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C-Programming / Patterns.md 








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Patterns

1. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

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



Source Code

```
# include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        for(int j = 1; j <= n; j++){
            printf("*");
        }
        printf("\n");
    }

    return 0;
}
```



2. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

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



Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        for(int j = 1; j <= i; j++){
            printf("*");
        }
        printf("\n");
    }

    return 0;
}
```



3. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

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



Source Code

```
#include <stdio.h>

int main(){
    int n;
```



```

printf("Enter the value of n: ");
scanf("%d", &n);

for(int i = n; i >= 1; i--){
    for(int j = 1; j <= i; j++){
        printf("*");
    }
    printf("\n");
}

return 0;
}

```

4. WAP. to print the following pattern

Test Data

Enter the value of n: 4



Expected Output

```

    *
  * *
 * * *
* * * *

```



Source Code

```

#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        for(int j = n; j >= i; j--){
            printf(" ");
        }
        for(int j = 1; j <= i; j++){
            printf("*");
        }
        printf("\n");
    }

    return 0;
}

```



5. WAP. to print the following pattern

Test Data

Enter the value of n: 4



Expected Output

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



Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        for(int j = 1; j <= i; j++){
            printf(" ");
        }
        for(int j = n; j >= i; j--){
            printf("*");
        }
        printf("\n");
    }

    return 0;
}
```



6. WAP. to print the following pattern

Test Data

Enter the value of n: 4



Expected Output

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



Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
```



```

scanf("%d", &n);

for(int i = 1; i <= n; i++){
    for(int j = 1; j <= i + (i - 1); j++){
        printf("*");
    }
    printf("\n");
}

return 0;
}

```

7. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```

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

```



Source Code

```

#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        for(int j = 1; j <= i; j++){
            printf("* ");
        }
        printf("\n");
    }
    for(int i = 1; i <= n - 1; i++){
        for(int j = 1; j <= n - i; j++){
            printf("* ");
        }
        printf("\n");
    }

    return 0;
}

```



8. WAP. to print the following pattern

Test Data

Enter the value of n: 5

Expected Output

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

Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        for(int j = 1; j <= n - i; j++){
            printf(" ");
        }
        for(int j = 1; j <= i; j++){
            printf("* ");
        }
        printf("\n");
    }

    for(int i = 1; i <= n - 1; i++){
        for(int j = 1; j <= i; j++){
            printf(" ");
        }
        for(int j = n - i; j >= 1; j--){
            printf("* ");
        }
        printf("\n");
    }

    return 0;
}
```

9. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

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



Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        for(int j = 1; j <= n - i; j++){
            printf(" ");
        }
        for(int j = 1; j <= (i * 2) - 1; j++){
            printf("*");
        }
        printf("\n");
    }

    for(int i = n - 1; i >= 1; i--){
        for(int j = 1; j <= n - i; j++){
            printf(" ");
        }
        for(int j = 1; j <= (i * 2) - 1; j++){
            printf("*");
        }
        printf("\n");
    }

    return 0;
}
```



10. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```

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

```



Source Code

```

#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        for(int j = 1; j <= 2 * (n - i) + 1; j++){
            printf("* ");
        }
        printf("\n");
    }

    for(int i = 1; i <= n - 1; i++){
        for(int j = 1; j <= (2 * i) + 1; j++){
            printf("* ");
        }
        printf("\n");
    }

    return 0;
}

```



11. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```

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

```



Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        for(int j = 1; j <= (i - 1) * 2; j++){
            printf(" ");
        }
        for(int j = 1; j <= 2 * (n - i) + 1; j++){
            printf("* ");
        }
        printf("\n");
    }
    for(int i = 1; i <= n - 1; i++){
        for(int j = 1; j <= 2 * (n - i) - 2; j++){
            printf(" ");
        }
        for(int j = 1; j <= (2 * i) + 1; j++){
            printf("* ");
        }
        printf("\n");
    }

    return 0;
}
```

12. WAP. to print the following pattern

Test Data

Enter the value of n: 5

Expected Output

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

Source Code

```
#include <stdio.h>

int main(){
```

```

int n;

printf("Enter the value of n: ");
scanf("%d", &n);

for(int i = 1; i <= n; i++){
    for(int j = 1; j <= i; j++){
        printf(" ");
    }
    for(int j = 1; j <= 2 * (n - i) + 1; j++){
        printf("* ");
    }
    printf("\n");
}

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

```

13. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```

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

```



Source Code

```

#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        for(int j = 1; j <= n; j++){
            if(i == 1 || j == 1){
                printf("*");
            } else if(i == n || j == n){

```



```

        printf("");
    }

    if(i != 1 && j != 1 && i != n && j != n){
        printf(" ");
    }
}
printf("\n");
}

return 0;
}

```

14. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```

A
A B
A B C
A B C D
A B C D E

```



Source Code

```

#include <stdio.h>

int main(){
    int n, a;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        a = 65;
        for(int j = 1; j <= i; j++){
            printf("%c", a++);
        }
        printf("\n");
    }
    return 0;
}

```



15. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

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



Source Code

```
#include <stdio.h>

int main(){
    int n, a = 65;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        for(int j = 1; j <= i; j++){
            printf("%c", a++);
        }
        printf("\n");
    }
    return 0;
}
```



16. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

A
 A B
A B C
A B C D
A B C D E



Source Code

```
#include <stdio.h>

int main(){
    int n, a;

    printf("Enter the value of n: ");
    scanf("%d", &n);
```



```

for(int i = 1; i <= n; i++){
    a = 65;
    for(int j = 1; j <= n - i; j++){
        printf(" ");
    }
    for(int j = 1; j <= i; j++){
        printf("%c", a++);
    }
    printf("\n");
}

return 0;
}

```

17. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```

E
D E
C D E
B C D E
A B C D E

```



Source Code

```

#include <stdio.h>

int main(){
    int n, a;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        a = 65;
        for(int j = n - i; j < n; j++){
            printf("%c", a + j);
        }
        printf("\n");
    }

    return 0;
}

```



18. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```
    E
   D E
  C D E
 B C D E
A B C D E
```



Source Code

```
#include <stdio.h>

int main(){
    int n, a;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        a = 65;
        for(int j = n - i; j >= 1; j--){
            printf(" ");
        }
        for(int j = n - i; j < n; j++){
            printf("%c", a + j);
        }
        printf("\n");
    }

    return 0;
}
```



19. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```
A
B C
C D E
D E F G
E F G H I
```



Source Code

```
#include <stdio.h>

int main(){
```



```

int n, a;

printf("Enter the value of n: ");
scanf("%d", &n);

for(int i = 1; i <= n; i++){
    a = 65 + i - 1;
    for(int j = 1; j <= i; j++){
        printf("%c", a++);
    }
    printf("\n");
}

return 0;
}

```

20. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```

1 2 3 4 5
2 3 4 5 6
3 4 5 6 7
4 5 6 7 8
5 6 7 8 9

```



Source Code

```

#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        for(int j = i; j <= n + i - 1; j++){
            printf("%d", j);
        }
        printf("\n");
    }
    return 0;
}

```



21. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```
5 4 3 2 1
6 5 4 3 2
7 6 5 4 3
8 7 6 5 4
9 8 7 6 5
```



Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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



22. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```
1 2 3 4 5
2 4 6 8 10
3 6 9 12 15
4 8 12 16 20
5 10 15 20 25
```



Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);
```




```

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

return 0;
}

```

23. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```

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

```



Source Code

```

#include <stdio.h>

int main(){
    int n, temp, count = 1;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

    return 0;
}

```



24. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

1=1
1+2=3
1+2+3=6
1+2+3+4=10
1+2+3+4+5=15



Source Code

```
#include <stdio.h>

int main(){
    int n, sum;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

    return 0;
}
```



25. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

1=1
1+2=3
1+2+3=6
1+2+3+4=10
1+2+3+4+5=15



Source Code

```
#include <stdio.h>

int main(){
    int n, sum;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

    return 0;
}
```

26. WAP. to print the following pattern

Test Data

Enter the value of n: 5

Expected Output

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

Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

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

    return 0;
}
```

27. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```
1
2 3
3 4 5
4 5 6 7
5 6 7 8 9
```



Source Code

```
#include <stdio.h>

int main(){
    int n, count = 1;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

    return 0;
}
```



28. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```
1
2 1
```



```
1 2 1
2 1 2 1
1 2 1 2 1
```

Source Code

```
#include <stdio.h>

int main(){
    int n, count;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

    return 0;
}
```

29. WAP. to print the following pattern

Test Data

```
Enter the value of n: 5
```

Expected Output

```
1
0 1
1 0 1
0 1 0 1
1 0 1 0 1
```

Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

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

    return 0;
}
```

30. WAP. to print the following pattern

Test Data

Enter the value of n:

Expected Output

```
1
1 0
1 0 1
1 0 1 0
1 0 1 0 1
```

Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

    return 0;
}
```

31. WAP. to print the following pattern

Test Data

Enter the value of n: 5

Expected Output

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

```
7 8 9 10
11 12 13 14 15
```

Source Code

```
#include <stdio.h>

int main(){
    int n, count = 1;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

    return 0;
}
```

32. WAP. to print the following pattern

Test Data

Enter the value of n: 5

Expected Output

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

Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

```
    return 0;
}
```

33. WAP. to print the following pattern

Test Data

Enter the value of n: 5

Expected Output

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

Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

    return 0;
}
```

34. WAP. to print the following pattern

Test Data

Enter the value of n: 5

Expected Output

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


Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

    return 0;
}
```

35. WAP. to print the following pattern

Test Data

Enter the value of n: 5

Expected Output

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

Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

```
    return 0;
}
```

36. WAP. to print the following pattern

Test Data

Enter the value of n: 5

Expected Output

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

Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    for(int i = 1; i <= n; i++){
        for(int j = 1; j <= n - i; j++){
            printf(" ");
        }
        for(int j = 1; j <= i + (i - 1); j++){
            printf("*");
        }
        printf("\n");
    }

    return 0;
}
```

37. WAP. to print the following pattern

Test Data

Enter the value of n: 3

Expected Output

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

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

Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

38. WAP. to print the following pattern

Test Data

Enter the value of n: 5

Expected Output

```
      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
```

Source Code

```
#include <stdio.h>

int main(){
    int n;
```

```

printf("Enter the value of n: ");
scanf("%d", &n);

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

return 0;
}

```

39. WAP. to print the following pattern

Test Data

Enter the value of n: 5



Expected Output

```

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

```



Source Code

```

#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

```



```
    return 0;
}
```

40. WAP. to print the following pattern

Test Data

Enter the value of n: 3

Expected Output

```
    1
  1 2 1
1 2 3 2 1
1 2 3 2 1
  1 2 1
    1
```

Source Code

```
#include <stdio.h>

int main(){
    int n;

    printf("Enter the value of n: ");
    scanf("%d", &n);

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

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

```
    return 0;
}
```

41. WAP. to print the following pattern

Test Data

Enter the value of n: 5

Expected Output

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

Source Code

```
#include <stdio.h>

int main(){
    int n, c;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    c = n;
    for(int i = 1; i <= n; i++){
        if(i == n){
            c = n;
        }
        for(int j = 1; j <= n; j++){
            if(i == 1){
                printf("%d ", j);
            } else if(j == 1){
                printf("%d ", i);
            } else if(j == n || i == n){
                printf("%d ", --c);
            } else {
                printf(" ");
            }
        }
        printf("\n");
    }

    return 0;
}
```

Hi 🙋, I'm Rajiv Kumar

A passionate frontend developer from India



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