Assignment - 04

1.
```
#include <stdio.h>
int main()
{
  char c;
  int lowercase_vowel, uppercase_vowel;
  Printf("Enter an alphabet : ");
  Scanf("%c", &c);
  lowercase_vowel = (c == 'a' || c == 'e' || c == 'i' || c == 'o
                     c == 'u');
  uppercase_vowel = (c == 'A' || c == 'E' || c == 'I' || c == 'O
                     c == 'U');
  if (lowercase_vowel || uppercase_vowel)
      Printf("%c is a vowel.", c);
  else
      Printf("%c is a consonant.", c);
  return 0;
}
```

Output →

Enter an alphabet : G

G is a Consonant.

2.
```
#include <math.h>
#include <stdio.h>
int main()
{
    double a, b, c, discriminant, root1, root2, realpart,
                                                imgpart;
    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);
    }
```

output: Enter coefficients a, b and c: 2, 3, 4

5.6

root1 = -0.87 + 1.30i and root 2 = -0.87 - 1.30i

3.
```
#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 : 1991

1991 is not a leap year.

4. #include <stdio.h>
#include <stdlib.h>

```
int main (void)
{
printf ("%d", test (78, 95));
printf ("\n%d", test (95, 95));
printf ("\n%d", test (99, 70));
}
int test (int x, int y)
{
int n = 100;
int val = abs (x - n);
int val2 = abs (y - n);
return val == val2 ? 0 : (val1 < val2 ? x : y);
}
```

Output :

```
95
0
99
```

5. #include <stdio.h>

```
int main()
{
  int a, b, c;
  a = 11;
  b = 22;
  c = 33;
  if (a > b && a > c)
    Printf ("%d is the largest.", a);
  else if (b > a && b > c)
    printf ("%d is the largest.", b);
  else if (c > a && c > b)
    printf ("%d is the largest.", c);
  else
    printf (" values are n't unique");
  return 0;
```

output;

33 is the largest.

6.
```
#include <stdio.h>
#include <string.h>
void main ()
{
int custid, conu;
float chg, surchg = 0, gramt, netamt;
char connm [25];
Printf ("Input Customer ID:");
Scanf ("%d", &Custid);
Printf ("Input the name of the Customer:");
Scanf ("%s", Connm);
Printf ("Input the unit consumed by the Customer:");
Scanf ("%d", &conu);
if (conu < 200)
chg = 1.20;
else if (conu >= 200 && conu < 400)
chg = 1.50;
else if (conu >= 400 && conu < 600)
chg = 1.80;
else
chg = 2.00;
gramt = conu * chg;
if (gramt > 300)
surchg = gramt * 15 / 100.0;
netamt = 100;
Printf ("\n Electricity Bill \n");
Print f ("Customer IDNo : %d\n", Custid);
Print f ("Customer Name : %s \n", Connm);
Printf ("unit Consumed : %d \n", Conu);
```

```
Printf ("Amount charges @Rs. %.4.2f per unit : %.8.2f \n",
                                    chg, gramt);
Printf ("surchage Amount %.8.2f \n", surchg);
Printf ("Net Amoungt paid By the Customer :
                                    %.8.2f \n", netamt);
{
```

output :

```
Input customer ID : 10001
Input the name of the Customer : James
Input the unit consumed by the Customer : 800
Electricity Bill :
Customer IDNO : 10001
Customer Name : James
unit consumed : 800
Amount charges @ Rs. 2.00 per unit.
Surchage Amount : 240.00
Net Amount paid by the Customer : 1840.00.
```

7.

```
#include <stdio.h>
int main ( )
{
Float mark1, mark2, mark3, average;
Printf ("Enter marks obtained in subject 1:");
Scanf ("%f", &mark1);
Printf ("Enter marks obtained in subject 2:");
Scanf ("%f", &mark2);
Printf ("Enter marks obtained in subject 3:");
Scanf ("%f", &mark3);
average = (mark1 + mark2 + mark3) / 3;
Printf ("Average: %.0.2f\n", average);
if (average >= 90)
 {
   printf ("Grade A");
 }
else if (average >= 80)
{ printf ("Grade B");
}else if (average >= 70)
 { printf ("Gradee");
{
else if (average >= 60)
 { printf ("Grade D");
}
else
{
  printf ("Grade F");
}
return 0;
}
```

Output :→

Enter marks obtained in subject 1 : 45

Enter marks Obtained in subject 2 : 58

Enter marks obtained in subject 3 : 78

~~Avg~~ Avercage : 60.33

Grade D.

8.
```
#include <stdio.h>
int main()
{ int month;
Printf ("enter month number (1-12): ");
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 ("Invalid input! Please enter month number
            between 1-12");
  }
  return 0;
}
```

Output: Enter month number (1-12) : 3

31 days.

9.
```
#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;
  default:
    printf("Error! operator is not correct");
 }
 return 0;
}
```

Output :→

a. Enter an operator (+, -, *, /) : *

Enter two operands : 1.5

4.5

1.5 * 4.5 = 6.8

10. #include <stdio.h>
#include <ctype.h>
#include <string.h>
void main()
{
char notes[15];
char grd;
printf("Input the grade:");
scanf("%c", &grd);
grd = toupper(grd);
switch(grd)
{
case 'E':
strcpy(notes, "Excellent");
break;
case 'V':
strcpy(notes, "very good");
break;
case 'G':
strcpy(notes, "Good");
break;
case 'A':
strcpy(notes, "Average");
break;
case 'F':
strcpy(notes, "fails");
break;
default:
strcpy(notes, "Invalid Grade found\n");

```
    break;
  }
  printf("you have choosen : %s\n", notes);
}
```

output :→

Input the grade : A

You have choosen : Average.