ASSIGNMENT-4

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

PROGRAM:

```
#include <stdio.h>
int main()
{
  char ch;
  printf("Please enter an alphabet:");
  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("%c is a Vowel", ch);

  else
  printf("%c is a Consonant", ch);

  return 0;
}
```

OUTPUT:

```
Please enter an alphabet:D
D is a Consonant
```

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

PROGRAM:

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

```
{
   int a, b, c, d;
   printf("Enter the value of a:");
   scanf("%d", &a);
   printf("Enter the value of b:");
   scanf("%d", &b);
   printf("Enter the value of c:");
   scanf("%d", &c);
   d = b * b - 4 * a * c;

   if (d > 0)
   printf("Roots are real & distinct");

   else if (d = = 0)
   printf("Roots are real & equal");

   else if (d < 0)
   printf("Roots are imarginary");

   return 0;
}
```

OUTPUT:

```
Enter the value of a:10
Enter the value of b:20
Enter the value of c:30
Roots are imarginary
```

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

PROGRAM:

```
#include <stdio.h>
int main()
{
  int year;
  printf("Enter year:");
  scanf("%d", &year);

  if (year % 4 == 0 && year % 100 != 0 || year % 400 == 0)
  printf("%d is a leap year", year);

  else
  printf("%d is not a leap year", year);

  return 0;
}
```

OUTPUT:

```
Enter year:2021
2021 is not a leap year
```

7. 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)

PROGRAM:

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

```
{
  int mark1,mark2,mark3;
  float average;
  printf("Enter marks in subject 1 :");
  scanf("%d", &mark1);
  printf("Enter marks in subject 2 :");
  scanf("%d", &mark2);
  printf("Enter marks in subject 3 :");
  scanf("%d", &mark3);
  average = (mark1 + mark2 + mark3) / 3;

  if (average >= 90)
  printf("Grade A");

  else if (average >= 80)
  printf("Grade B");

  else if (average >= 70)
  printf("Grade C");

   else if (average >= 60)
   printf("Grade D");

   else if (average >= 0)
   printf("Grade F");
```

OUTPUT:

Enter marks in subject 1 :50

Enter marks in subject 2 :80

Enter marks in subject 3 :100

Grade C

8. Print total number of days in a month using switch case.

PROGRAM:

```
#include <stdio.h>
int main()
{
  int month;
  printf("Enter a month between 1 to 12 :");
  scanf("%d", &month);

  switch(month)
   {
      case 1:
         printf("31 days");
         break;
      case 2:
         printf("28/29 days");
         break;
      case 3:
         printf("31 days");
         break;
      case 4:
```

```
    printf("30 days");
    break;
case 5:
    printf("31 days");
    break;
case 6:
    printf("30 days");
    break;
case 7:
    printf("31 days");
    break;
case 8:
    printf("31 days");
    break;
case 9:
    printf("30 days");
    break;
case 10:
    printf("31 days");
    break;
case 11:
    printf("30 days");
    break;
case 12:
    printf("31 days");
    break;
```

```
        default:
            printf(" Please enter a month between 1 to12");

    }

    return 0;
}
```

OUTPUT:

```
Enter a month between 1 to 12 :9
30 days
```

9. Create Simple Calculator using switch case.

PROGRAM:

```
#include <stdio.h>
int main()
{
    int a, b, num;
    printf("Enter the value of a:");
    scanf("%d", &a);
    printf("Enter the value of b:");
    scanf("%d", &b);
    printf("Enter number");
    scanf("%d", &num);

    switch (num)
    {
    case 1:
```

```
        printf("%d + %d = %d", a, b, a+b);
        break;
    case 2:
        printf("%d - %d = %d", a, b, a-b);
        break;
    case 3:
        printf("%d * %d = %d", a, b, a*b);
        break;
    case 4:
        printf("%d / %d = %d", a, b, a/b);
        break;

    default:
        printf("Please enter a number between 1 to 4");
    }

    return 0;
}
```

OUTPUT:

```
Enter the value of a:10
Enter the value of b:20
Enter number4
10 / 20 = 0
```

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

PROGRAM:

```
#include <stdio.h>
int main()
{
   char grade;
   printf("Enter the grade:");
   scanf("%c", &grade);

   switch (grade)
   {
   case 'A':
      printf("Excellent");
      break;
   case 'B':
      printf("Good");
      break;
   case 'C':
      printf("Average");
      break;
   case 'D':
      printf("Deficient");
      break;
   case 'F':
      printf("Failing");
      break;
```

```
    default:
        printf("Please enter a grade between A to F");
    }

    return 0;
}
```

OUTPUT:

Enter the grade:B

Good

4. 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 num1, num2, d1, d2;
    printf("Enter the first number:");
    scanf("%d", &num1);
    printf("Enter the second number:");
    scanf("%d", &num2);
    d1 = 100 - num1;
    d2 = 100 - num2;

    if(num1 > 0 && num2 > 0)
    {
        if(d1 < d2)
        printf("%d is nearest to 100", num1);
```

```
        else if(d1 == d2)
        printf("Return 0");

        else
        printf("%d is nearest to 100", num2);
    }

    return 0;
}
```

OUTPUT:

Enter the first number:80

Enter the second number:90

90 is nearest to 100

5. 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 small, medium, large, d1, d2;
    printf("Enter the small number:");
    scanf("%d", &small);
    printf("Enter the medium number:");
    scanf("%d", &medium);
    printf("Enter the large number:");
```

```
    scanf("%d", &large);
    d1 = medium - small;
    d2 = large - medium;
    if(small > 0 && medium > 0 && large > 0)
    {
    if(small < medium && medium < large)
      {
        if(d1 == d2)
        printf("Return 0");

        else
        printf("The difference between the numbers are not same");
      }
    }

    return 0;
}
```

OUTPUT:

```
Enter the small number:20
Enter the medium number:50
Enter the large number:100
The difference between the numbers are not same
```

6. 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.

PROGRAM:

```
#include <stdio.h>

int main(){

char id[50],name[50];
float unit,charge,scharge;

printf("Enter customer id :: ");
fgets(id, 50 ,stdin);

printf("Enter customer name :: ");
fgets(name,50,stdin);

printf("Enter the unit consumed by user :: ");
scanf("%f",&unit);

if(unit <= 199){
   charge = unit * 1.20 ;
}

else if(unit == 200 || unit < 400){
  charge = unit * 1.50 ;
```

```
}

else if(unit == 400 || unit <600){
    charge = unit * 1.80 ;
}

else {
    charge = unit * 2.00 ;
}

if(charge > 400){
    scharge = charge * 0.15 ;
    charge = charge + scharge;
    if(charge < 100){
        charge = 100;
    }
}

printf("Electricity bill \n");
printf("------------------\n");

printf("ID :: %s \n",id);
printf("------------------\n");
printf("Name :: %s \n",name);
printf("------------------\n");
printf("Bill amount to be paid :: %g \n",charge);
printf("------------------\n");
```

```
   return 0;
}
```

OUTPUT:

```
Enter customer id :: S20CTC
Enter customer name :: SOURAV
Enter the unit consumed by user :: 300
Electricity bill
-----------------
ID :: S20CTC

-----------------
Name :: SOURAV

-----------------
Bill amount to be paid :: 517.5
```