[7][1] | 7*5+1 |
| 7 | 2 | b[37] | α | ✓ | a[7][2] | 7*5+2 |
| 7 | 3 | b[38] | α | ✓ | a[7][3] | 7*5+3 |
| 7 | 4 | b[39] | α | ✓ | a[7][4] | 7*5+4 |

EXITS (j) loop
EXITS (i) loop
as i = 8