1. **Write a C Program to Add Two Integers**

#include <stdio.h>

void main()

{

int n1, n2, sum;

printf("Enter two integers: ");

scanf("%d %d", &n1, &n2);

sum = n1 + n2; // calculating sum

printf(“Sum is"\n%d + %d = %d", n1, n2, sum);

}

**Output:**

Enter two integers: 12

11

1. 11 = 23

**2.Write a C Program to Print an Integer (Entered by the User)**.

#include <stdio.h>

int main() {

int n;

printf("Enter an integer: ");

scanf("%d", &n); // reads and stores input

printf("You have entered: %d", n); // displays output

return 0;

}

Output:

Enter an integer: 25

You have entered: 25

3. **Write a C Program to Find ASCII Value of a Character.**

#include <stdio.h>

int main()

{

char c;

printf("Enter a character: ");

scanf("%c", &c);

// %d displays the integer value of a character

// %c displays the actual character

printf("ASCII value of %c = %d", c, c);

return 0;

}

**Output:**

Enter a character: G

ASCII value of G = 71

4. Write a C Program to Compute Quotient and Remainder.

Solution:

#include <stdio.h>

int main()

{

int dividend, divisor, quotient, remainder;

printf(“Enter dividend: “);

scanf(“%d”, &dividend);

printf(“Enter divisor: “);

scanf(“%d”, &divisor);

// Computes quotient

quotient = dividend / divisor;

// Computes remainder

remainder = dividend % divisor;

printf(“Quotient = %d\n”, quotient);

printf(“Remainder = %d”, remainder);

return 0;

}

Output:

Enter dividend: 25

Enter divisor: 4

Quotient = 6

Remainder = 1

5. Write a C Program to Find the Size of int, float, double and char.

Solution:

#include<stdio.h>

int main()

{

int i;

float f;

double d;

char c;

// sizeof evaluates the size of a variable

printf("Size of int: %ld bytes\n", sizeof(i));

printf("Size of float: %ld bytes\n", sizeof(f));

printf("Size of double: %ld bytes\n", sizeof(d));

printf("Size of char: %ld byte\n", sizeof(c));

return 0;

}

Output

Size of int: 4 bytes

Size of float: 4 bytes

Size of double: 8 bytes

Size of char: 1 byte

6. Write a C Program to Swap Two Numbers Using Temporary Variable

#include<stdio.h>

int main()

{

int a, b, temp;

printf("Enter first number: ");

scanf("%d", &a);

printf("Enter second number: ");

scanf("%d", &b);

// Value of first is assigned to temp

temp = a;

// Value of second is assigned to first

a = b;

// Value of temp (initial value of first) is assigned to second

b = temp;

printf("\nAfter swapping, firstNumber = %d\n", a);

printf("After swapping, secondNumber = %d", b);

return 0;

}

Output

Enter first number: 5

Enter second number:10

After swapping, firstNumber = 10

After swapping, secondNumber = 5

7. Write a C Program to Check Whether a Number is Even or Odd

#include <stdio.h>

int main()

{

int num;

printf("Enter an integer: ");

scanf("%d", &num);

// True if num is perfectly divisible by 2

if(num % 2 == 0)

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

else

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

return 0;

}

Output

Enter an integer: 7

7 is odd.

8. Write a C Program to Check Odd or Even Using the Ternary Operator.

#include < stdio.h >

int main()

{

int n;

printf("Enter an integer number\n");

scanf("%d", &n);

(n % 2 == 0) ? (printf("%d is Even number\n", n)) : (printf("%d is Odd number\n", n));

return 0;

}

Output 1:

Enter an integer number

2

2 is even number

Output 2:

Enter an integer number

3

3 is odd number

9. Write a C Program to Check Whether a Character is a Vowel or Consonant.

Solution:

#include <stdio.h>

int main() {

char c;

int lowercase, uppercase;

printf("Enter an alphabet: ");

scanf("%c", &c);

// evaluates to 1 if variable c is lowercase

lowercase = (c == 'a' || c == 'e' || c == 'i' || c == 'o' || c == 'u');

// evaluates to 1 if variable c is uppercase

uppercase = (c == 'A' || c == 'E' || c == 'I' || c == 'O' || c == 'U');

// evaluates to 1 if c is either lowercase or uppercase

if (lowercase || uppercase)

printf("%c is a vowel.", c);

else

printf("%c is a consonant.", c);

return 0;

}

Output

Enter an alphabet: G

G is a consonant.

1. Write a C Program to Find the Largest Number Among Three Numbers.

Using Nested if...else

#include <stdio.h>

int main() {

int n1, n2, n3;

printf("Enter three numbers: ");

scanf("%d %d %d", &n1, &n2, &n3);

if (n1 >= n2) {

if (n1 >= n3)

printf("%d is the largest number.", n1);

else

printf("%d is the largest number.", n3);

} else {

if (n2 >= n3)

printf("%d is the largest number.", n2);

else

printf("%d is the largest number.", n3);

}

return 0;

}

output :

Enter three numbers: -

10

45

36

45 is the largest number.

1. Write a C Program to Find Factorial of a Number.

#include <stdio.h>

int main()

{

int n, i;

unsigned long long fact = 1;

printf("Enter an integer: ");

scanf("%d", &n);

// shows error if the user enters a negative integer

if (n < 0)

printf("Error! Factorial of a negative number doesn't exist.");

else {

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

fact \*= i;

}

printf("Factorial of %d = %llu", n, fact);

}

return 0;

}

Output

Enter an integer: 10

Factorial of 10 = 3628800

1. Write a C Program to Generate Multiplication Table of a given number.

#include <stdio.h>

int main()

{

int n,i;

printf( "Enter a positive integer: ");

scanf(“%d”,&n);

for (i = 1; i <= 10; i++)

{

Printf(“%dX%d=%d”, n, i, n \* i ;

}

return 0;

}

Output

Enter an integer: 5

5 \* 1 = 5

5 \* 2 = 10

5 \* 3 = 15

5 \* 4 = 20

5 \* 5 = 25

5 \* 6 = 30

5 \* 7 = 35

5 \* 8 = 40

5 \* 9 = 45

5 \* 10 = 50

1. Write a C Program to Display Fibonacci Sequence up to ‘n’ numbers.

#include<stdio.h>

int main()

{

 int n1=0,n2=1,n3,i,num;

 printf("Enter the number of elements:");

 scanf("%d",&num);

 printf("\n%d %d",n1,n2);//printing 0 and 1

 for(i=2;i<num;++i)//loop starts from 2 because 0 and 1 are already printed

 {

  n3=n1+n2;

  printf(" %d",n3);

  n1=n2;

  n2=n3;

 }

  return 0;

 }

Output

Enter the number of terms: 10

0, 1, 1, 2, 3, 5, 8, 13, 21, 34,

1. Write a C Program to Count Number of Digits in an Integer.

#include <stdio.h>

int main()

{

int n, count = 0;

printf("Enter an integer: ");

scanf("%d", &n);

while (n != 0)

{

n /= 10; // n = n/10

++count;

}

printf("Number of digits: %d", count);

}

Output

Enter an integer: 3452

Number of digits: 4

1. Write a C Program to Reverse a given Number.

Solution:

#include <stdio.h>

int main()

{

int n, rev = 0, remainder;

printf("Enter an integer: ");

scanf("%d", &n);

while (n != 0)

{

remainder = n % 10;

rev = rev \* 10 + remainder;

n /= 10;

}

printf("Reversed number = %d", rev);

return 0;

}

Output

Enter an integer: 2345

Reversed number = 5432

1. Write a C Program to Check Whether a Number is Palindrome or Not.

#include <stdio.h>

int main()

{

Int n, reversedN = 0, remainder, originalN;

printf("Enter an integer: ");

scanf("%d", &n);

originalN = n;

// reversed integer is stored in reversedN

while (n != 0) {

remainder = n % 10;

reversedN = reversedN \* 10 + remainder;

n /= 10;

}

// palindrome if orignalN and reversedN are equal

if (originalN == reversedN)

printf("%d is a palindrome.", originalN);

else

printf("%d is not a palindrome.", originalN);

return 0;

}

Output

Enter an integer: 1001

1001 is a palindrome.

1. Write a C Program to Check Whether a Number is Prime or Not.

#include <stdio.h>

int main() {

int n, i, flag = 0;

printf("Enter a positive integer: ");

scanf("%d", &n);

for (i = 2; i <= n / 2; ++i) {

// condition for non-prime

if (n % i == 0) {

flag = 1;

break;

}

}

if (n == 1) {

printf("1 is neither prime nor composite.");

}

else {

if (flag == 0)

printf("%d is a prime number.", n);

else

printf("%d is not a prime number.", n);

}

return 0;

}

Output

Enter a positive integer: 29

29 is a prime number.

1. Write a C Program to Check whether the given number is an Armstrong Number or not.

#include <math.h>

#include <stdio.h>

int main()

{

int num, originalNum, remainder, n = 0;

float result = 0.0;

// printf("Enter an integer: ");

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

num = 153;

originalNum = num;

while (originalNum != 0) {

originalNum /= 10;

++n;

}

originalNum = num;

while (originalNum != 0)

{

remainder = originalNum % 10;

result += pow(remainder, n);

originalNum /= 10;

}

if ((int)result == num)

printf("%d is an Armstrong number.", num);

else

printf("%d is not an Armstrong number.", num);

return 0;

}

Output

Enter an integer: 1634

1634 is an Armstrong number.

1. Write a C Program to Make a Simple Calculator Using switch...case.

Solution:

#include <stdio.h>

int main() {

char operator;

double first, second;

printf("Enter an operator (+, -, \*,): ");

scanf("%c", &operator);

printf("Enter two operands: ");

scanf("%lf %lf", &first, &second);

switch (operator) {

case '+':

printf("%.1lf + %.1lf = %.1lf", first, second, first + second);

break;

case '-':

printf("%.1lf - %.1lf = %.1lf", first, second, first - second);

break;

case '\*':

printf("%.1lf \* %.1lf = %.1lf", first, second, first \* second);

break;

case '/':

printf("%.1lf / %.1lf = %.1lf", first, second, first / second);

break;

// operator doesn't match any case constant

default:

printf("Error! operator is not correct");

}

return 0;

}

Output

Enter an operator (+, -, \*,): \*

Enter two operands: 1.5

4.5

1.5 \* 4.5 = 6.8

1. Write a C Program to Convert Binary Number to Decimal and vice-versa.

Solution:

#include <math.h>

#include <stdio.h>

int convert(long long n);

int main() {

long long n;

printf("Enter a binary number: ");

scanf("%lld", &n);

printf("%lld in binary = %d in decimal", n, convert(n));

return 0;

}

int convert(long long n) {

intdec = 0, i = 0, rem;

while (n != 0) {

rem = n % 10;

n /= 10;

dec += rem \* pow(2, i);

++i;

}

return dec;

}

Output

Enter a binary number: 110110111

110110111 in binary = 439

1. **Write a C Program to Find G.C.D Using Recursion.**

#include <stdio.h>

inthcf(int n1, int n2);

int main()

{

int n1, n2;

printf("Enter two positive integers: ");

scanf("%d %d", &n1, &n2);

printf("G.C.D of %d and %d is %d.", n1, n2, hcf(n1, n2));

return 0;

}

inthcf(int n1, int n2)

{

if (n2 != 0)

return hcf(n2, n1 % n2);

else

return n1;

}

**Output**

Enter two positive integers: 366

60

G.C.D of 366 and 60 is 6.

1. Write a C Program to Add Two Matrices Using Multi-dimensional Arrays.

#include <stdio.h>

int main() {

int r, c, a[100][100], b[100][100], sum[100][100], i, j;

printf("Enter the number of rows (between 1 and 100): ");

scanf("%d", &r);

printf("Enter the number of columns (between 1 and 100): ");

scanf("%d", &c);

printf("\nEnter elements of 1st matrix:\n");

for (i = 0; i < r; ++i)

for (j = 0; j < c; ++j) {

printf("Enter element a%d%d: ", i + 1, j + 1);

scanf("%d", &a[i][j]);

}

printf("Enter elements of 2nd matrix:\n");

for (i = 0; i < r; ++i)

for (j = 0; j < c; ++j) {

printf("Enter element a%d%d: ", i + 1, j + 1);

scanf("%d", &b[i][j]);

}

// adding two matrices

for (i = 0; i < r; ++i)

for (j = 0; j < c; ++j) {

sum[i][j] = a[i][j] + b[i][j];

}

// printing the result

printf("\nSum of two matrices: \n");

for (i = 0; i < r; ++i)

for (j = 0; j < c; ++j) {

printf("%d ", sum[i][j]);

if (j == c - 1) {

printf("\n\n");

}

}

return 0;

}

Output

Enter the number of rows (between 1 and 100): 2

Enter the number of columns (between 1 and 100): 3

Enter elements of 1st matrix:

Enter element a11: 2

Enter element a12: 3

Enter element a13: 4

Enter element a21: 5

Enter element a22: 2

Enter element a23: 3

Enter elements of 2nd matrix:

Enter element a11: -4

Enter element a12: 5

Enter element a13: 3

Enter element a21: 5

Enter element a22: 6

Enter element a23: 3

Sum of two matrices:

-2 8 7

10 8 6

1. Write a C Program to Find the Length of a String.

#include <stdio.h>

#include <string.h>

int main()

{

char s1[20];

int len;

printf("\nEnter any string: ");

gets(s1);

len = strlen(s1);

printf("\nLength of string: %d", len);

getch();

}

Output

Enter any String : Avinash College

Length of the string: 14

1. Write a C Program to Concatenate Two Strings.

#include <stdio.h>

#include <string.h>

int main()

{

char a[100], b[100];

printf("Enter the first string\n");

gets(a);

printf("Enter the second string\n");

gets(b);

strcat(a,b);

printf("String obtained on concatenation is %s\n",a);

return 0;

}

**Output:**

Enter the first String: Avinash

Enter second string : College

String obtained on concatenation is Avinash College

1. Write a C Program to Copy String Without Using strcpy()

int main()

{

char s1[100],s2[100];

int i;

printf("Enter any string: ");

gets(s1);

for(i=0;s1[i]!='\0';i++)

{

s2[i]=s1[i];

}

s2[i]='\0';

printf("original string s1='%s'\n",s1);

printf("copied string s2='%s'",s2);

return 0;

}

**Output:**

Enter any string : IIMC

Original String S1: IIMC

Copied String S2: IIMC

1. Write a C Program to Store Information of a Student Using Structure.

#include <stdio.h>

struct student

{

char firstName[50];

int roll;

float marks;

} s[10];

int main() {

int i;

printf("Enter information of students:\n");

// storing information

for (i = 0; i < 5; ++i) {

s[i].roll = i + 1;

printf("\nFor roll number%d,\n", s[i].roll);

printf("Enter first name: ");

scanf("%s", s[i].firstName);

printf("Enter marks: ");

scanf("%f", &s[i].marks);

}

printf("Displaying Information:\n\n");

// displaying information

for (i = 0; i < 5; ++i) {

printf("\nRoll number: %d\n", i + 1);

printf("First name: ");

puts(s[i].firstName);

printf("Marks: %.1f", s[i].marks);

printf("\n");

}

return 0;

}

Output

Enter information of students:

For roll number1,

Enter name: Tom

Enter marks: 98

For roll number2,

Enter name: Jerry

Enter marks: 89

Displaying Information:

Roll number: 1

Name: Tom

Marks: 98

1. Write a C program to declare, initialize an union.

#include<stdio.h>

union student //declaration of union

{

introllno;

char nm[10];

int marks;

};

void main()

{

union student u1={01,“Mary”,65}; //Initializing the members of the union

printf(“Student details are:\n”);

printf(“\nRoll no: %d”,u1.rollno);

printf(“\nName: %s”,u1.nm);

printf(“\nMarks: %d”,u1.marks);

}

Output

Student details are:

Roll no: 01

Name: Mary

Marks: 65

1. Write a C++ program to implement function overloading.

Solution:

#include <iostream>

using namespace std;

void display(int);

void display(float);

void display(int, float);

int main()

{

int a = 5;

float b = 5.5;

display(a);

display(b);

display(a, b);

return 0;

}

void display(int var)

{

cout<< "Integer number: " <<var<<endl;

}

void display(float var)

{

cout<< "Float number: " <<var<<endl;

}

void display(int var1, float var2)

{

cout<< "Integer number: " << var1;

cout<< " and float number:" << var2;

}

Output

Integer number: 5

Float number: 5.5

Integer number: 5 and float number: 5.5

1. Write a C++ program to calculate an area of rectangle using encapsulation.

Solution:

#include <iostream.h>

#include<conio.h>

class Rectangle

{

int x, y;

public:

void set\_values (int,int);

int area (void)

{

return (x\*y);

}

};

void Rectangle::set\_values (int a, int b)

{

x=a;

y= b;

}

void main ()

{

clrscr();

Rectangle rect;

rect.set\_values (3,4);

cout<< "Area is : " <<rect.area();

getch();

}

Output:

Area is : 12

30.Write a C++ program to add two numbers using data abstraction

#include <iostream>

using namespace std;

int main()

{

int n1, n2,n3;

cout<< "Enter two integers: ";

cin>>n1>>n2;

// sum of two numbers in stored in variable n3.

n3=n1+n2;

// Prints sum

cout<<n1<< " + " <<n2<< " = " <<sn3;

return 0;

}

Output

Enter two integers: 4

5

4 + 5 = 9