

65
 65 68
 65 66 67
 65 66 67 68

A
 B B
 C C C
 D D D D

65
 66 66
 67 67 67
 68 68 68 68

1 2 3 4
 1 2 3 4
 1 2 3 4

```

int i, j;
for (i = 65; i <= 68; i++)
{
    for (j = 65; j <= i; j++)
    {
        printf("%c", i);
    }
    printf("\n");
}
  
```

i=65
 j=65
 65 66 67 68
 65 66 67 68

i=2
 x=D
 i=1
 j=2
 A
 B B
 C C C
 1

```

int i, j;
for (i = 1; i <= 4; i++)
{
    char x = 'A';
    for (j = 1; j <= i; j++)
    {
        printf("%c", x);
    }
    printf("\n");
    x = x + 1;
}
  
```

(1,1) 1 2 (2,1)
 (1,2) 1 2 3 (2,2)
 (3,1) 1 2 3 4 (3,3)
 (4,1) 1 2 3 4 5 (4,4)

1
 → 1 0
 →

```

    1 0
    1 0 1
    1 0 1 0
    int i, j;
    for (i=1; i<=4; i++)
    {
        for (j=1; j<=i; j++)
        {
            if (j%2 == 0)
                printf("0");
            else
                printf("1");
        }
        printf("\n");
    }
  
```

i=1
 j=1 2
 i=2
 j=1 2 3

1
 0 0
 1 1 1
 0 0 0 0

②
 0 1
 0 0 0
 1 1 1 1
 (1,1) 1
 (2,1) 1 2 (2,2) 3 (2,3) 4
 (3,1) 1 2 3 (3,2) 4 (3,3) 5 (3,4) 6
 (4,1) 1 2 3 4 (4,2) 5 (4,3) 6 (4,4) 7 (4,5) 8

```

    printf("%d", j/2);
  
```

4
 3 3
 2 2 2
 1 1 1 1

```

    int i, j;
    4 for (i=1; i<=4; i++)
    {
        for (j=1; j<=i; j++)
        {
            printf("%d", j/2);
        }
        printf("\n");
    }
  
```

i=1
 j=1 2
 i=2
 j=1 2 3
 i=3
 j=1 2 3 4
 i=4
 j=1 2 3 4 5

(1,1) 1 2 3 4
 (2,1) 1 2 3 4
 (3,1) 1 2 3 4
 (4,1) 1 2 3 4

1
→ 2 0

10
101
1010

①

int i, j;

for (i=1; i<=4; i++)
{

for (j=1; j<=i; j++)

i=1 j=1
i=2 j=2
i=3 j=3
i=4 j=4
if (i%2 == 0)
printf
else
Pr

④

1
00
11
0000

②

0
1
000
111

i=1
j=1
i=2
j=2

0
10
010

(1,1) 1
(2,1) 1 2
(3,1) 1 2 3
(4,1) 1 2 3 4

int i, j;
for (i=1; i<=4; i++)
{
for (j=1; j<=i; j++)

{
printf("%d ", (i+j)/2);
}
printf("\n");

int i, j;

④ for (i=1; i<=4; i++)
{

for (j=1; j<=i; j++)
{
printf("%d ", (i+j)/2);
}
printf("\n");

4
33
222
1111

(1,1) 0 ✓

(2,1) 1 0 2 2

(3,1) 0 (3,2) 0 (3,3) 1 2 3

4 0 1 0

①

1 2

1 2 3

1 2 3 4

⑤

i=1 j=1
 i=2 j=2
 i=3 j=3
 i=4 j=4

A=65
Z=90

a=97
z=122

ABCD
ABc
AB
A

A
BA
cBA
DCBA

DCBA
DCB
Dc
D

DDDD
ccc
BB
A

A
AB
ABc
ABcD

D
Dc
DCB
DcBA

A
BB
ccc
DDD

AAAA
AAA
AA
A

ABCD
BCD
cd
D

DCBA
cBA
BA
A

D
cc
BBB
AAAA

ABCD
EFH
IJKL
MNO P

A
BC
DEF
GHIJ

ABCD
EFG
HI
J

1
23
456
789 10

D
cc
BBB
cccc

A=65
Z=90
Q=97
Z=122

(VII) A B C D
A B C
A B
A

(VI) A
B A
C B A
D C B A

D C B A
D C B
D C
D

D D D D
C C C
B B
A

A
A B
A B C
A B C D

D
D C
D C B
D C B A

A
(V) B B B
C C C
D D D

A A A A
A A A
A A
A

A B C D
B C D (I)
C D
D

D C B A
C B A
B A
A

D
C C
B B B
A A A A

(I) A B C D
E F G H
I J K L
M N O P

A
B C
(III) D E F
G H I J

A B C D
E F G
H I
J

(IV) 1
2 3
4 5 6
7 8 9 10

D
C C
B B B
C C C C

65
 65 68
 65 66 67
 65 66 67 68

A
 B B
 C C C
 D D D D

65
 66 66
 67 67 67
 68 68 68 68

$i=65$
 $j=65$
 $i=65$
 $j=65$
 $i=66$
 $j=66$
 $i=67$
 $j=67$
 $i=68$
 $j=68$

```

int i, j;
for (i = 65; i <= 68; i++)
{
    for (j = 65; j <= i; j++)
    {
        printf("%c", i);
    }
    printf("\n");
}
  
```

$i=2$
 $x=D$
 $i=1$
 $j=2$
 A
 B B
 C C C
 1

```

int i, j;
for (i = 1; i <= 4; i++)
{
    char x = 'A';
    for (j = 1; j <= i; j++)
    {
        printf("%c", x);
    }
    printf("\n");
    x = x + 1;
}
  
```

ASCII

1
2
2 3
1 2 3 4
1 2 3 4

D
C D
B C D
A B C D

68
67 68
66 67 68
65 66 67 68

i=67 | i=68

j=x | j=6867
≤ 67

x='D'

i=1

j=2

i=2

j=3

D
D
D
D

S

P

5

3

4

```
int i, j;
for(i=20, j=65, i++)
```

```
{
```

```
for(j=i; j<=65; j++)
```

```
{
```

```
printf("%c", x);
```

```
}
```

```
printf("\n");
```

```
}
```

```
int i, j;
```

```
char x='D';
```

```
for(i=1, j=2; i++)
```

```
{
```

```
for(j=i; j<=5; j++)
```

```
{
```

```
printf("%c", x);
```

```
j++;
```

```
}
```

```
i++;
```

```
}
```

(65 - x)

ASCII

1
2
2 3
2 3 4

D
C D
B C D
A B C D

68
67 68
66 67 68
65 66 67 68

i=67 i=68

~~T=67~~ T=68 67
68 69

int i, j;
for (i=68; i>=65; i--)

{

for (j=i; j<=68; j++)

{

printf("%c", j);

}

printf("\n");

}

int i, j;

char x='D';

for (i=1; i<=4; i++)

{

for (j=1; j<=i; j++)

{

printf("%c", x);

x--;

printf("\n");

}

(65 - x)

1
2
2 3
2 3 4

D
D C
D C B
D C B A

A=65
Z=90
Z=122

65	66	67	68
65	66	67	
65	66		
65	66		

A B C D
A B C
A B
A

```
int i, j;
for(i=68; i>=65; i--)
```

i=68

```
{
  for(j=65; j<=67; j++)
```

A B C D
→ A B C

```
{
  printf("%c", j);
```

```
}
}
printf("\n");
```

i=67

j=65
66
67
68

1	2	3
1	2	3
1	2	3

i=3

j=4

x='A'

i=5

j=1

x='A'

i=5

j=1

x='A'

i=5

j=1

x='A'

i=5

j=1

x='A'

i=5

j=1

x='A'

```
int i, j;
```

```
char x='A';
```

```
for(i=4; i>=2; i--)
```

```
{
  for(j=1; j<=i; j++)
```

```
{
  printf("%c", x);
```

```
x++;
}
```

```

for ( i = 65; j <= 9; j++)
{
    printf("%c", j);
}
printf("\n");

```

67
 68
 69
 70
 71
 72
 73
 74
 75
 76
 77
 78
 79
 80
 81
 82
 83
 84
 85
 86
 87
 88
 89
 90
 91
 92
 93
 94
 95
 96
 97
 98
 99
 100

1 2 3 4
 2 3 4 5
 3 4 5 6
 4 5 6 7
 5 6 7 8
 6 7 8 9
 7 8 9 10
 8 9 10 11
 9 10 11 12
 10 11 12 13
 11 12 13 14
 12 13 14 15

```

int i, j;
char x = 'A';
for ( i = 2; i <= 5; i++)
{
    for ( j = 1; j <= i; j++)
    {
        printf("%c", x);
        x++;
    }
}

```

x = 'E'
 i = 5
 j = 1
 A B C D

15022

2
3
4

int i, j, k;
for (i = 0; i < 5; i++)

D (2, 3)
D D (1, 2)
D D D (1, 1)
D D D D (1, 0)

for (j = 0; j < 5; j++)

(5, 5)

150/150

printf("%d", i);

150/150

printf("%d", j);

D
D
D
D
D

(1,1) 1 2 3
 (2,1) 1 2 3
 (3,1) 1 2 3
 (4,1) 1 2 3

①

for (i=1; i<=4; i++)
 {
 for (j=1; j<=i; j++)
 {
 if (j%2 == 0)
 printf(" ");
 else
 printf("%d", j);
 }
 printf("\n");
 }

0
 1
 0 0 0

②

0 1 2 3 4
 1 1 1 1 1
 0 0 0
 1 1 1 1

4
 3 3
 2 2 2
 1 1 1

i=1
 j=1

int i, j;
 for (i=1; i<=4; i++)
 {
 for (j=1; j<=i; j++)
 {
 printf("%d ", (i+j)/2);
 }
 printf("\n");
 }

(1,1) 0
 (2,1) 1 0 2
 (3,1) 0 1 0 2 3
 4 0 1 0

①
 1 2 3
 1 2 3

④ for (i=1; i<=4; i++)
 {
 for (j=1; j<=i; j++)
 {
 printf("%d ", i-j);
 }
 printf("\n");
 }

i=1
 j=1
 0 1
 1 0
 2 1
 3 0
 4 1

Floyd Triangle

```

1
2 3
4 5 6
7 8 9 10

```

```

1 2
1 2 3
1 2 3 4

```

```

int i, j, K = 1;
for (i = 1; i <= 4; i++)
{
    for (j = 1; j <= i; j++)
    {
        printf("%d", K);
        K++;
    }
    printf("\n");
}

```

```

i=1
j=1
K=1
j=2
K=2
j=3
K=3
j=4
K=4
j=5
K=5
j=6
K=6
j=7
K=7
j=8
K=8
j=9
K=9
j=10
K=10

```

```

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

```