Q.1 Write a Program to print the below pattern using nested for loop.
```
    1
   2 1
  3 2 1
 4 3 2 1
5 4 3 2 1
```
Ans: // Online C compiler to run C program online
#include <stdio.h>

int main() {
for(int i=5;i>=1;i--){
    for(int j=5;j>=1;j--){
        if(i+j<=6){
            printf("%d",j);
        }else{
            printf(" ");
        }

        }
    printf("\n");
}

    return 0;
}
O\p: /tmp/tYl9QLzXrG.o
```
    1
   21
  321
 4321
54321
```

=== Code Execution Successful ===

Q.2 Write a Program to print the below pattern using nested for loop.
```
    5
   4 5
  3 4 5
 2 3 4 5
1 2 3 4 5
```
Ans: // Online C compiler to run C program online

```c
#include <stdio.h>

int main() {
for(int i=1;i<=5;i++){
    for(int j=1;j<=5;j++){
        if(i+j>=6){
            printf("%d",j);
        }else{
            printf(" ");
        }

        }
    printf("\n");
}

    return 0;
}
```
O\p: /tmp/c9Mq6ii1pA.o
```
    5
   45
  345
 2345
12345
```

=== Code Execution Successful ===

Q.3 Write a Program to print the below pattern using nested for loop.
```
    5
   4 4
  3 3 3
 2 2 2 2
1 1 1 1 1
```
Ans: // Online C compiler to run C program online
```c
#include <stdio.h>

int main() {
for(int i=5;i>=1;i--){
    for(int j=5;j>=1;j--){
        if(i+j<=6){
            printf("%d",i);
        }else{
            printf(" ");
        }
```

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

    return 0;
}
```
O\p: /tmp/oL6hExCIS8.o
```
    5
   44
  333
 2222
11111
```


=== Code Execution Successful ===

Q.4 Write a Program to print the below pattern using nested for loop.
```
1 0 1 0 1
  0 1 0 1
    1 0 1
      0 1
        1
```
Ans: #include <stdio.h>

```c
int main() {
    int i, j, k;


    for(i =5; i >=1; --i) {

    for(k = 5; k > i; k--) {
        printf("  ");
      }


      for(j = i; j >= 1; --j) {
        if(j % 2 == 1)
        {
          printf("1 ");
        }
```

```
        else
        {
            printf("0 ");
        }

    }
    printf("\n");
  }

  return 0;
}
```
O\p: /tmp/LtjEBNRRCh.o
1 0 1 0 1
  0 1 0 1
    1 0 1
      0 1
        1

=== Code Execution Successful ===

Q.5 Write a Program to print the below pattern using nested for loop.
5 4 3 2 1
  4 3 2 1
    3 2 1
      2 1
        1
Ans:
```
#include <stdio.h>

int main() {
    int i, j, k;


    for(i =5; i >=1; --i) {

    for(k = 5; k > i; k--) {
        printf("  ");
      }


      for(j = i; j >= 1; --j) {
        printf("%d ", j);
      }
```

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

    return 0;
}
```
O\p: /tmp/vt0GfizWRP.o

```
5 4 3 2 1
  4 3 2 1
    3 2 1
      2 1
        1
```

=== Code Execution Successful ===

Q.6 Write a Program to print the below pattern using nested for loop.
```
5 4 3 2 1
  5 4 3 2
    5 4 3
      5 4
        5
```
Ans: #include <stdio.h>

```
int main() {
    int i,j,k;

    for (i=1;i<=5;i++) {
        for(k=i;k>=1;k--){
            printf("  ");
        }
        for (j=5;j>=i;--j) {
            printf("%d ", j);
        }
        printf("\n");
    }
    return 0;
}
```
O\p: /tmp/pD5bRiRhg1.o
```
  5 4 3 2 1
    5 4 3 2
      5 4 3
        5 4
          5
```

=== Code Execution Successful ===

Q.7 Write a Program to print the below pattern using nested for loop.

```
1 2 3 4 5 5 4 3 2 1
1 2 3 4     4 3 2 1
1 2 3         3 2 1
1 2             2 1
1                 1
```

Ans: #include <stdio.h>

```c
int main() {
    int i, j, k;

    for (i = 5; i >= 1; i--) {
        for (j = 1; j <= i; j++) {
            printf("%d ", j);
        }
        for (k =5; k >i; k--) {
            printf("   ");
        }
        for (k = i; k >=1 ; k--) {
            printf("%d ", k);
        }
        printf("\n");
    }

    return 0;
}
```

O\p: /tmp/DPY04H3AUj.o

```
1 2 3 4 5 5 4 3 2 1
1 2 3 4     4 3 2 1
1 2 3         3 2 1
1 2             2 1
1                 1
```

=== Code Execution Successful ===

Q.8 Write a Program to print the below pattern using nested for loop.

```
1 2 3 4 5 5 4 3 2 1
1 2 3 4     4 3 2 1
```

```
1 2 3          3 2 1
1 2              2 1
1                  1
1                  1
1 2              2 1
1 2 3          3 2 1
1 2 3 4      4 3 2 1
1 2 3 4 5 5 4 3 2 1
```

```c
#include <stdio.h>

int main() {
    int i, j, k,l;

    for (i = 5; i >= 1; i--) {
        for (j = 1; j <= i; j++) {
            printf("%d ", j);
        }
        for (k =5; k >i; k--) {
            printf("    ");
        }
        for (l = i; l >=1 ; l--) {
            printf("%d ", l);
        }
        printf("\n");
    }

    for (i = 1; i <=5; i++) {
        for (j = 1; j <= i; j++) {
            printf("%d ", j);
        }

        for (j =i; j <=4; j++) {
            printf("    ");
        }
        for (j = i; j >= 1; j--) {
            printf("%d", j);
            if (j != 1) {
                printf(" ");
            }
        }
        printf("\n");
    }
    return 0;
}
```

O\p: /tmp/iZtZA07lTh.o
```
1 2 3 4 5 5 4 3 2 1
1 2 3 4     4 3 2 1
1 2 3         3 2 1
1 2             2 1
1                 1
1                 1
1 2             2 1
1 2 3         3 2 1
1 2 3 4     4 3 2 1
1 2 3 4 5 5 4 3 2 1
```

=== Code Execution Successful ===

Q.9 Write a Program to print the below pattern using nested for loop.
```
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```
Ans: #include <stdio.h>

```c
int main() {
    int i, j, k,l;

    for (i = 5; i >= 1; i--) {
        for (j = 1; j <= i; j++) {
            printf("%d ", j);
        }

        printf("\n");
    }

    for (i = 1; i <=5; i++) {
        for (j = 1; j <= i; j++) {
            printf("%d ", j);
        }
```

```
      printf("\n");
    }
    return 0;
}
```

O\p: /tmp/CG4Saf1pYI.o
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

=== Code Execution Successful ===

Q.10 Write a Program to print the below pattern using nested for loop.
```
        1
      1 2 1
    1 2 3 2 1
  1 2 3 4 3 2 1
1 2 3 4 5 4 3 2 1
```
```c
#include <stdio.h>

int main(){
    int i, j, k, l;


  for (i = 1; i <= 5; i++) {
    for (k = i; k < 5; k++) {
      printf("   ");
    }
    for (j = 1; j <= i; j++) {
      printf("%2d ", j);
    }
    for (l= i - 1; l >= 1; l--) {
      printf("%2d ", l);
    }
```

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


return 0;
}
```

O\p: /tmp/H2O3VQKpMm.o
```
        1
      1 2 1
    1 2 3 2 1
  1 2 3 4 3 2 1
 1 2 3 4 5 4 3 2 1
```

=== Code Execution Successful ===

Q.11 Write a Program to print the below pattern using nested for loop.
```
      *
    * * *
   * * * * *
  * * * * * * *
* * * * * * * * *
```

Ans: #include <stdio.h>

```
int main() {
    int i, j, k;
    for (i = 1; i <= 5; i++) {
        for (k = 1; k <= 5 - i;k++) {
            printf("  ");
        }
        for (j = 1; j <= i * 2 - 1; j++) {
            printf("* ");
        }
        printf("\n");
    }
    return 0;
}
```

O\p: /tmp/keVqHgFgyZ.o
```
      *
    * * *
   * * * * *
  * * * * * * *
* * * * * * * * *
```

=== Code Execution Successful ===