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## LAB - 3 . FORMULA BASED C PROGRAMS

→ PROGRAM - 1

→ Program to print the message "Hello" on the screen.

→ CODE :

```
#include <stdio.h>
int main ()
{
    printf ("Hello");
    return 0;
}
```

OUTPUT

Hello

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→ PROGRAM -2

→ write a program to take an input of two integer numbers and print the sum of that numbers.

→ CODE :

```
#include <stdio.h>
main()
{
    int a, b, sum = 0;
    printf ("Enter the 1st number: ");
    scanf ("%d", &a);
    printf ("Enter the 2nd number: ");
    scanf ("%d", &b);
    sum = a+b;
    printf ("The sum of two entered numbers : %d", sum);
    return 0;
}
```

OUTPUT

Enter the 1<sup>st</sup> number : 2

Enter the 2<sup>nd</sup> number : 3

The sum of two entered numbers : 5

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→ PROGRAM - 3

→ Write a program to convert time inputted in seconds to hours, minutes, and seconds. ( $1\text{hr} = 3600\text{ sec}$ ).

→ CODE :

`#include <stdio.h>``int main()``{` `sec, hr, min, sec2;` `printf ("Enter the time in seconds : ");` `scanf ("%d", &sec);` `sec2 = sec % 60;` `min = sec / 60;` `hr = min / 60;` `min = min % 60;` `printf ("Time in HH:MM:SS form is as follows : %d:%d:%d", hr);` `printf ("%d:%d", min);` `printf ("%d", sec2);` `return 0;``}`

OUTPUT

Enter the time  $t_m$  seconds : 8638

Time  $t_m$  in HH : MM : SS form  $t_s$  as follows : 2 : 23 : 52

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→ PROGRAM 4

→ Prod the sum of the digits of a four-digit number  
(Ex 1234 ; sum=10) (without using a loop)

→ CODE :

#include &lt;stdio.h&gt;

Prot main()

{

int num, sum = 0;

printf ("Enter a 4-digit number of your choice: ");

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

sum = (num / 1000) + ((num % 100) / 10) + (((num / 100) % 10) +

((num / 10) % 10));

printf ("The sum of digits is: %d", sum);

return 0;

{

OUTPUT

Enter a 4-Digit number of your choice : 7056  
The sum of digits is : 18

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→ PROGRAM 5

→ write a program to convert temperature given in fahrenheit  
to centigrade and centigrade to fahrenheit.

$$\text{Hint: } c = \frac{5}{9} (F - 32).$$

→ CODE:

```
#include <stdio.h>
int main()
{
    float temp, tempconv;
    printf("----- MENU DRIVEN ----- \n");
    printf("1) To convert temperature in CENTIGRADE TO FAHRENHEIT\n");
    printf("2) To convert temp. in FAHRENHEIT TO CENTIGRADE\n");
    printf("----- ENTER YOUR CHOICE ----- \n");
    scanf("choice : ");
    if(choice == 1)
    {
        printf("Enter temperature in CENTIGRADE : ");
        scanf("%f", &temp);
        tempconv = ((9 * temp) + 160) / 5;
        printf("Temperature in FAHRENHEIT is : %f", tempconv);
    }
}
```

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else if (choice == 2)  
{

printf ("Enter the temperature ° in FAHRENHEIT: ");  
scanf ("%f", &temp);  
tempconv = (5 \* (temp - 32)) / 9;  
printf ("Temperature ° in CENTIGRADE is %f", tempconv);

{

return 0;

{

OUTPUT

- - - - - MENU DRIVEN - - - - -

- 1) To convert temperature  $^{\circ}\text{C}$  in CENTIGRADE TO FAHRENHEIT
- 2) To convert temperature  $^{\circ}\text{F}$  in FAHRENHEIT TO CENTIGRADE

choice : 1

Enter the temperature  $^{\circ}\text{C}$  in CENTIGRADE : 37.6

Temperature  $^{\circ}\text{F}$  in FAHRENHEIT is : 99.680000

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→ PROGRAM 6

→ write a program to convert distance from mm to cm, Inch, feet ( $1\text{cm} = 10\text{mm}$ ,  $1\text{inch} = 2.5\text{cm}$ ,  $1\text{feet} = 12\text{inches}$ ).

→ CODE :

```
#include <stdio.h>
#include <math.h>
main()
{
    double mm, mm2, cm, Inch, feet;
    printf ("Enter the desired length in mm: ");
    scanf ("%lf", &mm);
    mm2 = fmod (mm, 10.0);
    cm = mm / 10;
    Inch = cm / 2.5;
    cm = fmod (Inch, 12.0);
    printf ("Length in the form of FEET:INCH:CM:MM is
as follows : %f", feet);
    printf (" : %f", Inch);
    printf (" : %f", cm);
    printf (" : %f", mm2);
    return 0;
}
```

OUTPUT

Enter the desired length  $^{\circ}\text{m mm} : 16785$   
length  $^{\circ}\text{in the form of FEET".INCH;CM;MM is as follows:}$

$55.950000 : 11.400000 : 1.00000 : 5.00000$

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→ PROGRAM ?

→ Write a program to find out the distance between two points . E.g.  $(x_1, y_1)$  and  $(x_2, y_2)$ .

→ CODE :

```
#include <stdio.h>
main()
{
    double x1, x2, y1, y2, dis;
    printf ("Enter the x-coordinates of 1st point : ");
    scanf ("%lf", &x1);
    printf ("Enter the y-coordinates of 1st point : ");
    scanf ("%lf", &y1);
    printf ("Enter the x-coordinates of 2nd point : ");
    scanf ("%lf", &x2);
    printf ("Enter the y-coordinates of 2nd point : ");
    scanf ("%lf", &y2);
    dis = sqrt (pow ((x2-x1), 2) + pow ((y2-y1), 2));
    printf ("Distance between the coordinates is : %.2f", dis);
    return 0;
}
```

OUTPUT

Enter the x-coordinate of 1<sup>st</sup> point : 2

Enter the y-coordinate of 1<sup>st</sup> point : 0

Enter the x-coordinate of 2<sup>nd</sup> point : 6

Enter the y-coordinate of 2<sup>nd</sup> point : 0

Distance between the coordinates is : 4.000000

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→ PROGRAM - 8

→ Write a program to evaluate the area of the circle.  
 $(\text{Area} = \pi * r^2)$ 

→ CODE:

```
#include <stdio.h>
int main()
{
    double area, r;
    printf ("Enter the radius of the circle:");
    scanf ("%lf", &r);
    area = (22.0 / 7) * r * r;
    printf ("The area of the circle is %lf", area);
    return 0;
}
```

OUTPUT

Enter the radius of the circle : 5  
The area of the circle is : 78.571429

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→ PROGRAM 9:

→ Write a program to print exchange values of two variables using a third variable.

→ CODE:

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

```
prot main()
```

```
{
```

```
prot a, b, exc;
```

```
printf ("Enter the first number: ");
```

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

```
printf ("Enter the second number: ");
```

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

```
exc = a;
```

```
a = b;
```

```
b = exc;
```

```
printf ("Value after exchange in 1st variable: %d \n", a);
```

```
printf ("Value after exchange in 2nd variable: %d ", b);
```

```
return 0;
```

```
}
```

OUTPUT

Enter the First Number : 2

Enter the second Number : 7

Value after exchange in 1<sup>st</sup> variable : 7

Value after exchange in 2<sup>nd</sup> variable : 2

→ PROGRAM 10

→ write a program to interchange values of two variables without using a third variable.

→ CODE:

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

```
int main()
```

{

```
    int a, b;
```

```
    printf("Enter the first number: ");
```

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

```
    printf("Enter the second number: ");
```

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

```
    if (b > a)
```

{

```
        b = b - a;
```

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

```
        b = a - b;
```

}

```
    else if (a > b)
```

{

```
        a = a - b;
```

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

```
        a = b - a;
```

}

```
    printf("Value after exchange in 1st variable : %d\n", a);
```

```
    printf("Value after exchange in 2nd variable : %d\n", b);
```

```
    return 0;
```

{

OUTPUT

Enter the First Number : 3

Enter the second Number : 9

Value after exchange in 1st variable : 9

Value after exchange in 2nd variable : 3