**Basic programs**

**[Using printf(), scanf(), basic expressions]**

1. WAP to display a message “Hello World” on screen

//Note: This is the basic program where usage of printf() function is given

Solution:

#include<stdio.h>

int main()

{

printf("Hello World");

return 0;

}

1. WAP to display basic information on the screen using different printf() without using any variable[Information could be: name, regno, section]

Solution:

#include<stdio.h>

int main()

{

printf("Name is: ABC");

printf("\nRegno is: 123");

printf("\nSection is: K1234");

return 0;

}

1. WAP to display basic information on the screen using one printf() without using any variable[Information could be: name, regno, section]

Solution:

#include<stdio.h>

int main()

{

printf("\t\t\t\tName:ABC\n\t\t\t\tRegno:12345\n\t\t\t\tSection:K1234");

return 0;

}

1. WAP to display the values of two integers. [Input is not taken from user]

#include<stdio.h>

int main()

{

int a=1,b=2;

printf("%d %d",a,b);

return 0;

}

1. WAP to add two numbers and display the result[Input is not taken from user]

//Note: This program uses variables, data types and simple arithmetic operator

Solution:

#include<stdio.h>

int main()

{

int a=1,b=2,c;

c=a+b;

printf("\n Sum is:%d",c);

return 0;

}

1. WAP to perform product of 3 integers[Input is not taken from user]

#include<stdio.h>

int main()

{

int a=1,b=2,c=3,d;

d=a\*b\*c;

printf("\nProduct is:%d",d);

return 0;

}

1. WAP to calculate the area of circle[Input is not taken from user]

#include<stdio.h>

int main()

{

float radius=2.345,area;

area=3.14\*radius\*radius;

printf("\nArea is:%f",area);

return 0;

}

1. WAP to calculate simple interest and final amount[Input is not taken from user]

#include<stdio.h>

int main()

{

float p=2345.67,r=2.3,t=4.5,si,amount;

si=(p\*r\*t)/100.0;

amount=p+si;

printf("\n Simple interest is:%f",si);

printf("\n Final amount is:%f",amount);

return 0;

}

1. WAP to demonstrate all arithmetic operations in the same program[Input is not taken from user]

#include <stdio.h>

int main()

{

int a = 8,b = 4, c;

c = a+b;

printf("a+b = %d \n",c);

c = a-b;

printf("a-b = %d \n",c);

c = a\*b;

printf("a\*b = %d \n",c);

c = a/b;

printf("a/b = %d \n",c);

c = a%b;

printf("Remainder when a divided by b = %d \n",c);

return 0;

}

1. WAP to add two numbers and display the result and input should be given by user

//Note: This program introduces scanf() and other concepts which are explained in previous programs

#include<stdio.h>

int main()

{

int a,b,c;

printf("\n Enter the values of a and b:");

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

c=a+b;

printf("\n Sum is:%d",c);

return 0;

}

1. WAP to perform product of 3 integers[input taken from user]

#include<stdio.h>

int main()

{

int a,b,c,d;

printf("\nEnter values of a,b and c:");

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

d=a\*b\*c;

printf("\n Product is:%d",d);

return 0;

}

1. WAP to calculate the area of circle[input taken from user]

#include<stdio.h>

int main()

{

float radius,area;

printf("\nEnter radius:");

scanf("%f",&radius);

area=3.14\*radius\*radius;

printf("\nArea is:%f",area);

return 0;

}

1. WAP to calculate simple interest and final amount[input taken from user]

#include<stdio.h>

int main()

{

float p,r,t,si,amount;

printf("\nEnter principle,rate and time:");

scanf("%f%f%f",&p,&r,&t);

si=(p\*r\*t)/100.0;

amount=p+si;

printf("\n Simple interest is:%f",si);

printf("\n Final amount is:%f",amount);

return 0;

}

1. WAP to perform all arithmetic operations in the same program[input taken from user]

#include <stdio.h>

int main()

{

int a,b,c;

printf("\nEnter two integers:");

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

c = a+b;

printf("a+b = %d \n",c);

c = a-b;

printf("a-b = %d \n",c);

c = a\*b;

printf("a\*b = %d \n",c);

c = a/b;

printf("a/b = %d \n",c);

c = a%b;

printf("Remainder when a divided by b = %d \n",c);

return 0;

}

1. WAP to swap the values of two integers with temporary(or third variable) variable

//Note: Here value overwriting has been performed using assignment, so a variable can hold only one value at one time

Solution:

#include<stdio.h>

int main()

{

int a,b,temp;

printf("\n Enter the values of a and b:");

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

temp=a;

a=b;

b=temp;

printf("\n(After swapping) Value of a is:%d, and b is:%d",a,b);

return 0;

}

1. WAP to swap the values of two variables without temporary variable

#include<stdio.h>

int main()

{

int a,b;

printf("\n Enter the values of a and b:");

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

a=a+b;

b=a-b;

a=a-b;

printf("\n(After swapping) Value of a is:%d, and b is:%d",a,b);

return 0;

}

1. WAP to convert temperature from degree Celsius to degree Fahrenheit and vice-versa

#include <stdio.h>

int main()

{

float c,f,f1,c1;

printf("\nEnter temperature in degree celsius:");

scanf("%f",&c);

f=(c\*9.0/5.0)+32.0;

printf("\n Temperature in Fahrenheit is:%f",f);

printf("\nEnter temperature in Fahrenheit:");

scanf("%f",&f1);

c1=(f1-32.0)\*5.0/9.0;

printf("\nTemperature in degree celcius is:%f",c1);

return 0;

}

1. WAP to convert amount in dollars to INR and vice versa

#include <stdio.h>

int main()

{

float dollars,inr,inr1,dollars1,price;

printf("\nEnter amount in dollars:");

scanf("%f",&dollars);

printf("\n Enter current INR price of 1 dollar:");

scanf("%f",&price);

inr=price\*dollars;

printf("\n Amount in INR is:%f",inr);

printf("\n Enter amount in INR:");

scanf("%f",&inr1);

dollars1=inr1/price;

printf("\n Amount in dollars is:%f",dollars1);

return 0;

}

1. WAP to take input for prices and quantities of 5 items from user and calculate the final amount after applying discount of 10 percent

#include <stdio.h>

int main()

{

float p1,p2,p3,p4,p5,q1,q2,q3,q4,q5,total,final\_amount;

printf("\nEnter prices of 5 items:");

scanf("%f%f%f%f%f",&p1,&p2,&p3,&p4,&p5);

printf("\nEnter quantities of 5 items:");

scanf("%f%f%f%f%f",&q1,&q2,&q3,&q4,&q5);;

total=(p1\*q1)+(p2\*q2)+(p3\*q3)+(p4\*q4)+(p5\*q5);

final\_amount=total-((total\*10.0)/100.0);

printf("\n Final amount to pay after applying discount is:%f",final\_amount);

return 0;

}

1. WAP to calculate the circumference of circle, area of triangle, area of rectangle in the same program

#include <stdio.h>

int main()

{

float r,base,h,l,b,circum,triangle,rectangle;

printf("\n Enter radius:");

scanf("%f",&r);

circum=2\*3.14\*r;

printf("\n Circumference is:%f",circum);

printf("\n Enter base and height:");

scanf("%f%f",&base,&h);

triangle=0.5\*base\*h;

printf("\n Area of triangle is:%f",circum);

printf("\n Enter length and breadth:");

scanf("%f%f",&l,&b);

rectangle=l\*b;

printf("\n Area of rectangle is:%f",rectangle);

return 0;

}

1. WAP to take input of marks of a student in 5 subjects, and then display the total marks and percentage obtained by the student

#include <stdio.h>

int main()

{

float m1,m2,m3,m4,m5,total,percentage;

printf("\n Enter marks in 5 subjects:");

scanf("%f%f%f%f%f",&m1,&m2,&m3,&m4,&m5);

total=m1+m2+m3+m4+m5;

percentage=(total\*100.0)/500.0;

printf("\n Total marks are:%f and percentage is:%f",total,percentage);

return 0;

}

1. WAP to display the largest of two numbers using ternary operator(or conditional operator)

//Note: Here ternary and relational operators are used

#include <stdio.h>

int main()

{

int a,b;

printf("\n Enter the values of a and b:");

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

a>b?printf("\n Greatest is:%d",a):printf("\n Greatest is:%d",b);

return 0;

}

1. WAP to display greatest of three numbers using ternary operator

#include <stdio.h>

int main()

{

int n1,n2,n3,max;

printf("\nEnter three numbers:");

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

max = (n1 > n2) ? (n1 > n3 ? n1 : n3) : (n2 > n3 ? n2 : n3);

printf("Largest number among %d, %d and %d is %d",n1,n2,n3,max);

return 0;

}

1. WAP to check whether a person is eligible to vote or not using ternary operator

#include <stdio.h>

int main()

{

int age;

printf("\nEnter age:");

scanf("%d",&age);

age>=18?printf("\nEligible to vote"):printf("\nNot eligible to vote");

return 0;

}