

-----questions and answers-----

While loop questions:

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

```
int main(){
```

```
    int a,b;
```

```
    printf("enter the 2 numbers :");
```

```
    scanf("%d%d",&a,&b);
```

```
    printf("the sum is: %d\n",a+b);
```

```
}
```

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

```
int main(){
```

```
    int a,b,sum,pro,p;
```

```
    printf("enter the 2 numbers");
```

```
    scanf("%d%d",&a,&b);
```

```
    sum=a+b;
```

```
    pro=a*b;
```

```
    if(sum>100){
```

```
        printf("greater than 100\n");
```

```
    }
```

```
    if(pro%4==0){
```

```
        printf("product is divisible by four\n");
```

```
    }
```

```
    else{
```

```
        printf("No conditions satisfied\n");
```

```
    }
```

```
    printf("enter the position");
```

```
    scanf("%d",&p);
```

```
    int mask=1<<p;
```

```
if(a&mask!=0){  
    printf("set");  
}else{  
    printf("not set");  
}  
}
```

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

```
int main(){  
    int n,user_option;  
    printf("enter a number :");  
    scanf("%d",&n);  
    printf("Enter '1' to set a bit or Enter '2' to clear a bit :");  
    scanf("%d",&user_option);  
    if(user_option==1){  
        int bit;  
        printf("enter the bit number :");  
        scanf("%d",&bit);  
        int mask=1<<bit;  
        int result=mask|n;  
        printf("the result after setting is=%d",result);  
    }  
    else if(user_option==2){  
        int bit;  
        printf("enter the bit number :");  
        scanf("%d",&bit);  
        int mask=~(1<<bit);  
        int result=n&mask;  
        printf("the result after flipping is=%d",result);  
    }
```

```
}  
}
```

1

```
#include<stdio.h>  
  
int main(){  
    int i=1;  
    while(i<=10){  
        printf("%d\n",i);  
        i+=1;  
    }  
    return 0;  
}
```

2

```
#include<stdio.h>  
  
int main(){  
    int digit,sum=0;  
    printf("enter a digit");  
    scanf("%d",&digit);  
    while(digit>0){  
        int last_digit=digit%10;  
        sum+=last_digit;  
        digit=digit/10;  
    }  
    printf("sum=%d",sum);  
}
```

3

```
#include<stdio.h>

int main(){

    int i=1,fact=1,digit;

    printf("Enter a digit");

    scanf("%d",&digit);

    while(i<=digit){

        fact*=i;

        i+=1;

    }

    printf("the factorial is :%d",fact);

}
```

4

```
#include<stdio.h>

int main(){

    int digit,sum=0,reverse=0;

    printf("enter a number");

    scanf("%d",&digit);

    while(digit>0){

        int last_digit=digit%10;

        reverse=reverse*10+last_digit;

        digit=digit/10;

    }

    printf("reversed=%d",reverse);

}
```

5

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

```

int main(){
    int count=0,digit;
    printf("enter a digit");
    scanf("%d",&digit);
    while(digit>0){
        count+=1;
        digit=digit/10;
    }
    printf("count=%d",count);
}

```

6

```

#include <stdio.h>

int main() {
    int i = 1, number;
    printf("Enter the number: ");
    scanf("%d", &number);
    while (i <= 10) {
        printf("%d * %d = %d\n", i, number, i * number);
        i++;
    }
    return 0;
}

```

7

```

#include<stdio.h>

int main(){
    int digit,sum=0,reverse=0;
    printf("enter a number");

```

```

scanf("%d",&digit);
int original=digit;
while(digit>0){
    int last_digit=digit%10;
    reverse=reverse*10+last_digit;
    digit=digit/10;
}
if(original==reverse){
    printf("palindrome");
}else{
    printf("not palindrome");
}
}

```

9

```

#include <stdio.h>
int main() {
    int n, sum = 0, i = 1;
    printf("Enter a number : ");
    scanf("%d", &n);
    while (i <= n) {
        sum += i;
        i++;
    }
    printf("The sum of the series is: %d\n", sum);
    return 0;
}

```

10

```

#include<stdio.h>

int main() {
    int a, b;

    printf("Enter two integers: ");
    scanf("%d %d", &a, &b);

    while (b != 0) {
        int temp = b;
        b = a % b;
        a = temp;
    }

    printf("GCD=%d",a);
    return 0;
}

```

-----For loop questions-----

1

```

#include<stdio.h>

int main(){
    for(int i=0;i<100;i++){
        printf("%d\n",i);
    }
}

```

2

```

#include<stdio.h>

int main(){
    int sum=0,n;

    printf("Enter the number");
    scanf("%d",&n);
}

```

```

for(int i=0;i<=n;i++){
    sum+=i;
}
printf("the sum is %d",sum);
}

```

3

```

#include<stdio.h>

int main(){
    int fact=1,n;
    printf("enter the number");
    scanf("%d",&n);
    for(int i=1;i<n;i++){
        fact*=i;
    }
    printf("the factorial of %d is %d",n,fact);
}

```

4

```

#include <stdio.h>

int main() {
    int n, first = 0, second = 1, next;
    printf("Enter the number of terms: ");
    scanf("%d", &n);
    printf("Fibonacci Sequence: ");
    if (n >= 1) {
        printf("%d ", first);
    }
    if (n >= 2) {

```



```

        printf("%d ", second);
    }
    for (int i = 3; i <= n; i++) {
        next = first + second;
        printf("%d ", next);
        first = second;
        second = next;
    }
    printf("\n");
    return 0;
}

```

5

```

#include<stdio.h>

int main(){
    int n;
    int flag;
    printf("enter the number");
    scanf("%d",&n);
    for(int i=2;i<n;i++){
        if(n%i==0){
            flag=0;
            break;
        }else{
            flag=1;
        }
    }
    if(flag==1){
        printf("prime number");
    }
}

```

```

    }else{
        printf("not a prime number");
    }
}

```

6

```

#include<stdio.h>

int main(){
    for(int i=1;i<=5;i++){
        for(int j=1;j<=i;j++){
            printf("*");
        }
        printf("\n");
    }
}

```

7

```

#include<stdio.h>

int main()
{
    int sum=0,n;
    printf("enter the number");
    scanf("%d",&n);
    for(int i=0;i<=n;i++){
        sum+=i*i;
    }
    printf("the sum of squares = %d",sum);
}

```

8

```
#include <stdio.h>

int main() {

    int x, y;

    long result = 1;

    printf("Enter the base: ");

    scanf("%d", &x);

    printf("Enter the raised value: ");

    scanf("%d", &y);

    for (int i = 1; i <= y; i++) {

        result *= x;

    }

    printf("%d raised to the power %d is %ld\n", x, y, result);

    return 0;

}
```

9

```
#include<stdio.h>

int main(){

    int n;

    printf("enter a number :");

    scanf("%d",&n);

    for(int i=n;i>0;i--){

        printf("%d\n",i);

    }

}
```

10

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

```

int main()
{
    int count=0,n;
    printf("enter the number");
    scanf("%d",&n);
    for(int i=1;i<=n;i++){
        if(n%i==0){
            count+=1;
        }
    }
    printf("the count of divisors is :%d",count);
}

```

-----do while questions-----

1

```

#include <stdio.h>

int main() {
    int choice;
    double num1, num2, result;
    do {
        printf("1. Add\n");
        printf("2. Subtract\n");
        printf("3. Multiply\n");
        printf("4. Divide\n");
        printf("5. Exit\n");
        printf("Enter your choice : ");
        scanf("%d", &choice);
        if (choice >= 1 && choice <= 4) {
            printf("Enter the first number: ");

```

```
scanf("%lf", &num1);

printf("Enter the second number: ");

scanf("%lf", &num2);
}

switch (choice) {
    case 1:
        result = num1 + num2;
        printf("Result: %.2lf\n", result);
        break;
    case 2:
        result = num1 - num2;
        printf("Result: %.2lf\n", result);
        break;
    case 3:
        result = num1 * num2;
        printf("Result: %.2lf\n", result);
        break;
    case 4:
        if (num2 != 0) {
            result = num1 / num2;
            printf("Result: %.2lf\n", result);
        } else {
            printf(" Division by zero is not allowed.\n");
        }
        break;
    case 5:
        printf("Exiting\n");
        break;
    default:
```

```

        printf("Invalid choice! Please select a valid option.\n");
    }

} while (choice != 5);

return 0;
}

```

2

```

#include<stdio.h>
int main()
{
    int n;
    do{
        printf("enter a number");
        scanf("%d",&n);
        printf("the number you gave is %d\n",n);
    }while(n!=0);
    printf("end of program");
}

```

3

```

#include<stdio.h>
int main() {
    int password;
    int digit_count;
    do {
        printf("Enter a 5-digit password: ");

```

```

scanf("%d", &password);
digit_count = 0;
int temp = password;
while (temp != 0) {
    temp /= 10;
    digit_count++;
}
if (digit_count != 5) {
    printf("Password must be exactly 5 digits long. Try again.\n");
}
} while (digit_count != 5);

printf("Password accepted.\n");

return 0;
}

```

4

```

#include<stdio.h>
int main()
{
    int sum=0;
    int user_input;
    do{
        printf("enter a number");
        scanf("%d",&user_input);
        if(user_input>0){
            sum+=user_input;
            printf("the sum is %d\n",sum);
        }
    } while (user_input > 0);
}

```

```

    }
}while(user_input>0);
printf("the number is negative you can't continue");
}

```

5

```

#include<stdio.h>

int main(){
    int n;
    do{
        printf("enter the number");
        scanf("%d",&n);
        int i=1;
        while(i<=10){
            printf("%d * %d = %d\n",n,i,n*i);
            i+=1;
        }
    }while(n!=0);
    printf("Exiting!");
}

```

6

```

#include<stdio.h>

int main(){
    int pre=3,n;
    do{
        printf("enter your guess!\n");
        scanf("%d",&n);
        if(n==pre){

```



```

        printf("correct!\n");
    }else if(n>pre){
        printf("guess lower\n");
    }else{
        printf("guess higher\n");
    }
}while(n!=pre);
}

```

7

```

#include<stdio.h>

int main(){
    int num;
    do{
        printf("enter a number");
        scanf("%d",&num);
        if(num>=1 && num<=10){
            printf("within the range\n");
        }
    }while(num>=1 && num<=10);
    printf("exceeded the range");
}

```

8

```

#include<stdio.h>

int main()
{
    int sum=0,avg=0,count=0;
    int user_input;

```

```

do{
    printf("enter a number");
    scanf("%d",&user_input);
    if(user_input>0){
        count+=1;
        sum+=user_input;
        avg=sum/count;

    }
    printf("the avg is %d\n",avg);
}while(user_input>0);
printf("the number is negative you can't continue");
}

```

9

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

```

int main() {
    char ch = 'a';
    do {
        printf("%c ", ch);
        ch++;
    } while (ch <= 'z');
    return 0;
}

```

```
//10
```

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

```

int main() {
    int n, digit_count = 0;

```

```

do {
    printf("Enter a number: ");
    scanf("%d", &n);
    if (n == 0) {
        digit_count = 1;
    } else {
        digit_count = 0;
        int temp = n;
        while (temp > 0) {
            temp = temp / 10;
            digit_count++;
        }
    }

    printf("The number of digits is: %d\n", digit_count);
} while (n != 0);
return 0;
}

```

-----Pattern printing-----

```

4
#include<stdio.h>

int main()
{
    for(int i=5;i>=1;i--){
        int k=1;
        for(int j=i;j>=1;j--){

```

```

        printf("%d",k);
        k+=1;
    }
    printf("\n");
}
return 0;
}

```

6

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

```

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

```

5

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

```

int main() {
    int rows = 5;

```

```

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

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

    return 0;
}

```

3

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

```
int main(){
```

```
    int k=1;
```

```
    int n=5;
```

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

```
        for(int j=n-i;j<n;j++){
```

```

        printf("%d ",k);
        k+=1;
    }
    printf("\n");
}
}

```

2

```

#include<stdio.h>

int main(){
    for(int i=1;i<5;i++){
        for(int j=1;j<=i;j++){
            if((i+j)%2==0){
                printf("1");
            }else{
                printf("0");
            }
        }
        printf("\n");
    }
}

```

1

```

#include <stdio.h>

long factorial(int n) {
    long fact = 1;
    for (int i = 1; i <= n; i++) {
        fact *= i;
    }
}

```

```

    return fact;
}

void printPascalsTriangle(int rows) {
    for (int i = 0; i < rows; i++) {
        for (int j = 0; j < rows - i - 1; j++) {
            printf(" ");
        }

        for (int j = 0; j <= i; j++) {
            long num = factorial(i) / (factorial(j) * factorial(i - j));
            printf("%ld ", num);
        }
        printf("\n");
    }
}

int main() {
    int rows;

    printf("Enter the number of rows: ");
    scanf("%d", &rows);
    printPascalsTriangle(rows);

    return 0;
}

```