

Q1. Check Whether a Character is a Vowel or Consonant (Using if).

PROGRAM:-

```
#include<stdio.h>

int main()
{
    char ch;

    printf("enter a character: ");

    scanf("%c",&ch);

    if(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u' || ch=='A' || ch=='E' || ch=='I' || ch=='O' || ch=='U')
    {
        printf("character is a vowel");
    }

    if(ch!='a'&& ch!='e'&& ch!='i'&& ch!='o'&& ch!='u'&& ch!='A'&& ch!='E'&& ch!='I'&& ch!='O'&& ch!='U')
    {
        printf("character is a consonant");
    }

    return 0;
}
```

OUTPUT:-

Enter a character: E

Character is vowel

Q2. Find Roots of a Quadratic Equation (Using else if ladder).

PROGRAM:-

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

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

```

int main() {

    double a, b, c, discriminant, root1, root2, realPart, imagPart;

    printf("Enter coefficients a, b and c: ");

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


    discriminant = b * b - 4 * a * c;

    if (discriminant > 0) {

        root1 = (-b + sqrt(discriminant)) / (2 * a);

        root2 = (-b - sqrt(discriminant)) / (2 * a);

        printf("root1 = %.2lf and root2 = %.2lf", root1, root2);

    }

    else if (discriminant == 0) {

        root1 = root2 = -b / (2 * a);

        printf("root1 = root2 = %.2lf;", root1);

    }


    else {

        realPart = -b / (2 * a);

        imagPart = sqrt(-discriminant) / (2 * a);

        printf("root1 = %.2lf+%.2lfi and root2 = %.2f-%.2fi", realPart, imagPart, realPart, imagPart);

    }


    return 0;}

```

OUTPUT:-

Enter coefficients a,b and c: 2 4 6

Root1= -1.00+41i and root2= -1.00-1.41i

Q3. Check Leap Year (Using if..else).

PROGRAM:-

```
#include <stdio.h>

int main()
{
    int y;

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

    if(y % 4 == 0)
    {

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

```
    return 0;
}
```

OUTPUT:-

Enter year:2021

2021 is not a leap year

Q4. check which number nearest to the value 100 among two given integers. Return 0 if the two numbers are equal. (Using nested if...else).

PROGRAM:-

```
#include<stdio.h>

int main()
{
    int a,b;
    int x=90;
    int y=50;
    a=100-x;
    printf("the value of a is %d\n",x);
    b=100-y;
    printf("the value of b is %d\n",y);

    if(a>=b){

        if(a>b)
        {
            printf("%d is nearest value of 100\n",y);
        }
        else
        {
```

```

        printf("return o\n");
    }
}
else
{
    printf("%d is nearest value of 100\n",x);
}
return 0;

}

```

OUTPUT:-

The value of a is 90

The value of b is 50

90 is nearest value of 100

Q5. check three given integers (small, medium and large) and return true if the difference between small and medium and the difference between medium and large is same. (Using nested if...else).

PROGRAM:-

```

#include<stdio.h>

int main()
{
    int a,b,c,largest,middle,smallest,dif1,dif2;

    printf("enter three numbers: ");

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

    if(a>=b && a>=c)
    {
        largest=a;

        if(b>c)

```

```
{
    middle=b;
    smallest=c;
}
else
{
    middle=c;
    smallest=b;
}
}
if(b>=a && b>=c)
{
    largest=b;
    if(a>c)
    {
        middle=a;
        smallest=c;
    }
    else
    {
        middle=c;
        smallest=a;
    }
}
if(c>=b && c>=a)
{
    largest=c;
```

```

        if(a>b)
        {
            middle=a;
            smallest=b;
        }
        else
        {
            middle=b;
            smallest=a;
        }
    }

    printf("largest no=%d middle no=%d smallest number=%d\n",largest,middle,smallest);

    dif1=middle-smallest;
    dif2=largest-middle;
    if(dif1==dif2)
    {
        printf("true\n");
    }
    else{
        printf("false\n");
    }

}

```

OUTPUT:-Enter three numbers: 10 20 30

Largest no=30 middle no=20 smallest no=10

True

Q6. Calculate and print the Electricity bill of a given customer. The customer id., name and unit consumed by the user should be taken from the keyboard and display the total amount to pay to the customer. The charge are as follow :

Unit	Charge/Unit
upto 199	@1.20
200 and above but less than 400	@1.50
400 and above but less than 600	@1.80
600 and above	@2.00

If bill exceeds Rs. 400 then a surcharge of 15% will be charged and the minimum bill should be of Rs. 100/- (Using else if ladder).

PROGRAM:-

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

```
void main()
```

```
{
```

```
    long cid;
```

```
    char name[50];
```

```
    float amount,unit;
```

```
    printf("Enter the name of the customer : ");
```

```
    gets(name);
```

```
    printf("Enter the customer ID : ");
```

```
    scanf("%ld",&cid);
```

```
    printf("Enter the number of units : ");
```

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

```
    if(unit<=199)
```

```
    {
```

```
        amount=unit*1.2;
```

```
    }
```

```
    else if(unit <400)
```

```
    {
```

```
        amount=unit*1.5;
```

```
    }
```



```

else if(unit <600)

{

    amount=unit*1.8;

}

else

{

    amount=unit*2;

}

if(amount<100){

amount=100;

}

if(amount>400){

amount+=0.15*amount;

}


printf("\n\nCUSTOMER ID : %ld\n",cid);

printf("CUSTOMER NAME : %s\n",name );

printf("UNITS : %0.2f\n",unit);

printf("AMOUNT : %0.2f",amount);

}

```

OUTPUT:-

Enter the name of the customer:sonali

Eter the customer ID: 00546

Enter the number of units:250

CUSTOMER ID:546

CUSTOMER NAME:Sonali

UNITS:250.00

AMOUNT:375

Q7. The marks obtained by a student in 3 different subjects are input by the user. Your program should calculate the average of subjects. The student gets a grade as per the following rules: (Using else if ladder).

Average	Grade
90-100	A
80-89	B
70-79	C
60-69	D
0-59	E

PROGRAM:-

```
#include<stdio.h>

void main()

{

int m1,m2,m3,avg;

printf("Enter the marks of 3 subjects : ");

scanf("%d %d %d",&m1,&m2,&m3);

avg=(m1+m2+m3)/3;

printf("Average : %d\n",avg);

if(avg>=90)

    printf("GRADE : A");

else if(avg>=80)

    printf("GRADE : B");

else if(avg>=70)

    printf("GRADE : C");

else if(avg>=60)

    printf("GRADE : D");

else

    printf("GRADE : F");
```

```
}
```

OUTPUT:-

Enter the marks of three subjects: 50 50 50

Average: 50

Grade: F

Q8. print total number of days in a month using switch case.

PROGRAM:-

```
#include<stdio.h>

int main()
{
    int m;

    printf("Enter the number of the month : \n 1-JANUARY\n2-FEBRUARY\n3-MARCH\n4-APRIL\n5-
MAY\n6-JUNE\n7-JULY\n8-AUGUST\n9-SEPTEMBER\n10-OCTOBER\n11-NOVEMBER\n12-
DECEMBER\n");

    scanf("%d",&m);

    switch(m){

        case 1:

        case 3:

        case 5:

        case 7:

        case 8:

        case 10:

        case 12:

            printf("NO OF DAYS = 31");

            break;
```

case 2:

```
printf("NO OF DAYS =28 (NORMAL YEAR) / 29 (LEAP YEAR)");
```

```
break;
```

case 4:

case 6:

case 9:

case 11:

```
printf("NO OF DAYS = 30");
```

```
break;
```

default:

```
printf("PLEASE ENTER A VALID OPTION");
```

```
}
```

```
return 0;
```

```
}
```

OUTPUT:-

Enter the number of the month:

1.JANUARY

2.FEBRUARY

3.MARCH

4.APRIL

5.MAY

6.JUNE

7.JULY

8.AUGUST

9.SEPTEMBER

10.OCTOBER

11.NOVEMBER

12.DECEMBER

5

NO. OF DAYS=31

Q9. create Simple Calculator using switch case.

PROGRAM:-

```
#include<stdio.h>

void main(){

int a,b,choice;

printf("Enter two numbers : ");

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

printf("\nEnter 1 for addition,2 for subtraction,3 for multiplication,4 for division\n");

scanf("%d",&choice);

switch(choice){

case 1:

    printf("The sum is %d",a+b);

    break;

case 2:

    printf("The difference is %d",a-b);

    break;

case 3:

    printf("The product is %d",a*b);

    break;

case 4:

    printf("The quotient is %d and remainder is %d ",a/b,a%b);

    break;

default:
```

```

printf("Please choose a valid option");
}
}

```

OUTPUT:-

Enter two numbers: 45 20

Enter 1 for addition,2 for subtraction,3 for multiplication,4 for division

2

The difference is 25.

Q10. . Prompts the user to enter grade. Your program should display the corresponding meaning of grade as per the following table (Using Switch Case).

GRADE	MEANING
A	Excellent
B	Good
C	Average
D	Deficient
F	Failing

PROGRAM:-

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

```
void main(){
```

```
char ch;
```

```
printf("Enter the grade : ");
```

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

```
switch(ch){
```

```
case 'a':
```

```
case 'A':
```

```
printf("Excellent");
```

```
break;
```

```
case 'b':  
case 'B':  
    printf("Good");  
    break;  
case 'c':  
case 'C':  
    printf("Average");  
    break;  
case 'd':  
case 'D':  
    printf("Deficient");  
    break;  
case 'f':  
case 'F':  
    printf("Failing");  
    break;  
default:  
    printf("INVALID GRADE");  
  
}  
}
```

OUTPUT:-Enter the grade :A

Excellent

Q11. Check whether a triangle is Equilateral, Isosceles or Scalene.

PROGRAM:-

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

```
void main()
```

```
{  
int s1,s2,s3;  
  
printf("Enter three sides of the triangle : ");  
  
scanf("%d %d %d",&s1,&s2,&s3);  
  
if(s1==s2){  
    if(s2==s3){  
        printf("It is an equilateral triangle.");  
    }  
    else{  
        printf("It is an isoceles triangle.");  
    }  
}  
  
else if(s3==s2){  
  
    printf("It is an isoceles triangle.");  
  
}  
  
else if(s3==s1){  
  
    printf("It is an isoceles triangle.");  
  
}  
else{  
    printf("It is a scalene triangle.");  
}  
}
```

OUTPUT:-

Enter the three sides of the triangle: 4 7 4

It is an isoscale triangle.

Q12. Check Whether a Number is Even or Odd.

PROGRAM:-

```
#include<stdio.h>

void main(){

int num;

printf("Enter a number : ");

scanf("%d",&num);

if(num%2==0){

printf("It is an even number.");

}

else{

printf("It is an odd number.");

}}
```

OUTPUT:- enter a number :6

It is a even number

Q13. Check Whether a Character is an Alphabet or not.

PROGRAM:-

```
#include<stdio.h>

void main()

{

char ch;

printf("Enter a character : ");

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

```

if((ch>=65 && ch<=90) || (ch>=97 && ch<=122)){
printf("It is an alphabet.");
}
else{
printf("It is not an alphabet");
}
}

```

OUTPUT:-

Enter a character :e

It is an alphabet

Q14. Find the Largest Number Among Three Numbers.

PROGRAM:-

```

#include<stdio.h>

void main(){
int a,b,c,largest;
printf("Enter three numbers : ");
scanf("%d %d %d",&a,&b,&c);
largest=a>b?(a>c?a:c):(b>c?b:c);
printf("%d is the largest.",largest);
}

```

OUTPUT:-

Enter three numbers: 4 7 9

9 is the largest

Q15. . find the larger from two given integers. However, if the two integers have the same remainder when divided by 5, then the return the smaller integer. If the two integers are the same, return 0.

PROGRAM:-

```

#include<stdio.h>

```

```

void main(){

int a,b,large,small;

printf("Enter 2 numbers : ");

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

if(a>b){

large=a;

small=b;

}

else if(b>a){

large=b;

small=a;

}

else{

printf("0");

return 0;

}

printf("The larger number is %d\nThe smaller number is %d\n",large,small);

if((a%5)==(b%5)){

printf("%d",small);

}

}

```

OUTPUT:-

Enter two number: 4 8

The larger number is 8

The smaller number is 4

Q16. . Find the eligibility of admission for a professional course based on the following criteria:

Eligibility Criteria : Marks in Maths ≥ 65 and Marks in Phy ≥ 55 and Marks in Chem ≥ 50 and Total in

all three subject ≥ 190 or Total in Maths and Physics ≥ 140 . Calculate the monthly telephone bills as per the following rule:

Minimum Rs. 200 for up to 100 calls.

Plus Rs. 0.60 per call for next 50 calls.

Plus Rs. 0.50 per call for next 50 calls.

Plus Rs. 0.40 per call for any call beyond 200 calls

PROGRAM:-

```
#include<stdio.h>

void main()
{
    int math,phy,chem,ncall,amount;

    printf("Enter the marks in Mathematics : ");
    scanf("%d",&math);
    printf("Enter the marks in Physics : ");
    scanf("%d",&phy);
    printf("Enter the marks in Chemistry : ");
    scanf("%d",&chem);

    if(math>=65 && phy>=55 && chem>=50 && ((math+phy+chem)>=190 || (math+phy)>=140))
        printf("You are eligible");
    else
        printf("You are not eligibile");

    printf("\n\nEnter the number of calls : ");
    scanf("%d",&ncall);

    if(ncall<=100){
        amount=200;
    }

    else if(ncall<=150){
        amount=200+(0.6*(ncall-100));
```

```

}

else if(ncall<=200){

amount=200+30+(0.5*(ncall-150));

}

else{

amount=200+30+25+(0.4*(ncall-200));

}

printf("Your telephone bill amount is : %d",amount);

}

```

OUTPUT:-

Enter the marks in mathematics:89

Enter the marks in physics:85

Enter the marks in chemistry:66

Enter the number of calls:59

Your telephone bill amount is : 200

Q17. Read temperature in centigrade and display a suitable message according to temperature state below :

Temp < 0 then Freezing weather

Temp 0-10 then Very Cold weather

Temp 10-20 then Cold weather

Temp 20-30 then Normal in Temp

Temp 30-40 then Its Hot

Temp >=40 then Its Very Hot.

PROGRAM:-

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

```
void main(){
```

```
int temp;
```

```

printf("Enter the temperature in celcius : ");

scanf("%d",&temp);

if(temp<0){

printf("Freezing Weather");}

else if(temp<10){

printf("Very Cold Weather");}

else if(temp<20){

printf("Cold Weather");}

else if(temp<30){

printf("Normal in temp");}

else if(temp<40){

printf("Its Hot");}

else{

printf("Its Very Hot");}

}

```

OUTPUT:-enter the temperature in celcius:54

Its very hot

Q18. check whether a number is positive, negative or zero using switch case.

PROGRAM:-

```

#include<stdio.h>

void main()

{

int num,num1;

printf("Enter a number : ");

scanf("%d",&num);

num1=num;

```

```

if(num>0)

    num=1;

else if(num<0)

    num=-1;

switch(num){

case 1:

    printf("It is positive.");

    break;

case -1:

    printf("It is negative");

    break;

case 0:

    printf("It is equal to 0");

    break;

}

}

```

OUTPUT:-

Enter a number :7

It is positive

Q19. print day of week name using switch case.

PROGRAM:-

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

```
void main(){
```

```
int day;
```

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

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

```
switch(day){
```

```
case 1:
```

```
    printf("MONDAY");
```

```
    break;
```

```
case 2:
```

```
    printf("TUESDAY");
```

```
    break;
```

```
case 3:
```

```
    printf("WEDNESDAY");
```

```
    break;
```

```
case 4:
```

```
    printf("THURSDAY");
```

```
    break;
```

```
case 5:
```

```
    printf("FRIDAY");
```

```
    break;
```

```
case 6:
```

```
    printf("SATURDAY");
```

```
    break;
```

```
case 7:
```

```
    printf("SUNDAY");
```

```
    break;
```

```
default:
```

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



```
}
```

```
}
```

OUTPUT:-

Enter the day number:6

SATURDAY