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1 . Program to find Fibonacci numbers

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```
#include<stdio.h>
int main()
{
    int n1 = 0;
    int n2 = 1;
    int n3 = 0;
    int i = 0;
    int number = 0;
    printf("Enter the number of fibonacci to be printed");
    scanf("%d",&number);

    printf("\n %d\n %d\n",n1,n2);
    for(i = 2; i < number; ++i)
    {
        n3 = n1+n2;
        printf(" %d \n",n3);
        n1 = n2;
        n2 = n3;
    }
    return 0;
}
```

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2. Check if a number is prime or not

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```
#include<stdio.h>
int main()
{
    int n;
    int i;
    int m=0;
    int flag=0;

    printf("Enter number to check prime or not\n");
    scanf("%d",&n);

    m = n/2;
    for(i = 2; i <= m;i++)
    {
        if(n%i == 0)
        {
            printf("Number is NOT prime\n");
            return 0;
        }
    }
    if(flag==0)
        printf("Number is prime\n");
    return 0;
}
```

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3. Check if number is palindrome or not

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```
#include<stdio.h>
int main()
{
    int n;
    int r;
    int sum=0;
    int temp;

    printf("Enter number to check palindrome or not\n");
    scanf("%d",&n);

    temp = n;
    while(n>0)
    {
        r = n%10;
        sum = (sum*10)+r;
        n = n/10;
    }
    if(temp == sum)
        printf("Number is palindrome \n");
    else
        printf("Number is NOT palindrome\n");
    return 0;
}
```

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4. Find factorial of the number

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```
#include<stdio.h>
int main()
{
    int i;
    int fact=1;
    int number;
    printf("Enter a number: \n");
    scanf("%d",&number);
    for(i = 1; i <= number; i++)
    {
        fact=fact*i;
    }
    printf("Factorial of %d is: %d\n",number,fact);
    return 0;
}
```

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5. Check if a number is Armstrong number

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```
#include<stdio.h>
int main()
{
    int n;
    int r;
    int sum=0;
    int temp;
    printf("Enter a number \n");
    scanf("%d",&n);

    temp=n;
    while(n>0)
    {
        r=n%10;
        sum=sum+(r*r*r);
        n=n/10;
    }

    if(temp == sum)
        printf("Number is a armstrong number\n");
    else
        printf("Number is NOT a armstrong number\n");
    return 0;
}
```

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6. Program to find sum of digits

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```
#include<stdio.h>
int main()
{
    int n;
    int sum=0;
    int m;
    printf("Enter number:\n");
    scanf("%d",&n);
    while(n>0)
    {
        m = n%10;
        sum = sum+m;
        n = n/10;
    }
    printf("Sum is = %d\n",sum);
    return 0;
}
```

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7. Reverse a number

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```
#include<stdio.h>
int main()
{
    int n;
    int reverse = 0;
    int rem;

    printf("Enter a number: \n");
    scanf("%d", &n);
    while(n!=0)
    {
        rem = n%10;
        reverse = reverse*10+rem;
        n /= 10;
    }
    printf("Reversed Number: %d\n",reverse);
    return 0;
}
```

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8. Swap Numbers in C

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```
#include<stdio.h>
int main()
{
    int a = 10;
    int b = 20;
    printf("Before swap a=%d b=%d\n",a,b);
    a = a+b;
    b = a-b;
    a = a-b;
    printf("\nAfter swap a=%d b=%d\n",a,b);
    return 0;
}
```

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10. Print hello world without printf

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```
#include<stdio.h>
int main()
{
    if(printf("hello world\n")){}
    return 0;
}
```

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10. Program without main

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```
#include<stdio.h>
#define start main
void start()
{
    printf("Hello\n");
}
```

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11. Program for decimal to binary

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```
#include<stdio.h>
#include<stdlib.h>
int main()
{
    int a[10];
    int n;
    int i;
    printf("Enter decimal number \n");
    scanf("%d",&n);
    for(i=0;n>0;i++)
    {
        a[i]=n%2;
        n=n/2;
    }
    printf("\nBinary number is ");
    for(i=i-1;i>=0;i--)
    {
        printf("%d",a[i]);
    }
    return 0;
}
```

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12. Check if number is positive or negative

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

```
void main()
```

```
{
```

```
    int num;
```

```
    printf("Enter a number: \n");
```

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

```
    if (num > 0)
```

```
        printf("%d is a positive number \n", num);
```

```
    else if (num < 0)
```

```
        printf("%d is a negative number \n", num);
```

```
}
```

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13. Program to find greatest of 3 numbers

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```
#include<stdio.h>
int main()
{
    int num1,num2,num3;

    printf("\nEnter value of num1, num2 and num3:\n");
    scanf("%d %d %d",&num1,&num2,&num3);

    if((num1>num2)&&(num1>num3))
        printf("\n Number1 is greatest\n");
    else if((num2>num3)&&(num2>num1))
        printf("\n Number2 is greatest\n");
    else
        printf("\n Number3 is greatest\n");
    return 0;
}
```

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14. Program to get ascii value

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```
#include <stdio.h>
int main()
{
    char ch;
    printf("Enter character:\n");
    scanf("%c", &ch);
    printf("ASCII value of character %c is: %d\n", ch, ch);
    return 0;
}
```

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15. Program to demonstrate sizeof function

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```
#include<stdio.h>
int main()
{
    printf("Size of char: %ld byte\n",sizeof(char));
    printf("Size of int: %ld bytes\n",sizeof(int));
    printf("Size of float: %ld bytes\n",sizeof(float));
    printf("Size of double: %ld bytes\n", sizeof(double));
    return 0;
}
```

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16. Program to check for leap year

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```
#include <stdio.h>
int main()
{
    int y;

    printf("Enter year: \n");
    scanf("%d",&y);

    if(y % 4 == 0)
    {
        if( y % 100 == 0)
        {
            if ( y % 400 == 0)
                printf("%d is a Leap Year\n", y);
            else
                printf("%d is not a Leap Year\n", y);
        }
        else
            printf("%d is a Leap Year\n", y );
    }
    else
        printf("%d is not a Leap Year\n", y);

    return 0;
}
```

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17. Program to convert upper case to lower case

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```
#include<stdio.h>
#include<string.h>
int main()
{
    char str[25];
    int i;
    printf("Enter the string: \n");
    scanf("%s",str);

    for(i=0;i<=strlen(str);i++)
    {
        if(str[i]>=65&&str[i]<=90)
            str[i]=str[i]+32;
    }
    printf("\nLower Case String is: %s\n",str);
    return 0;
}
```

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18. Program to convert lower case to upper case

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```
#include<stdio.h>
#include<string.h>
int main()
{
    char str[25];
    int i;

    printf("Enter the string:\n");
    scanf("%s",str);

    for(i=0;i<=strlen(str);i++)
    {
        if(str[i]>=97&&str[i]<=122)
            str[i]=str[i]-32;
    }
    printf("\nUpper Case String is: %s\n",str);
    return 0;
}
```

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19. Program to get string length

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```
#include <stdio.h>
int main()
{
    char str[100],i;
    printf("Enter a string: \n");
    scanf("%s",str);
    for(i=0; str[i]!='\0'; ++i);
    printf("\nLength of input string: %d",i);

    return 0;
}
```

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20. Program to concatenate 2 strings

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```
#include <stdio.h>
int main()
{
    char str1[50], str2[50], i, j;
    printf("\nEnter first string: ");
    scanf("%s",str1);
    printf("\nEnter second string: ");
    scanf("%s",str2);

    for(i=0; str1[i]!='\0'; ++i);

    for(j=0; str2[j]!='\0'; ++j, ++i)
    {
        str1[i]=str2[j];
    }

    str1[i]='\0';
    printf("\nOutput: %s\n",str1);

    return 0;
}
```

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21. Program to get largest element in an array

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

```
int largest_element(int arr[], int num)
```

```
{
```

```
    int i, max_element;
```

```
    max_element = arr[0];
```

```
    for (i = 1; i < num; i++)
```

```
        if (arr[i] > max_element)
```

```
            max_element = arr[i];
```

```
    return max_element;
```

```
}
```

```
int main()
```

```
{
```

```
    int arr[] = {1, 24, 15, 20, 8, -11, 30};
```

```
    int n = sizeof(arr)/sizeof(arr[0]);
```

```
    printf("Largest element of array is %d", largest_element(arr, n));
```

```
    return 0;
```

```
}
```

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22. Program to get size of the array

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```
#include <stdio.h>
int main()
{
    double arr[] = {1, 2, 3, 4, 5, 6};
    int n;
    n = sizeof(arr) / sizeof(arr[0]);
    printf("Size of the array is: %d\n", n);
    return 0;
}
```

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23. Program to get GCD

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```
#include <stdio.h>
int main()
{
    int n1, n2, i, gcd;
    printf("Enter two integers: \n");
    scanf("%d %d", &n1, &n2);
    for(i=1; i <= n1 && i <= n2; ++i)
    {
        if(n1%i==0 && n2%i==0)
            gcd = i;
    }
    printf("G.C.D of %d and %d is %d\n", n1, n2, gcd);
    return 0;
}
```

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24. Program to get LCM

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```
#include <stdio.h>
int main()
{
    int n1, n2, minMultiple;
    printf("Enter two positive integers: \n");
    scanf("%d %d", &n1, &n2);

    minMultiple = (n1>n2) ? n1 : n2;
    while(1)
    {
        if( minMultiple%n1==0 && minMultiple%n2==0 )
        {
            printf("The LCM of %d and %d is %d.\n", n1, n2,minMultiple);
            break;
        }
        ++minMultiple;
    }
    return 0;
}
```

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25. Program to get number of digits

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```
#include <stdio.h>
int main()
{
    long long n;
    int count = 0;
    printf("Enter an integer: ");
    scanf("%lld", &n);
    while(n != 0)
    {
        n /= 10;
        ++count;
    }
    printf("Number of digits: %d", count);
}
```

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26. Program to get factorial

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```
#include <stdio.h>
int main()
{
    int number, i;
    printf("Enter a positive integer: ");
    scanf("%d",&number);
    printf("Factors of %d are: ", number);
    for(i=1; i <= number; ++i)
    {
        if (number%i == 0)
        {
            printf("%d ",i);
        }
    }
    return 0;
}
```

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27. Program to get array average

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```
#include <stdio.h>
int main()
{
    int n, i;
    float num[100], sum = 0.0, average;
    printf("Enter the numbers of elements: ");
    scanf("%d", &n);
    while (n > 100 || n <= 0)
    {
        printf("Error! number should in range of (1 to 100).\n");
        printf("Enter the number again: ");
        scanf("%d", &n);
    }
    for(i = 0; i < n; ++i)
    {
        printf("%d. Enter number: ", i+1);
        scanf("%f", &num[i]);
        sum += num[i];
    }
    average = sum / n;
    printf("Average = %.2f", average);
    return 0;
}
```

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28. Program for strcpy

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```
#include <stdio.h>
int main()
{
    char s1[100], s2[100], i;
    printf("Enter string s1: ");
    scanf("%s", s1);
    for(i = 0; s1[i] != '\0'; ++i)
    {
        s2[i] = s1[i];
    }
    s2[i] = '\0';
    printf("String s2: %s", s2);
    return 0;
}
```

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29. Program for strrev

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

```
#include<string.h>
```

```
int main()
```

```
{
```

```
    char name[30] = "Hello";
```

```
    printf("String before strrev( ) : %s\n",name);
```

```
    printf("String after strrev( ) : %s",strrev(name));
```

```
    return 0;
```

```
}
```

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30. Program to check strong number

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```
#include<stdio.h>

int main()
{
    int num,i,fact,r,sum=0,temp;

    printf("Please enter a number to find strong number");

    scanf("%d",&num);

    temp=num;

    while(num)
    {
        i=1,fact=1;

        r=num%10;

        while(i<=r)
        {
            fact=fact*i;

            i++;
        }

        sum=sum+fact;

        num=num/10;
    }
```

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```
if(sum==temp)

printf("\nThe number %d is a strong number",temp);

else

printf("\nThe number %d is not a strong number",temp);

return 0;

}
```

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31. Program to get number cube

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

```
int main()
```

```
{
```

```
    int n;
```

```
    printf("Enter a number");
```

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

```
    printf("\nSquare of the number %d is %d",n,n*n);
```

```
    printf("\nCube of the number %d is %d",n,n*n*n);
```

```
    return 0;
```

```
}
```

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32. Program to generate random number

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

```
#include <stdlib.h>
```

```
int main()
```

```
{
```

```
    int i, n;
```

```
    printf("Five random numbers between 1 and 100000\n");
```

```
    for (i = 1; i <= 5; i++)
```

```
    {
```

```
        n = rand()%100000 + 1;
```

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

```
    }
```

```
    return 0;
```

```
}
```

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33. Program to check if strings are anagram

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

int main (void) {
    char s1[] = "recitals";
    char s2[] = "articles";

    char temp;

    int i, j;
    int n = strlen(s1);
    int n1 = strlen(s2);

    // If both strings are of different length, then they are not anagrams

    if( n != n1) {
        printf("%s and %s are not anagrams! \n", s1, s2);
        return 0;
    }

    // lets sort both strings first -

    for (i = 0; i < n-1; i++) {
        for (j = i+1; j < n; j++) {
            if (s1[i] > s1[j]) {
                temp = s1[i];
                s1[i] = s1[j];
                s1[j] = temp;
            }
            if (s2[i] > s2[j]) {
                temp = s2[i];
                s2[i] = s2[j];
                s2[j] = temp;
            }
        }
    }

    // Compare both strings character by character
```

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```
for(i = 0; i<n; i++) {  
    if(s1[i] != s2[i]) {  
        printf("Strings are not anagrams! \n", s1, s2);  
        return 0;  
    }  
}  
  
printf("Strings are anagrams! \n");  
return 0;  
}
```

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34. Program for strcpy

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

```
int main()
```

```
{
```

```
    char s1[] = "prodevelopertutorial";
```

```
    char s2[8];
```

```
    int length = 0;
```

```
    while(s1[length] != '\0')
```

```
    {
```

```
        s2[length] = s1[length];
```

```
        length++;
```

```
    }
```

```
    s2[length] = '\0';
```

```
    printf("Value in s1 = %s \n", s1);
```

```
    printf("Value in s2 = %s \n", s2);
```

```
    return 0;
```

```
}
```

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35. Program to toggle case

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```
#include <stdio.h>
#define MAX_SIZE 100

void toggleCase(char * str)
{
    int i = 0;

    while(str[i] != '\0')
    {
        if(str[i]>='a' && str[i]<='z')
        {
            str[i] = str[i] - 32;
        }
        else if(str[i]>='A' && str[i]<='Z')
        {
            str[i] = str[i] + 32;
        }

        i++;
    }
}

int main()
{
    char str[MAX_SIZE];

    /* Input string from user */
    printf("Enter any string: ");
    gets(str);

    printf("String before toggling case: %s", str);

    toggleCase(str);

    printf("String after toggling case: %s", str);

    return 0;
}
```

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36. Program to get number of vowels and consonant

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```
#include <stdio.h>
#include <string.h>
#define MAX_SIZE 100 // Maximum string size

int main()
{
    char str[MAX_SIZE];
    int i, len, vowel, consonant;

    /* Input string from user */
    printf("Enter any string: ");
    gets(str);

    vowel = 0;
    consonant = 0;
    len = strlen(str);

    for(i=0; i<len; i++)
    {
        if((str[i]>='a' && str[i]<='z') || (str[i]>='A' && str[i]<='Z'))
        {
            /*
             * If the current character(str[i]) is a vowel
             */
            if(str[i]=='a' || str[i]=='e' || str[i]=='i' || str[i]=='o' || str[i]=='u' ||
               str[i]=='A' || str[i]=='E' || str[i]=='I' || str[i]=='O' || str[i]=='U' )
                vowel++;
            else
                consonant++;
        }
    }

    printf("Total number of vowel = %d\n", vowel);
    printf("Total number of consonant = %d\n", consonant);

    return 0;
}
```

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37. Program to get nth bit of a number

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```
#include <stdio.h>

int main()
{
    int num, n, bitStatus;

    printf("Enter any number: ");
    scanf("%d", &num);

    printf("Enter nth bit to check (0-31): ");
    scanf("%d", &n);

    bitStatus = (num >> n) & 1;

    printf("The %d bit is set to %d", n, bitStatus);

    return 0;
}
```

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38. Program to set nth bit of a number

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```
#include <stdio.h>

int main()
{
    int num, n, newNum;

    printf("Enter any number: ");
    scanf("%d", &num);

    printf("Enter nth bit to set (0-31): ");
    scanf("%d", &n);

    newNum = (1 << n) | num;

    printf("Bit set successfully.\n\n");
    printf("Number before setting %d bit: %d (in decimal)\n", n, num);
    printf("Number after setting %d bit: %d (in decimal)\n", n, newNum);

    return 0;
}
```

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39. Program to toggle bits of a number

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

```
int main()
```

```
{
```

```
    int num, n, newNum;
```

```
    printf("Enter any number: ");
```

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

```
    printf("Enter nth bit to toggle (0-31): ");
```

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

```
    newNum = num ^ (1 << n);
```

```
    printf("Number before toggling %d bit: %d (in decimal)\n", n, num);
```

```
    printf("Number after toggling %d bit: %d (in decimal)\n", n, newNum);
```

```
    return 0;
```

```
}
```

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40. Program to get even or odd

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

```
int main()
```

```
{
```

```
    int num;
```

```
    printf("Enter any number: ");
```

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

```
    if(num & 1)
```

```
    {
```

```
        printf("%d is odd.", num);
```

```
    }
```

```
    else
```

```
    {
```

```
        printf("%d is even.", num);
```

```
    }
```

```
    return 0;
```

```
}
```

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41. Program for sigalarm

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

void sig_alarm(int signo)
{
    if(signo==SIGALRM) {
        printf("Got SIGALRM\n");
        alarm(10);
        printf("%s: Will generate alarm in 10 secs\n",__FUNCTION__);
    } else {
        printf("Unknown signal number\n");
    }
}

int main(void)
{
    struct sigaction act;
    act.sa_handler = sig_alarm;
    act.sa_flags = 0;
    sigemptyset(&act.sa_mask);
    if (sigaction (SIGALRM, &act, 0) == -1) {
        perror (NULL);
        return 1;
    }
    alarm (10);
    printf ("%s: Will generate alarm in 10 secs\n",__FUNCTION__);
    while(1) pause();
    return 0;
}
```

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42. Program to get asctime

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

int main (void)
{
    time_t t0;

    t0 = time (NULL);
    printf ("%s", asctime(localtime(&t0)));
    return 0;
}
```

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43. Program for fork

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```
#include <stdio.h>
#include <sys/wait.h>
#include <unistd.h>

int main()
{
    pid_t cid;
    int a = 0;

    if ( (cid=fork())>0 ) {
        a++;
        printf("Parent : a=%d\n",a);
        printf("Parent : My Child PID = %d\n",cid);
        printf("Parent : My PID = %d\n",getpid());
        wait(NULL);
        printf("Parent : child done\n");
        puts("Parent : DONE");
    }else{
        printf("Child : a=%d\n",a);
        printf("Child : My PID = %d\n",getpid());
        printf("Child : My Parent PID = %d\n",getppid());
        sleep(1);
    }
    return 0;
}
```

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44. Process to get parent id

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

int main()
{
    pid_t pid = getpid();
    printf("My PID = %d\n",pid);
    printf("My Parent PID = %d\n",getppid());
    return 0;
}
```

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45. Program to demonstrate pipe

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```
#include <stdio.h>
#include <unistd.h>
#include <sys/types.h>

int main(void)
{
    pid_t  childpid;
    int fd[2];
    char buf[10] = "Bye";

    //fd[0] is for reading
    //fd[1] is for writing
    if (pipe(fd) < 0){
        return 1;
    }

    childpid=fork();
    if (childpid > 0){
        //parent
        write(fd[1],"Hello",sizeof("Hello"));
    }else if (childpid == 0){
        //child
        read(fd[0],buf,sizeof(buf));
    }

    printf("CHILD PID = %d , buf = %s \n", childpid, buf);

    return 0;
}
```

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46. Program for sigaction

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

void sig_usr(int signo){
    if(signo==SIGINT)
        printf("Got SIGINT\n");
    else
        printf("Unknown signal number\n");
}

int main(void)
{
    struct sigaction sa;
    sa.sa_handler = sig_usr;
    sigemptyset(&sa.sa_mask);
    sa.sa_flags = 0;
    if(sigaction(SIGINT, &sa, NULL) == -1) {
        printf("Error creating SIG_INT\n");
        return 1;
    }
    pause();
    return 0;
}
```

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47. Program to demonstrate signal

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

void sig_usr(int signo){
    if(signo==SIGINT)
        printf("Got SIGINT\n");
    else
        printf("Unknown signal number\n");
}

int main(void)
{
    if( signal(SIGINT, sig_usr) == SIG_ERR ) {
        printf("Error creating SIG_INT\n");
        return 1;
    }
    pause();
    return 0;
}
```

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48. Program to demonstrate sleep

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

int main (void)
{
    time_t t0;

    t0 = time(NULL);

    /* Better than loop */
    sleep(2);

    printf("Executed in %lf seconds.\n", difftime(time(NULL), t0));

    return 0;
}
```

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49. Program to demonstrate watch function

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

int main (void)
{
    time_t t0;

    t0 = time (NULL);
    printf("%lu sec since epoch\n", t0);
    printf("%s\n", ctime(&t0));
    return 0;
}
```

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50. Program for atoi

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

int main()
{
    char s[12] = "";
    int i = 0;
    scanf("%s",s);
    i = atoi(s);
    printf("%s = %i \n",s,i);
    return 0;
}
```

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51. Program for fgets

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

```
int main()
```

```
{
```

```
    char a[8];
```

```
    fgets(a,sizeof(a),stdin);
```

```
    if( !a[sizeof(a)-1] ){
```

```
        printf("Greater than %lu. Thus, null terminated\n",sizeof(a));
```

```
    }
```

```
    puts(a);
```

```
    return 0;
```

```
}
```

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52. Program for file write

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

```
int main()
{
    char* filename = "myfile.txt";
    FILE* fp = fopen(filename, "w");
    char c = 'A';
    if(fp){
        while( c<='Z' ){
            fputc(c,fp);
            c++;
        }
        fputc('\n',fp);
        fclose(fp);
    }else{
        printf("Opening %s failed\n", filename);
    }
    return 0;
}
```

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53. Program to read file

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

```
int main()
```

```
{
```

```
    char* filename = "myFile.txt";
```

```
    FILE* fp = fopen(filename, "r");
```

```
    char c = 0;
```

```
    if(fp){
```

```
        while( (c=fgetc(fp)) != EOF ){
```

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

```
        }
```

```
        fclose(fp);
```

```
    }else{
```

```
        printf("Opening %s failed\n", filename);
```

```
    }
```

```
    puts("");
```

```
    return 0;
```

```
}
```

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54. Program for fscanf

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```
#include <stdio.h>

int main()
{
    char* filename = "numbers.txt";
    FILE* fp = fopen(filename, "r");
    int a = 0;
    if(fp){
        while( fscanf(fp,"%d",&a) != EOF ){
            printf("%d\n", a);
        }
        fclose(fp);
    }else{
        printf("Opening %s failed\n", filename);
    }
    puts("");

    return 0;
}
```

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55. Program for fseek

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

```
int main()
{
    char* filename = "myFile.txt";
    FILE* fp = fopen(filename, "r");
    char c = 0;
    if(fp){
        fseek(fp,5,SEEK_SET);
        while( (c=fgetc(fp)) != EOF ){
            printf("%c", c);
        }
        fclose(fp);
    }else{
        printf("Opening %s failed\n", filename);
    }
    puts("");

    return 0;
}
```

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56. Program for break

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

```
int main()
```

```
{
```

```
    char a = 'A';
```

```
    while(1){
```

```
        printf("(Y)es, (N)o or (Q)uit\n");
```

```
        printf("Enter choice: ");
```

```
        scanf("%c",&a);
```

```
        if(a=='q' || a=='Q'){
```

```
            break;
```

```
        }
```

```
    }
```

```
    return 0;
```

```
}
```

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57. Program to demonstrate continue

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

```
int main()
```

```
{
```

```
    int i = 0;
```

```
    for(;i<100;i++){
```

```
        if(i%2){
```

```
            continue;
```

```
        }
```

```
        printf("%d*%d=%d\n",i,i,i*i);
```

```
    }
```

```
    return 0;
```

```
}
```

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58. Program to show do_while

//www.prodevelopertutorial.com

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

```
int main()
```

```
{
```

```
    char a = 'A';
```

```
    do{
```

```
        printf("(Y)es, (N)o or (Q)uit\n");
```

```
        printf("Enter choice: ");
```

```
        scanf("%c",&a);
```

```
    }while(a!='q' && a!='Q');
```

```
    return 0;
```

```
}
```

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59. Program for for loop

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

int main()
{
    int a = 'A';
    int b = 'a';
    for(a='A',b='a'; a<='Z' && b<='z'; a++,b++){
        printf("%c-%c\n",a,b);
    }
    return 0;
}
```

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60. Program for pass by value and pass byreference

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```
#include <stdio.h>

void inc1(int byval)
{
    byval++;
}

void inc2(int *byref)
{
    (*byref)++;
}

int main()
{
    int a = 0;
    int b = 0;
    inc1(a);
    inc2(&b);
    printf("a= %d\n",a);
    printf("b= %d\n",b);
    return 0;
}
```

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61. Program to show pointers in C

```
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#include<stdio.h>

int main(){
    float celsius, fahrenheit;

    printf("Enter Fahrenheit: ");
    scanf("%f", &fahrenheit);

    celsius = (fahrenheit - 32) / 1.8;
    printf("\nCelsius: %.2f\n", celsius);

    return 0;
}
```

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62. Program to print heart pattern

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```
#include<stdio.h>

int main(){
    int i,j;
    //loop for the upper part of the heart
    for(i=0;i<3;i++){
        for(j=i;j<2;j++){
            printf(" ");
        }
        for(j=(i*2)+5;j>0;j--){
            printf("*");
        }

        for(j=5-(i*2);j>0;j--){
            printf(" ");
        }

        for(j=(i*2)+5;j>0;j--){
            printf("*");
        }
        printf("\n");
    }
    //loop for the lower part of the heart
    for(i=0;i<10;i++){
        for(j=0;j<i;j++){
            printf(" ");
        }
        for(j=19-(2*i);j>0;j--){
            printf("*");
        }
        printf("\n");
    }
    return 0;
}
```

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63: Program for pyramid pattern

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```
#include <stdio.h>
int main()
{
    int i, space, rows, k=0, count = 0, count1 = 0;

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

    for(i=1; i<=rows; ++i)
    {
        for(space=1; space <= rows-i; ++space)
        {
            printf(" ");
            ++count;
        }

        while(k != 2*i-1)
        {
            if (count <= rows-1)
            {
                printf("%d ", i+k);
                ++count;
            }
            else
            {
                ++count1;
                printf("%d ", (i+k-2*count1));
            }
            ++k;
        }
        count1 = count = k = 0;

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

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64: Program for Celsius to Fahrenheit

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

```
int main(){
```

```
    float celsius, fahrenheit;
```

```
    // Formula:  $T(^{\circ}\text{F}) = T(^{\circ}\text{C}) \times 9/5 + 32 = \text{Celsius} * 1.8 + 32$ 
```

```
    printf("Enter Celsius: ");
```

```
    scanf("%f", &celsius);
```

```
    fahrenheit = celsius * 1.8 + 32;
```

```
    printf("\nFahrenheit: %.2f\n", fahrenheit);
```

```
    return 0;
```

```
}
```

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65. Program to calculate equilateral triangle

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

int main(){
    int side;
    float area;

    printf("Side: ");
    scanf("%d", &side);

    area = (sqrt(3) / 4)*(side*side);
    printf("Area: %.2f", area);

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

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66. Program to find area of dead body

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

```
int main(){
    float length, breadth, area;

    printf("Enter Length: ");
    scanf("%f", &length);

    printf("Enter Breadth: ");
    scanf("%f", &breadth);

    area = breadth * length;

    printf("\nArea: %.2f\n", area);

    return 0;
}
```

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67. Area of rectangle

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

```
int main(){
    int base, height, area;

    printf("Base: ");
    scanf("%d", &base);

    printf("Height: ");
    scanf("%d", &height);

    area = (height * base) / 2;
    printf("Area: %d", area);

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

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68. Program to get day-month-year

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

```
int main(){
```

```
    int year, month, week, days;
```

```
    printf("Enter Days: ");
```

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

```
    year = (days - (days % 365)) / 365; // Get Year
```

```
    days = (days % 365);
```

```
    month = (days - (days % 30)) / 30; // Get Month
```

```
    days = days % 30;
```

```
    week = (days - (days % 7)) / 7; // Get Week
```

```
    days = days % 7; // Days
```

```
    printf("\n%d Year, %d Month, %d Week and %d Days\n", year, month, week, days);
```

```
    return 0;
```

```
}
```

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69 . Program to get diameter and circumference from radius

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

```
int main(){
```

```
    float radius, diameter, circumference, area, pi;
```

```
    pi = 3.1415926535;
```

```
    printf("Enter Radius: ");
```

```
    scanf("%f", &radius);
```

```
    diameter = 2 * radius;
```

```
    circumference = pi * diameter;
```

```
    area = pi * (radius * radius);
```

```
    printf("\nDiameter: %.8f", diameter);
```

```
    printf("\nCircumference: %.8f", circumference);
```

```
    printf("\nArea: %.8f", area);
```

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

```
    return 0;
```

```
}
```

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70. Program for Fahrenheit to celsius

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

```
int main(){
```

```
    float celsius, fahrenheit;
```

```
    printf("Enter Fahrenheit: ");
```

```
    scanf("%f", &fahrenheit);
```

```
    celsius = (fahrenheit - 32) / 1.8;
```

```
    printf("\nCelsius: %.2f\n", celsius);
```

```
    return 0;
```

```
}
```

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71. Program to check if file exist

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```
#include <stdio.h>
int main()
{
    FILE *file = fopen("Test.txt", "r");
    if(file == NULL)
    {
        printf("ERROR : File Does Not Exist\n");
        return -1;
    }
    else
    {
        printf("File Exists\n");
    }

    return 0;
}
```

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72: Get file size

```
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```

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

```
int main(int argc, char *argv[])
{
    if(argc != 2)
    {
        printf("usage %s file.txt\n",argv[0]);
        return -1;
    }

    FILE * file = fopen(argv[1], "r");

    if(file == NULL)
    {
        printf("[ERROR] Unable to open %s\n",argv[1]);
        return -1;
    }

    fseek(file, 0, SEEK_END);
    printf("%s is %d bytes long\n",argv[1],ftell(file));

    return 0;
}
```

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73. Program for dynamic memory allocation

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

int main() {
    char name[100];
    char *description;

    strcpy(name, "Imam Sutono");

    // allocate memory dynamically
    description = malloc(200 * sizeof(char));

    if (description == NULL) {
        fprintf(stderr, "Error - unable to allocate required memory");
    } else {
        strcpy(description, "Imam Sutono is student at Binus University");
    }

    printf("Name : %s\n", name);
    printf("Description : %s\n", description);

    return 0;
}
```

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74. Program for resizing and releasing of memory

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

int main() {
    char name[100];
    char *description;

    strcpy(name, "Imam Sutono");

    // allocate memory dynamically
    description = malloc(30 * sizeof(char));

    if (description == NULL) {
        fprintf(stderr, "Error - unable to allocate required memory");
    } else {
        strcpy(description, "He is student at Binus University");
    }

    printf("Name : %s\n", name);
    printf("Description : %s\n", description);

    // release memory using free() function
    free(description);
}
```

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75. Program for static variable

```
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#include <stdio.h>

// function declaration
void func(void);

static int count = 5; // global variable

int main()
{
    while(count-->0)
    {
        func();
    }

    return 0;
}

// function definition
void func(void)
{
    static int i = 5; // local static variable
    i--;

    printf("i is %d and count is %d\n", i, count);
}
```

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76. Program for case operator
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```
#include <stdio.h>
```

```
int main() {  
    int sum = 17, count = 5;  
    double mean;  
  
    mean = (double) sum / count; // convert data type of sum (int) to double  
    printf("Value of sum : %f\n", mean);  
  
    return 0;  
}
```

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77. Program for integer promotion

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

```
int main() {
```

```
    int i = 17;
```

```
    char c = 'c'; // ASCII value is 99
```

```
    int sum;
```

```
    sum = i + c; // convert 'c' to ASCII value then performing addition operation
```

```
    printf("Value of sum: %d\n", sum);
```

```
    return 0;
```

```
}
```

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78. Program for typedef

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

typedef struct Books {
    char title[50];
    char author[50];
    char subject[100];
    int book_id;
} Book;

int main() {
    Book book;

    strcpy(book.title, "C Programming");
    strcpy(book.author, "ajay");
    strcpy(book.subject, "C Programming Tutorial");
    book.book_id = 6495407;

    printf("Book 1 title : %s\n", book.title);
    printf("Book 1 author : %s\n", book.author);
    printf("Book 1 subject : %s\n", book.subject);
    printf("Book 1 book_id : %d\n", book.book_id);

    return 0;
}
```

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79. Program for bitwise left shift operator

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```
#include <stdio.h>
int main()
{
    int a=7, b=2,c;
    c = a<<b;
    printf("Value of c = %d\n",c);
    return 0;
}
```

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80. Program for float

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

```
int main(void)
```

```
{  
    const double RENT = 3852.99; // const-style constant
```

```
    printf("%f*\n", RENT);
```

```
    printf("%e*\n", RENT);
```

```
    printf("%4.2f*\n", RENT);
```

```
    printf("%3.1f*\n", RENT);
```

```
    printf("%10.3f*\n", RENT);
```

```
    printf("%10.3E*\n", RENT);
```

```
    printf("%+4.2f*\n", RENT);
```

```
    printf("%010.2f*\n", RENT);
```

```
    return 0;
```

```
}
```

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81. Program for bitwise complement

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```
#include <stdio.h>
int main()
{
    int a=14, b;
    b = ~a;
    printf("Value of c = %d\n",b);
    return 0;
}
```

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82. Program for bitwise and

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```
#include <stdio.h>
int main()
{
    int a=14, b= 7, c;
    c =a&b;
    printf("Value of c = %d\n",c);
    return 0;
}
```

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83. Program for getting remainder

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```
#include<stdio.h>
int main ()
{
    int t, A, B;
    int rem = 0;
    scanf ("%d", &t);

    while (t--)
    {

        scanf ("%d%d",&A,&B);
        rem = A % B;
        printf("%d\n", rem);
    }

    return 0;
}
```

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84. Program for ternary operator

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```
#include<stdio.h>
int main()
{
    float a,b,c,large;
    printf("Enter any 3 numbers\n");
    scanf("%f%f%f",&a,&b,&c);
    large = a>b? (a>c?a:c): (b>c?b:c);
    printf("The larger no is :%f\n", large);
    return 0;
}
```

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85. Program for structure in c

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```
#include <stdio.h>

/*structure declaration*/
struct employee{
    char name[30];
    int empld;
    float salary;
};

int main()
{
    /*declare and initialization of structure variable*/
    struct employee emp={"Mike",1120,76909.00f};

    printf("\n Name: %s" ,emp.name);
    printf("\n Id: %d" ,emp.empld);
    printf("\n Salary: %f\n",emp.salary);
    return 0;
}
```

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86. Program for nested structure

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

```
struct student{
    char name[30];
    int rollNo;

    struct dateOfBirth{
        int dd;
        int mm;
        int yy;
    }DOB; /*created structure varoable DOB*/
};

int main()
{
    struct student std;

    printf("Enter name: ");          gets(std.name);
    printf("Enter roll number: "); scanf("%d",&std.rollNo);
    printf("Enter Date of Birth [DD MM YY] format: ");
    scanf("%d%d%d",&std.DOB.dd,&std.DOB.mm,&std.DOB.yy);
    printf("\nName : %s \nRollNo : %d \nDate of birth :
%02d/%02d/%02d\n",std.name,std.rollNo,std.DOB.dd,std.DOB.mm,std.DOB.yy);

    return 0;
}
```

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87. Program for structure pointer

//www.prodevelopertutorial.com

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

```
struct item
```

```
{  
    char itemName[30];  
    int qty;  
    float price;  
    float amount;  
};
```

```
int main()
```

```
{  
  
    struct item itm;      /*declare variable of structure item*/  
    struct item *pltem;   /*declare pointer of structure item*/  
  
    pltem = &itm;         /*pointer assignment - assigning address of itm to pltem*/  
  
    /*read values using pointer*/  
    printf("Enter product name: ");  
    gets(pltem->itemName);  
    printf("Enter price:");  
    scanf("%f",&pltem->price);  
    printf("Enter quantity: ");  
    scanf("%d",&pltem->qty);  
  
    /*calculate total amount of all quantity*/  
    pltem->amount =(float)pltem->qty * pltem->price;  
  
    /*print item details*/  
    printf("\nName: %s",pltem->itemName);  
    printf("\nPrice: %f",pltem->price);  
    printf("\nQuantity: %d",pltem->qty);  
    printf("\nTotal Amount: %f",pltem->amount);  
  
    return 0;  
}
```

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88. Program for passing structure to function

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```
#include<stdio.h>
struct address
{
    char city[20];
    int pin;
    char phone[14];
};
struct employee
{
    char name[20];
    struct address add;
};
void display(struct employee);
void main ()
{
    struct employee emp;
    printf("Enter employee information?\n");
    scanf("%s %s %d %s",emp.name,emp.add.city, &emp.add.pin, emp.add.phone);
    display(emp);
}
void display(struct employee emp)
{
    printf("Printing the details...\n");
    printf("%s %s %d %s",emp.name,emp.add.city,emp.add.pin,emp.add.phone);
}
```

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89. Program for union

```
#include <stdio.h>

union test1
{
    int x;
    int y;
} Test1;

union test2
{
    int x;
    char y;
} Test2;

union test3
{
    int arr[10];
    char y;
} Test3;

int main()
{
    printf("sizeof(test1) = %lu, sizeof(test2) = %lu, "
        "sizeof(test3) = %lu",
        sizeof(Test1),
        sizeof(Test2), sizeof(Test3));
    return 0;
}
```

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90. Program for union pointer

```
#include <stdio.h>

union test
{
    int x;
    char y;
};

int main()
{
    union test p1;
    p1.x = 65;

    // p2 is a pointer to union p1
    union test* p2 = &p1;

    // Accessing union members using pointer
    printf("%d %c", p2->x, p2->y);
    return 0;
}
```

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91. Program for bitfields

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

/* define simple structure */
struct {
    unsigned int widthValidated;
    unsigned int heightValidated;
} status1;

/* define a structure with bit fields */
struct {
    unsigned int widthValidated : 1;
    unsigned int heightValidated : 1;
} status2;

int main( ) {
    printf( "Memory size occupied by status1 : %d\n", sizeof(status1));
    printf( "Memory size occupied by status2 : %d\n", sizeof(status2));
    return 0;
}
```

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