

Patterns Assignment

1.using while ,do while and for loops

```
*
* *
* * *
* * * *
* * * * *

#include <stdio.h>
void main() {
    int i,j,n=5;
    for(i=1;i<=n;i++){
        for(j=1;j<=i;j++){
            printf("*");
        }
        printf("\n");
    }
}
```

Output;

```
*
* *
* * *
* * * *
* * * * *
```

2. using while ,do while and for loops :

```
* * * * *
* * * *
* * *
* *
*

#include <stdio.h>
void main() {
    int i,j,n=5;
    for(i=5;i>=1;i--){
        for(j=1;j<=i;j++){
            printf("*");
        }
        printf("\n");
    }
}
```

Output:

```
* * * * *
* * * *
* * *
* *
*
```

3.

```
#include <stdio.h>
void main(){
    int i, j, n = 5;
    for(i = 0; i < 5; i++){ // Start from 4 and go down to 0
        if(i <= 2){
```

```

        for(j = 0; j < 4; j++){
            printf(" ");
        }
    }else if(i == 3){
        for(j = 0; j < 1; j++){
            printf(" ");
        }
    }
    for(j = 0; j <= i; j++){
        printf("*");
    }
    printf("\n");
}
}

```

Out put:

```

*
**
***
****
*****

```

4.#include <stdio.h>

```

void main(){
    int i, j, n = 5;
    for(i = 4; i >= 0; i--){ // Start from 4 and go down to 0
        if(i <= 2){
            for(j = 0; j < 4; j++){
                printf(" ");
            }
        }else if(i == 3){
            for(j = 0; j < 1; j++){
                printf(" ");
            }
        }
        for(j = 0; j <= i; j++){
            printf("*");
        }
        printf("\n");
    }
}

```

Out put:

```

*****
****
***
**

```

*

5.

```
#include <stdio.h>
void main() {
    int rows = 5;
    for (int i = 1; i <= rows; i++) {
        for (int j = 1; j <= rows - i; j++) {
            printf(" ");
        }
        for (int k = 1; k <= i; k++) {
            printf("* ");
        }
        printf("\n");
    }
}
```

Output:

```
    *
  * *
* * *
* * * *
* * * * *
```

6.

```
#include <stdio.h>
void main(){
    int n=5,i,j;
    for(i=1;i<=n;i++){
        for(j=1;j<=i;j++){
            printf("%d",i);
        }
        printf("\n");
    }
}
```

Output:

```
1
22
333
4444
55555
```

7.

```
#include <stdio.h>
void main(){
    int n=5,i,j;
    for(i=1;i<=n;i++){
```

```

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

```

Output:

```

1
12
123
1234
12345

```

8.

```

#include <stdio.h>
void main(){
    int n=5,i,j;
    for(i=0;i<n;i++){
        for(j=0;j<=i;j++){
            if((i+j)%2==0){
                printf("1");
            }else{
                printf("0");
            }
        }
        printf("\n");
    }
}

```

out put:

```

1
01
101
0101
10101

```

9.

```

#include <stdio.h>
void main(){
    int n=5,i,j;
    for(i=n;i>=1;i--){
        for(j=n;j>=i;j--){
            printf("%d",i);
        }
        printf("\n");
    }
}

```

```
}
```

Output:

5

44

333

2222

11111

10.

```
#include <stdio.h>
```

```
void main(){
```

```
    int n=5,i,j;
```

```
    for(i=n;i>=1;i--){
```

```
        for(j=n;j>=i;j--){
```

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

```
        }
```

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

```
    }
```

```
}
```

Output:

5

54

543

5432

54321

11.

```
#include <stdio.h>
```

```
void main() {
```

```
    int i,j,n=5,k=1;
```

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

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

```
            printf("%d ",k);
```

```
            k++;
```

```
        }
```

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

```
    }
```

```
}
```

output:

1

2 3

4 5 6

7 8 9 10

11 12 13 14 15

12.

without using nested loops :

```

*
* *
* * *
* * * *
* * * * *

```

```

#include <stdio.h>
void main() {
    int rows = 5;
    char pattern[100] = "";
    for (int i = 0; i < rows; i++) {
        pattern[i * 2] = '*';
        pattern[i * 2 + 1] = ' ';
        pattern[i * 2 + 2] = '\0';
        printf("%s\n", pattern);
    }
}

```

output:

```

*
* *
* * *
* * * *
* * * * *

```

13.

```

#include <stdio.h>
void main() {
    int n=5,i,j;
    for (i = 1; i <= n; i++) {
        for (j = 1; j <= n - i; j++) {
            printf(" ");
        }
        for (j = 1; j <= (2 * i - 1); j++) {
            printf("*");
        }
        printf("\n");
    }
    for (i = n - 1; i >= 1; i--) {
        for (j = 1; j <= n - i; j++) {
            printf(" ");
        }
        for (j = 1; j <= (2 * i - 1); j++) {
            printf("*");
        }
        printf("\n");
    }
}

```

output:

```

*
```

```

***
*****
*****
*****
*****
*****
***
*
```

14) Write a program to print all prime numbers between 2 given integers.

```
#include <stdio.h>
```

```

void main() {
    int start, end;
    printf("Enter two integers (start and end): ");
    scanf("%d %d", &start, &end);
    printf("Prime numbers between %d and %d are:\n", start, end);
    for (int num = start; num <= end; num++) {
        int isPrime = 1;
        if (num < 2) {
            continue;
        }
        for (int i = 2; i <= num / 2; i++) {
            if (num % i == 0) {
                isPrime = 0;
                break;
            }
        }
        if (isPrime) {
            printf("%d ", num);
        }
    }
    printf("\n");
}
```

output:Enter two integers (start and end): 10

50

Prime numbers between 10 and 50 are:

11 13 17 19 23 29 31 37 41 43 47