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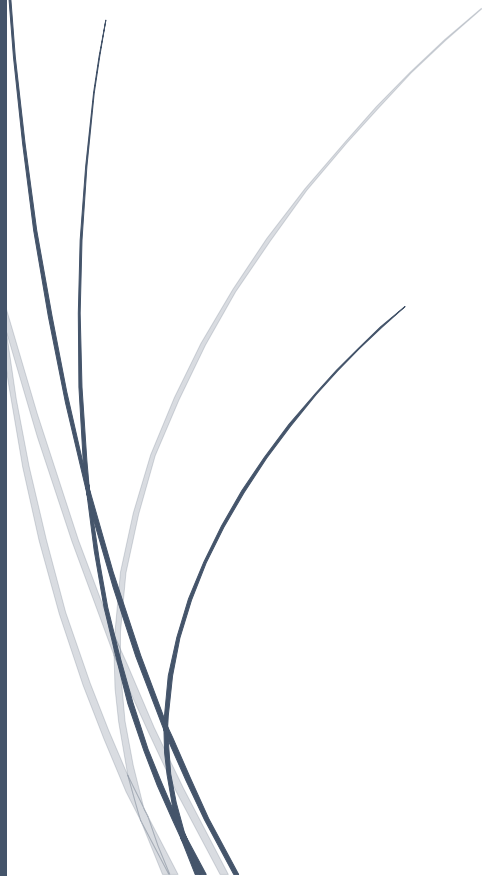
PF Lab Assignment

Lab#05

Abdullah Shafiq
22K-4489



TASK 01

Write a C program to check whether a number is multiple of 3 or not. If it is then print “This number is multiple of 3”, otherwise print “This number is not multiple of 3”.

PROGRAM & OUTPUT:

```c
#include<stdlib.h>
int main()
{
    int x;
    printf("Number: ");
    scanf("%d",&x);

    if(x%3==0)
    printf("Number is multiple of 3");
    else
    printf("Number is not multiple of 3");
}
```

```
Number: 90
Number is multiple of 3
--------------------------------
Process exited after 5.404 seconds with return value 0
Press any key to continue . . .
```

TASK 02

Write a program to see greeting according to time using 24-hour format if time between is 5 to 11 it should greet “Good Morning”, if time is between 12 to 18 it should greet “Good Evening”, if time between 18 to 24 it should greet “Good Night”.

PROGRAM & OUTPUT:

```c
#include<stdio.h>

int main()
{
   int x;
   printf("Enter 24-hour format time: ");
   scanf("%d",&x);
   if(x>=5&&x<=11)
   printf("Good Morning");
   else if(x>=12&&x<=18)
   printf("Good Evening");
   else if(x>18&&x<=24)
   printf("Good Night");
```

```
Enter 24-hour format time: 16
Good Evening
--------------------------------
Process exited after 7.311 seconds with return value 0
Press any key to continue . . .
```

TASK 03

You must have seen the question before deleting anything like “Are you sure to delete [Y/y] / [N/n]? Create a program that asks for this question if user enters Y or y it prints “Deleted successfully” if the user enters N or n it prints “Delete cancelled” otherwise it prints choose the right option using switch statement.

PROGRAM & OUTPUT:

```c
#include<stdlib.h>
int main()
{
   char option;
   printf("are you sure to delete\n");
   scanf("%ch",&option);

   switch(option)
   {
   case 'y':
   case 'Y':
   printf("Deleted successfully");
   break;

    case 'N':
    case 'n':
    printf("Delete cancelled");
    break;

    default:
    printf("invalid input");
   }

}
```

```
are you sure to delete
y
Deleted successfully
--------------------------------
Process exited after 2.863 seconds with return value 0
Press any key to continue . . .
```

TASK 04

Create a calculator asking for operator (+ or – or * or /) and operands and perform calculation according to the user input using switch statement.

PROGRAM & OUTPUT:

```c
#include<stdio.h>
int main()
{
    float x,y,sum,sub,mul,div;
    char operator;
    printf("\nEnter Operator: ");
    scanf("%c",&operator);
    printf("Enter 1st Number: ");
    scanf("%f",&x);
    printf("Enter 2nd Number: ");
    scanf("%f",&y);

    switch (operator)
    {
    case'+':
    sum=x+y;
    printf("%.1f ADDED",sum);
    break;
    case'-':
    sub=x-y;
    printf("%.1f SUBTRACTED",sub);
    break;
    case'*':
    mul=x*y;
    printf("%.1f MULTIPLYED",mul);
    break;
    case'/':
    div=x/y;
    printf("%.1f DIVIDED",div);
    break;
    }
}
```

```
Enter Operator: +
Enter 1st Number: 4
Enter 2nd Number: 6
10.0 ADDED
--------------------------------
Process exited after 6.332 seconds with return value 0
Press any key to continue . . .
```

TASK 05

Write a C program to input a character from user and check whether given character is small alphabet, capital alphabet, digit or special character, using if else.

PROGRAM & OUTPUT:

```c
#include<stdio.h>

int main()
{
    char ch;
    printf("Enter A Alphabet: ");
    scanf("%c",&ch);

    if (ch>=65 && ch<=90)
    printf("%c is CAPITAL",ch);


    else
    {

    if (ch>=97 && ch<=122)

    {printf("%c is SMALL",ch);}


    if(ch>=48 && ch<=57)
    {printf("%c is DIGIT",ch);}


    else
    {printf("%c is SPECIAL",ch);}

    }

}
```

```
Enter A Alphabet: *
* is SPECIAL
--------------------------------
Process exited after 5.781 seconds with return value 0
Press any key to continue . . .
```

TASK 06

Create a program that requests a person's NIC number in order to register them in a government housing scheme option. If no NIC number is provided, the message "The person does not want the scheme" should be displayed. If NIC is entered, a String stating "The person on the registered NIC has been included in the government scheme" should be provided.

PROGRAM & OUTPUT:

```c
#include<stdlib.h>
int main()
    {
    char a,y;
    int x;
    printf("Want to register[Y/y] / [N/n] ?\n");
    scanf("%c",&a);
    if (a=='y')
    {
    printf("Enter your NIC: ");
    scanf("%d",&x);
    printf("\nThe person on the registered NIC has been included in the government scheme");
    }
    else
    printf("The person does not want the scheme");
}
```

```
Want to register[Y/y] / [N/n] ?
y
Enter your NIC: 4230161262441

The person on the registered NIC has been included in the government scheme
--------------------------------
Process exited after 15.35 seconds with return value 0
Press any key to continue . . .
```

TASK 07

An online shopping store is providing discounts on the items due to the Eid. If the cost of items is more than 1999 it will give a discount up to 50%. If the cost of shopping is 2000 to 4000, a 20% discount will be applied. If the cost of shopping is 4001 to 6000, a 30% discount will be applied. If it's more than 6000 then 50% discount will be applied to the cost of shopping. Print the actual amount, saved amount and the amount after discount.

PROGRAM & OUTPUT:

```
#include<stdlib.h>
int main()
{
    float i,s,d,p,y,c;
    printf("Cost of Items: ");
    scanf("%f",&i);
    printf("shipping Price: ");
    scanf("%f",&s);
    if (i>=1999){
    y=0.5;
    d=i*y;
    c=i-d;
    printf("\nYOU GOT 50 off on Items");
    printf("\n%.1f is discount price",d);
    printf("\n%.1f is cost price",c);
    }else printf("\nNo Discount on Items");
    if(s>=2000&&s<=4000)
    {   y=0.2;
    d=s*y;
    c=s-d;
    printf("\n\nYOU GOT 20 off on shopping");
    printf("\n%.1f is discount price",d);
    printf("\n\n%.1f is cost price",c); }
    else
    {   if (s>=4001&&s<=6000)
        {y=0.3;
        d=s*y;
        c=s-d;
        printf("\n\nYOU GOT 30 off on shopping");
        printf("\n%.1f is discount price",d);
        printf("\n\n%.1f is cost price",c); }
        else
        { if(s>6000)
        y=0.5;
        d=s*y;
        c=s-d;
        printf("\n\nYOU GOT 50 off on Shopping");
    }
```

```
Cost of Items: 2500
shipping Price: 4500

YOU GOT 50 off on Items
1250.0 is discount price
1250.0 is cost price

YOU GOT 30 off on shopping
1350.0 is discount price

3150.0 is cost price
--------------------------------
```

TASK 08

An android developer wants to design a mobile feature to control the brightness of the mobile phone according to the surrounding light. In order to do it he uses an ambient light sensor (for the detection of surrounding light) which is commonly built in in all latest android phones. It gives the value of light intensity in integers. Write a C program for Light sensor value ranges from 0-1000, if it's exposed under sunshine (>500), if it's evening then (0 ~ 100), lighting (100 to 500).

PROGRAM & OUTPUT:

```c
#include<stdlib.h>
int main()
{
    int x;
    printf("Enter the light intensity: ");
    scanf("%d",&x);

    if (x>=0&&x<=100)
    {
        printf("it's evening");
    }
    else
    {
        if(x>=101&&x<=500)
        printf("lighting");
        else
        printf("it's exposed under sunshine");
    }
}
```

```
Enter the light intensity: 456
lighting
--------------------------------
Process exited after 4.522 seconds with return value 0
Press any key to continue . . .
```

TASK 09

Write a C program to find all roots of a quadratic equation, it is required to take user input for a, b and c values. Find discriminant using formula

$$\text{discriminant} = (b \times b) - (4 \times a \times c)$$

Compute roots based on the nature of discriminant.

PROGRAM & OUTPUT:

```c
#include <stdlib.h>
#include <math.h>
int main()
{
    int a,b,c;
    printf("Values of \"a\",\"b\",\"c\": \n");
    scanf("%d %d %d",&a,&b,&c);

    b=-1*b;
    float d=(b*b)-4*a*c;
    d=sqrt(d);
    float x=(b-d)/2;
    float y=(b+d)/2;

    printf(" x=%.1f\n x=%.1f",x,y);

    //discriminat
    d=(b*b)-4*a*c;
    if (d==0)
    printf("\nRoots are real and equal");
    else
    {
        if (d<0)
        printf("\nRoots are Imiginary");

        else
        {
            if (sqrt(d)==0)
            printf("\nRoots are perfect");

            else
            printf("\nRoots are real and unequal");
        }
    }

}
```

```
Values of "a","b","c":
3
4
2
 x=-1.$
 x=-1.$
Roots are Imiginary
--------------------------------
```