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21053439
CSE
LAB Assignment 4

1. Given three real numbers a, b, and c by a user, check and display whether is it possible to form a triangle with length of sides being a, b, c. If possible, then report further the nature of the triangle: equilateral, isosceles, or scalene.

Program:-

```
#include<stdio.h>

int main(){
        int a3439 , b3439  , c3439 ;
        printf("\n\nEnter length of three sides of triangle : ");
        scanf("%d %d %d",&a3439 ,&b3439 ,&c3439);
        if ((a3439 + b3439 > c3439) && (b3439 + c3439 > a3439) && (a3439 + c3439 > b3439))
{
      printf("Triangle is formed\n");
      if(a3439 == b3439 && b3439 == c3439) {
         printf("it is an equilateral triangle\n\n");
      }
      else if(a3439 == b3439 || b3439 == c3439 || c3439 == a3439){
         printf("it is an isosceles triangle\n\n");
      }
      else{
         printf("it is a scalene triangle\n\n");
      }
         }
         else{
                printf("triangle can not be formed\n\n");
         }
         return 0;
}
```

Output:-

```
Enter length of three sides of triangle : 5
6
7
Triangle is formed
it is a scalene triangle

PS C:\Users\Prasanna Dhungana\OneDrive\Desktop\2nd sem\21053439_A28\LAB05> c
cc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunner


Enter length of three sides of triangle : 80
5
6
triangle can not be formed
```

2. Write a C program to display the grade system of KIIT University based on total marks secured by a student in a semester. Assume marks are integer values. Use if-else ladder statement. The grading scheme is as follows:
Grading Rule: 90 – 100: Grade O, 80 – 89: Grade E, 70 – 79: Grade A, 60 – 69: Grade B, 50 – 59: Grade C, 40 – 49: Grade D, below 40: Grade F.

Program:-

```
#include<stdio.h>

int main(){
        int mark3439;
        printf("\n\nEnter your mark secured in the exam :");
        scanf("%d", &mark3439);
        if (mark3439 <=100 && mark3439>=90){
                printf("You obtained Grade O.\n\n");
        }
        else if(mark3439 <=89 && mark3439>=80){
                printf("You obtained Grade E.\n\n");
        }
        else if(mark3439 <=79 && mark3439>=70){
    printf("You obtained Grade A.\n\n");
    }
        else if(mark3439 <=69 && mark3439>=60){
    printf("You obtained Grade B.\n\n");
    }
        else if(mark3439 <=59 && mark3439>=50){
    printf("You obtained Grade C.\n\n");
    }
        else if(mark3439 <=49 && mark3439>=40){
    printf("You obtained Grade D.\n\n");
    }
        else if(mark3439 <=39 && mark3439>=0){
                printf("You obtained Grade F.\n\n");
        }
  else{
    printf("Invalid Marks");
  }
        return 0;
}
```

Output:-

```
_2_Grading.c -o LA5_2_Grading } ; if ($?) { .\LA5_2_Grading }


Enter your mark secured in the exam :55
You obtained Grade C.

PS C:\Users\Prasanna Dhungana\OneDrive\Desktop\2nd sem\21053439_A28\LAB05> cd "
cc LA5_2_Grading.c -o LA5_2_Grading } ; if ($?) { .\LA5_2_Grading }


Enter your mark secured in the exam :69
You obtained Grade B.

PS C:\Users\Prasanna Dhungana\OneDrive\Desktop\2nd sem\21053439_A28\LAB05>
```

3. Write a C program to display the names and number of days of a calendar month given the number of the month in the calendar. Use switch statement.

Program:-

```
#include<stdio.h>

int main(){
        int mon3439;
        printf("\n\nEnter any number(1-12):");
        scanf("%d",&mon3439);
      switch(mon3439){
                case 1 : printf("The month is January and no. of days = 31\n\n\n\n");
                         break;
                case 2 : printf("The month is february and no. of days = 28\n\n");
                 break;
                case 3 : printf("The month is March and no. of days = 31\n\n");
                 break;
                case 4 : printf("The month is April and no. of days = 30\n\n");
                 break;
                case 5 : printf("The month is May and no. of days = 31\n\n");
                 break;
                case 6 : printf("The month is June and no. of days = 30\n\n");
                 break;
                case 7 : printf("The month is July and no. of days = 31\n\n");
                 break;
                case 8 : printf("The month is August and no. of days = 31\n\n");
                 break;
                case 9 : printf("The month is September and no. of days = 30\n\n");
                 break;
                case 10 : printf("The month is October and no. of days = 31\n\n");
                 break;
                case 11 : printf("The month is November and no. of days = 30\n\n");
                 break;
                case 12 : printf("The month is December and no. of days = 31\n\n");
                 break;
                default : printf("invalid input! Input should be between 1-12\n\n");
                }
        return 0;
}
```

Output:-

```
Enter any number(1-12):5
The month is May and no. of days = 31

PS C:\Users\Prasanna Dhungana\OneDrive\Desktop\2nd sem\2105343
cc LA5_3_Month.c -o LA5_3_Month } ; if ($?) { .\LA5_3_Month }


Enter any number(1-12):22
invalid input! Input should be between 1-12

PS C:\Users\Prasanna Dhungana\OneDrive\Desktop\2nd sem\2105343
```

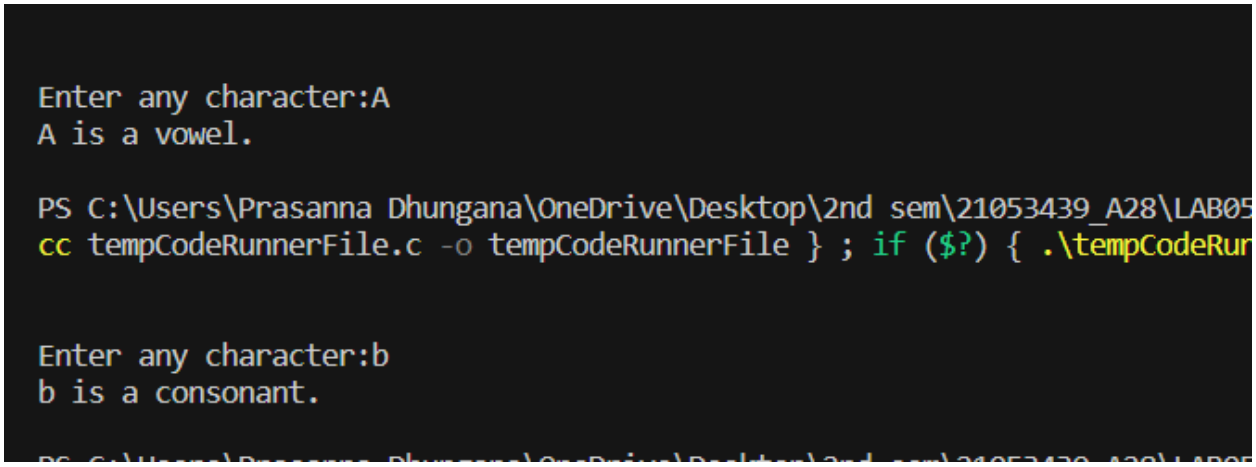
4. Write a C program to display whether a given character is vowel or consonant using switch statement.

Program:-

```
#include<stdio.h>

int main(){
   char ch3439;
   printf("\n\nEnter any character:");
   scanf("%c",&ch3439);
   if ((ch3439>='A' && ch3439<='Z') || (ch3439 >= 'a' &&ch3439 <='z' )){
      switch(ch3439){
         case 'A' : printf("%c is a vowel.\n\n",ch3439);
            break;
         case 'E' : printf("%c is a vowel.\n\n",ch3439);
            break;
         case 'I' : printf("%c is a vowel.\n\n",ch3439);
            break;
         case 'O' : printf("%c is a vowel.\n\n",ch3439);
            break;
         case 'U' : printf("%c is a vowel.\n\n",ch3439);
            break;
         case 'a' : printf("%c is a vowel.\n\n",ch3439);
            break;
         case 'e' : printf("%c is a vowel.\n\n",ch3439);
            break;
         case 'i' : printf("%c is a vowel.\n\n",ch3439);
            break;
         case 'o' : printf("%c is a vowel.\n\n",ch3439);
            break;
         case 'u' : printf("%c is a vowel.\n\n",ch3439);
            break;
         default : printf("%c is a consonant.\n\n",ch3439);
         }
   }
   else{
      printf("It is not a letter.\n\n");
   }
   return 0;
}
```

Output:-


Enter any character:A
A is a vowel.
PS C:\Users\Prasanna Dhungana\OneDrive\Desktop\2nd sem\21053439_A28\LAB05
cc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRun
Enter any character:b
b is a consonant.

5. Write a program in C to calculate and print the Electricity bill of a given customer. The unit consumed by the user should be taken from the keyboard and display the total amount to pay to the customer. The unit charges and the billing rule are as follows: Unit Charges: unit ≤ 149: @INR 2.00; 150 ≤ unit < 300: @INR 3.00; 300 ≤ unit ≤ 600: @INR 4.00; unit ≥ 600: @INR 5.00. If the bill exceeds Rs. 500 then a surcharge of 25% will be charged and the minimum bill should be of INR 150/-.

Program:-

```
#include<stdio.h>

int main(){
   int units3439 ;
   float charges3439=0;
   printf("\n\nEnter the number of units consumed by the customer : ");
   scanf("%d", &units3439);
   if (units3439 <= 149){
      charges3439 = units3439 * 2;
   }
   else if(units3439>=150 && units3439<=299){
      charges3439 = (2 * 149) + (3 * (units3439 - 149));
   }
   else if(units3439>=300 && units3439<=599){
      charges3439 = (2 * 149) + (3 * (150)) + (4 * (units3439 - 299));
   }
   else {
      charges3439 = (2 * 149) + (3 * (150)) + (4 * (300))+(5 * (units3439 - 599));
   }
   if (charges3439 <= 150){
      charges3439 = 150;
      printf("The minimum charge for electricity usuage is Rs. %.3f .\n\n ", charges3439);
   }
   else if (charges3439 > 150 && charges3439 <= 500 ){
      printf("The total charge for electricity usuage is Rs. %.3f . \n\n",charges3439);
   }
   else if (charges3439 > 500){
      charges3439 += (0.25 * charges3439);
      printf("The total charge for electricity usuage with surcharge of 25%% is Rs. %.3f .\n\n:",
charges3439);
   }
   return 0;
}
```

Output:-

```
PS C:\Users\Prasanna Dhungana\OneDrive\Desktop\2nd sem\21053439_A28> cd "c:\Users\Prasanna Dhung
_5_ElectricityBill.c -o LA5_5_ElectricityBill } ; if ($?) { .\LA5_5_ElectricityBill }


Enter the number of units consumed by the customer : 71
The minimum charge for electricity usuage is Rs. 150.000 .


PS C:\Users\Prasanna Dhungana\OneDrive\Desktop\2nd sem\21053439_A28\LAB05> cd "c:\Users\Prasanna
cc LA5_5_ElectricityBill.c -o LA5_5_ElectricityBill } ; if ($?) { .\LA5_5_ElectricityBill }


Enter the number of units consumed by the customer : 160
The total charge for electricity usuage is Rs. 331.000 .

PS C:\Users\Prasanna Dhungana\OneDrive\Desktop\2nd sem\21053439_A28\LAB05> cd "c:\Users\Prasanna
cc LA5_5_ElectricityBill.c -o LA5_5_ElectricityBill } ; if ($?) { .\LA5_5_ElectricityBill }


Enter the number of units consumed by the customer : 250
The total charge for electricity usuage with surcharge of 25% is Rs. 751.250 .

:
PS C:\Users\Prasanna Dhungana\OneDrive\Desktop\2nd sem\21053439_A28\LAB05> cd "c:\Users\Prasanna
cc LA5_5_ElectricityBill.c -o LA5_5_ElectricityBill } ; if ($?) { .\LA5_5_ElectricityBill }


Enter the number of units consumed by the customer : 670
The total charge for electricity usuage with surcharge of 25% is Rs. 2878.750 .

:
PS C:\Users\Prasanna Dhungana\OneDrive\Desktop\2nd sem\21053439_A28\LAB05>
```

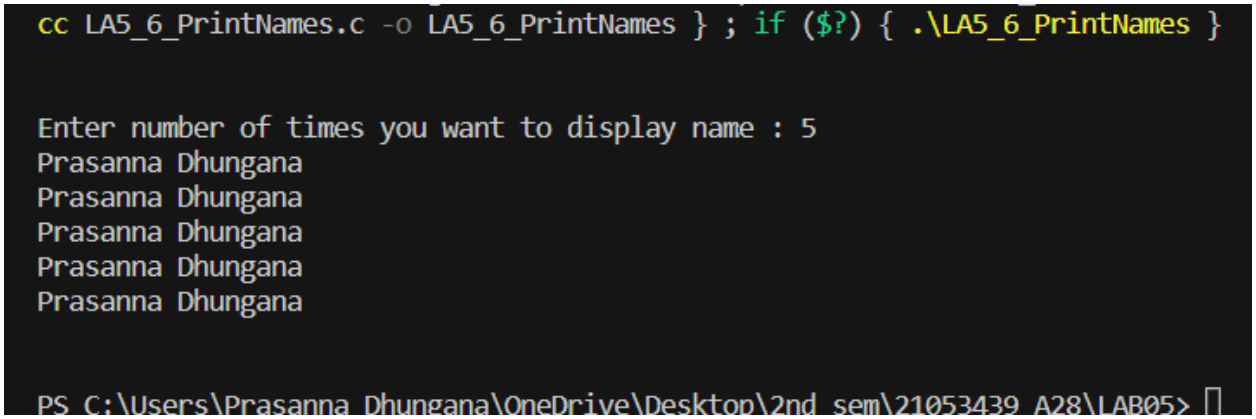
6. Write a program in C to input any integer and print your name that many times using a while statement.

Program:-

```
#include<stdio.h>

int main(){
   int num3439;
   printf("\n\nEnter number of times you want to display name : ");
   scanf("%d", &num3439);
   while (num3439 != 0){
      printf("Prasanna Dhungana\n");
      num3439 -=1;
   }
   printf("\n\n");
   return 0;
}
```

Output:-



7. Write a program in C to calculate the factorial of a given number using while statement.

Program:-

```
#include<stdio.h>

int main(){
    int num3439, factorial3439 = 1 , iter3439;
    printf("\n\nEnter a number to get the factorial : ");
    scanf("%d", &num3439);
    iter3439 = num3439;
    if (num3439 ==0){
        factorial3439 = 1;
        printf("factorial of the number %d is %d\n\n", num3439 , factorial3439);
    }
    else if (num3439 >0){
        while (iter3439 != 0){
            factorial3439 *=iter3439;
            iter3439 -=1;
    }
        printf("factorial of the number %d is %d\n\n", num3439 , factorial3439);
    }
    else{
        printf("Invalid Input!");
    }
    return 0;
}
```

Output:-

```
Enter a number to get the factorial : 4
factorial of the number 4 is 24

PS C:\Users\Prasanna Dhungana\OneDrive\Desktop\2nd sem\21053439_A28\LAB05>
cc LA5_6_PrintNames.c -o LA5_6_PrintNames } ; if ($?) { .\LA5_6_PrintNames


Enter a number to get the factorial : 5
factorial of the number 5 is 120

PS C:\Users\Prasanna Dhungana\OneDrive\Desktop\2nd sem\21053439_A28\LAB05>
```

8. Write a program in C to calculate the sum of digits of a given number using a while statement.

Program:-

```
#include<stdio.h>

int main(){
   int num3439, sum3439 = 0 , iter3439;
   printf("\n\nEnter a integer to get the sum of its digit : ");
   scanf("%d", &num3439);
   iter3439 =num3439;
   while (iter3439 != 0){
      sum3439 +=(iter3439%10);
      iter3439 /=10;
   }
   printf("Sum of the digits in the number %d is %d .\n\n", num3439 , sum3439);
   return 0;
}
```

Output:-

```
_8_SumOfDigits.c -o LA5_8_SumOfDigits } ; if ($?) { .\LA5_8_SumOfDigits }


Enter a integer to get the sum of its digit : 259
Sum of the digits in the number 259 is 16 .

PS C:\Users\Prasanna Dhungana\OneDrive\Desktop\2nd sem\21053439_A28\LAB05> cd "c:\Us
cc LA5_8_SumOfDigits.c -o LA5_8_SumOfDigits } ; if ($?) { .\LA5_8_SumOfDigits }


Enter a integer to get the sum of its digit : 364
Sum of the digits in the number 364 is 13 .
```