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PF lab Assignment

Lab#06

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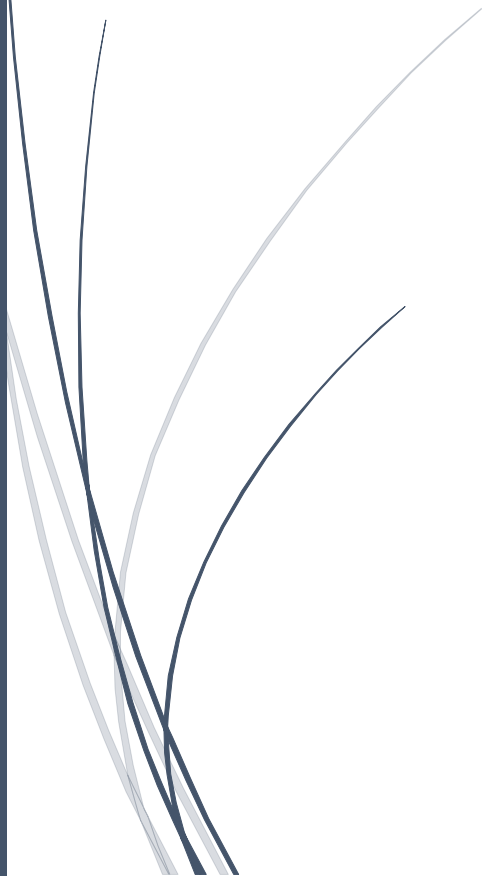

Task 01

Find out the given number is even or not using Ternary Operator in C.

PROGRAM & OUTPUT:

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


    (num % 2 == 0?printf("%d is even.", num):printf("%d is odd.", num));

    return 0;
}
```

```
Enter an integer: 67
67 is odd.
--------------------------------
```

Task 02

Write a program to find the greatest number among three numbers using nested if else.

PROGRAM & OUTPUT:

```c
#include <stdio.h>
int main()
{
    int x,y,z;
    printf("Enter 3 NUMBERS: ");
    scanf("%d %d %d",&x,&y,&z);
    if(x>y)
    {
    printf("%d is gretaer",x);
    }
    else if(y>z)
    {
    printf("%d is gretaer",y);
    }
    else if (z>x)
    {
    printf("%d is gretaer",z);
    }

}
```

```
Enter 3 NUMBERS: 5
6
7
7 is gretaer
--------------------------------
```

Task 03

Rewrite the following program segment using the if-else statements instead of the ternary operator.
String grade = (mark >= 90) ? “A” : (mark >= 80) ? “B” : “C”;

PROGRAM & OUTPUT:

```c
#include <stdio.h>
int main()
{
    int marks;
    printf("Enter marks B/W 80_100\n");
    scanf("%d",&marks);
    if(marks>=90)
    {
        printf("Grade A");
    }
    else if(marks>=80)
    {
        printf("Grade B");
    }
    else if(marks<=89)
    {
        printf("Grade B");
    }
}
```

```
Enter marks B/W 80_100
87
Grade B
--------------------------------
```

Task 04

A restaurant named Sandwiches Town makes sandwiches. You order a sandwich and you're asked what kind of sandwich you would like: chicken, beef or vegetarian. You select vegetarian and you're asked to select from a choice of three vegetarian combinations:

PROGRAM & OUTPUT:

```c
#include <stdio.h>
int main()
{
    char x;
    printf("select\n c for CHICKEN\n b for BEEF\n v for VEGTERAIN\n");
    scanf("\n%c",&x);
    if(x=='v')
    {
       char y;
       printf("select\n T for Tomato and mozzarella\n E for Eggplant and parmesan\n C for Cucumber and Swiss cheese\n");
       scanf("\n%c",&y);
       if(y=='T')
       {
       printf("\nTomato and mozzarella");}
       if(y=='E')
       {
       printf("\nEggplant and parmesan");}
       if(y=='C')
       {
       printf("\nCucumber and Swiss cheese");}
    }
    else
    {
        printf("THANKYOU");
    }
}
```

```
select
 c for CHICKEN
 b for BEEF
 v for VEGTERAIN
v
select
 T for Tomato and mozzarella
 E for Eggplant and parmesan
 C for Cucumber and Swiss cheese
E

Eggplant and parmesan
--------------------------------
```

Task 05

A leap year is a year that has 366 days, instead of 365 days. It has one day extra in the month of February. Leap years occur once in 4 years, so any year that is completely divisible by four should be a leap year. But this is not always true. If there is some year and it is divisible by hundred, it will be a leap year only if it is also divisible by four hundred. Given a year, check if it a leap year or not using nested if else statement.

PROGRAM & OUTPUT:

```c
#include <stdio.h>
int main()
{
    int x;
    printf("enter a Year:");
    scanf("%d",&x);
    if(x%4==0)
    {
        printf("%d Year is LEAP",x);
    }
    else if(x%400==0)
    {
        printf("%d Year is LEAP",x);
    }
    else
    {
        printf("%d Year is not LEAP",x);
    }
}
```

```
enter a Year:678
678 Year is not LEAP
--------------------------------
```

Task 06

Check whether the triangle is equilateral, scalene, or isosceles.

PROGRAM & OUTPUT:

```c
#include <stdio.h>
int main()
{
    int a,b,c;
    printf("Enter Three Sides of triangle\n");
    scanf("\n%d",&a);
    scanf("\n%d",&b);
    scanf("\n%d",&c);
    if (a==b)
    {
        if(b==c)
        {
            if(c==a)
            {
                printf("Equilateral triangle");
            }
        }
    }
    else if (b==c)
    {
        printf("Isosceles triangle");
    }
    else if(c==a)
    {
        printf("Isosceles triangle");
    }
        else if(a==b)
    {
        printf("Isosceles triangle");
    }
    else
    {
        printf("Scalene triangle");
    }
}
```

```
Enter Three Sides of triangle
4
5
6
Scalene triangle
--------------------------------
```

```
Enter Three Sides of triangle
7
7
7
Equilateral triangle
--------------------------------
```

```
Enter Three Sides of triangle
6
7
7
Isosceles triangle
--------------------------------
```

Task 07

Write a program to control a coffee machine. Allow the user to input the type of coffee as B for Black and W for White Ask the user if the cup size is double and if the coffee is manual. The following table details the time chart for the machine for each coffee type. Display a statement for each step. If the coffee size is double, increase the baking time by 50 percent. Use functions to display instructions to the user and to compute the coffee time.

PROGRAM & OUTPUT:

```c
#include <stdio.h>
int main()
{
    char coffe,size;
    printf("Choose Coffe Manual:\n W/w for WHITE COFFE\n B/b for BLACK COFFE\n");
    scanf("\n%c",&coffe);
    switch(coffe)
    {
        case'W':
        case'w':
        printf("Pur Water: 15 min\n");
        printf("Sugar: 15 min\n");
        printf("Mix Well: 20 min\n");
        printf("Add Coffe: 2 min\n");
        printf("Add Milk: 4 min\n");
        printf("Mix Well: 20 min\n");
        printf("Total Time: 76 min\n");
        printf("\nChoose your SIZE:\n D/d for DOUBLE");
        scanf("\n%c",&size);
        switch(size)
        {
          case'd':
          case'D':
          printf("Pur Water: 22.5 min\n");
          printf("Sugar: 22.5 min\n");
          printf("Mix Well: 30 min\n");
          printf("Add Coffe: 3 min\n");
          printf("Add Milk: 6 min\n");
          printf("Mix Well: 30 min\n");
          printf("Total Time: 114 min\n");
        }
        break;
        case'B':
        case'b':
        printf("Pur Water: 20 min\n");
        printf("Sugar: 20 min\n");
        printf("Mix Well: 25 min\n");
        printf("Add Coffe: 15 min\n");
        printf("Mix Well: 25 min\n");
        printf("Total Time: 105 min\n");
        printf("\nChoose your SIZE:\n D/d for DOUBLE");
        scanf("\n%c",&size);
        switch(size)
        {
          case'd':
          case'D':
          printf("Pur Water: 30 min\n");
          printf("Sugar: 30 min\n");
          printf("Mix Well: 37.5 min\n");
          printf("Add Coffe: 22.5 min\n");
          printf("Mix Well: 22.5 min\n");
          printf("Total Time: 142.5 min\n");
        }
    }
}
```

```
Choose Coffe Manual:
 W/w for WHITE COFFE
 B/b for BLACK COFFE
W
Pur Water: 15 min
Sugar: 15 min
Mix Well: 20 min
Add Coffe: 2 min
Add Milk: 4 min
Mix Well: 20 min
Total Time: 76 min

Choose your SIZE:
 D/d for DOUBLE d
Pur Water: 22.5 min
Sugar: 22.5 min
Mix Well: 30 min
Add Coffe: 3 min
Add Milk: 6 min
Mix Well: 30 min
Total Time: 114 min

------------------------
```

```
Choose Coffe Manual:
 W/w for WHITE COFFE
 B/b for BLACK COFFE
B
Pur Water: 20 min
Sugar: 20 min
Mix Well: 25 min
Add Coffe: 15 min
Mix Well: 25 min
Total Time: 105 min

Choose your SIZE:
 D/d for DOUBLE D
Pur Water: 30 min
Sugar: 30 min
Mix Well: 37.5 min
Add Coffe: 22.5 min
Mix Well: 22.5 min
Total Time: 142.5 min

------------------------
```

Task 08

You are searching for a department in a university and you're asked to select a school from a choice of three schools namely:

PROGRAM & OUTPUT:

```c
#include <stdio.h>
int main()
{
    char school,department,course;
    printf("\nSchool of Computer Science(C)\nSchool of Business(B)\nSchool of Engineering(E)\n");
    printf("\nSelect from above:\n");
    scanf("\n%c",&school);
    if (school=='C')
    {
        printf("\nSchool of Computer Science:\n");
        printf("Department of Informatics(I)\nDepartment of Machine Learning(M)\n");
        scanf("\n%c",&department);
        if(department=='I')
        {
            printf("\nSchool of Computer Science");
            printf("\nDepartment of Informatics");
            printf("\nSelect Course:\nCourse A\nCourse B\nCourse C\nCourse D\n");
            scanf("\n%c",&course);
            if(course=='A')
            printf("you have Selected:\n\tSchool of Computer Science\n\t\tDepartment of Informatics\n\t\t\tCourse A");
            if(course=='B')
            printf("you have Selected:\n\tSchool of Computer Science\n\t\tDepartment of Informatics\n\t\t\tCourse B");
            if(course=='C')
            printf("you have Selected:\n\tSchool of Computer Science\n\t\tDepartment of Informatics\n\t\t\tCourse C");
            if(course=='D')
            printf("you have Selected:\n\tSchool of Computer Science\n\t\tDepartment of Informatics\n\t\t\tCourse D");
        }
        else if(department=='M')
        {
            printf("\nSchool of Computer Science");
            printf("\nDepartment of Machine Learning");
            printf("\nSelect Course:\nCourse E\nCourse F\nCourse G\nCourse H\nCourse I\n");
            scanf("\n%c",&course);
            if(course=='E')
            printf("you have Selected:\n\tSchool of Computer Science\n\t\tDepartment of Machine Learning\n\t\t\tCourse E");
            if(course=='F')
            printf("you have Selected:\n\tSchool of Computer Science\n\t\tDepartment of Machine Learning\n\t\t\tCourse F");
            if(course=='G')
            printf("you have Selected:\n\tSchool of Computer Science\n\t\tDepartment of Machine Learning\n\t\t\tCourse G");
            if(course=='H')
            printf("you have Selected:\n\tSchool of Computer Science\n\t\tDepartment of Machine Learning\n\t\t\tCourse H");
            if(course=='I')
            printf("you have Selected:\n\tSchool of Computer Science\n\t\tDepartment of Machine Learning\n\t\t\tCourse I");

        }

    }
    else if (school=='B')
    {
        printf("\nSchool of Business:\n");
        printf("Department of Commerce(C)\nDepartment of purchasing(P)\n");
        scanf("\n%c",&department);
        if(department=='C')
        {
            printf("\nSchool of Business");
            printf("\nDepartment of Commerce");
            printf("\nSelect Course:\nCourse X\nCourse Y\nCourse Z\n");
            scanf("\n%c",&course);
            if(course=='X')
            printf("you have Selected:\n\tSchool of Business\n\t\tDepartment of Commerce\n\t\t\tCourse X");
            if(course=='Y')
            printf("you have Selected:\n\tSchool of Business\n\t\tDepartment of Commerce\n\t\t\tCourse Y");
            if(course=='Z')
            printf("you have Selected:\n\tSchool of Business\n\t\tDepartment of Commerce\n\t\t\tCourse Z");
        }
```

```
        else if(department=='P')
        {
            printf("\nSchool of Business");
            printf("\nDepartment of purchasing");
            printf("\nSelect Course:\nCourse M\nCourse N\nCourse O\nCourse P\n");
            scanf("\n%c",&course);
            if(course=='M')
            printf("you have Selected:\n\tSchool of Business\n\t\tDepartment of purchasing\n\t\t\tCourse M");
            if(course=='N')
            printf("you have Selected:\n\tSchool of Business\n\t\tDepartment of purchasing\n\t\t\tCourse N");
            if(course=='O')
            printf("you have Selected:\n\tSchool of Business\n\t\tDepartment of purchasing\n\t\t\tCourse O");
            if(course=='P')
            printf("you have Selected:\n\tSchool of Business\n\t\tDepartment of purchasing\n\t\t\tCourse P");

        }
    }
    else if(school=='E')
    {
        printf("\nSchool of Engineering:\n");
        printf("Department of Mechanical Engineering(M)\nDepartment of Mechatronics Engineering(T)\n");
        scanf("\n%c",&department);
        if(department=='M')
        {
            printf("\nSchool of Engineering");
            printf("\nDepartment of Mechanical Engineering");
            printf("\nSelect Course:\nCourse R\nCourse S\n");
            scanf("\n%c",&course);
            if(course=='R')
            printf("you have Selected:\n\tSchool of Engineering\n\t\tDepartment of Mechanical Engineering\n\t\t\tCourse A");
            if(course=='S')
            printf("you have Selected:\n\tSchool of Engineering\n\t\tDepartment of Mechanical Engineering\n\t\t\tCourse B");
        }
        else if(department=='T')
        {
            printf("\nSchool of Engineering");
            printf("\nDepartment of Mechatronics Engineering");
            printf("\nSelect Course:\nCourse J\nCourse K\nCourse L\n");
            scanf("\n%c",&course);
            if(course=='J')
            printf("you have Selected:\n\tSchool of Engineering\n\t\tDepartment of Mechatronics Engineering\n\t\t\tCourse J");
            if(course=='K')
            printf("you have Selected:\n\tSchool of Engineering\n\t\tDepartment of Mechatronics Engineering\n\t\t\tCourse K");
            if(course=='L')
            printf("you have Selected:\n\tSchool of Engineering\n\t\tDepartment of Mechatronics Engineering\n\t\t\tCourse L");
        }

    }

}
```

```
School of Computer Science(C)
School of Business(B)
School of Engineering(E)

Select from above:
C

School of Computer Science:
Department of Informatics(I)
Department of Machine Learning(M)
M

School of Computer Science
Department of Machine Learning
Select Course:
Course E
Course F
Course G
Course H
Course I
G
you have Selected:
        School of Computer Science
                Department of Machine Learning
                        Course G
--------------------------------
```

```
School of Computer Science(C)
School of Business(B)
School of Engineering(E)

Select from above:
B

School of Business:
Department of Commerce(C)
Department of purchasing(P)
C

School of Business
Department of Commerce
Select Course:
Course X
Course Y
Course Z
Y
you have Selected:
        School of Business
                Department of Commerce
                        Course Y
--------------------------------
```

```
School of Computer Science(C)
School of Business(B)
School of Engineering(E)

Select from above:
E

School of Engineering:
Department of Mechanical Engineering(M)
Department of Mechatronics Engineering(T)
T

School of Engineering
Department of Mechatronics Engineering
Select Course:
Course J
Course K
Course L
K
you have Selected:
        School of Engineering
                Department of Mechatronics Engineering
                        Course K
--------------------------------
```

Task 09

Mortgage Calculator) Develop a C program to calculate the interest accrued on a bank customers mortgage. For each customer, the following facts are available:

a) the account number

b) the mortgage amount

c) the mortgage term

d) the interest rate

The program should input each fact, calculate the total interest payable (= mortgage amount × interest rate × mortgage term), and add it to the mortgage amount to get the total amount payable. It should calculate the required monthly payment by dividing the total amount payable by the number of months in the mortgage term. The program should display the required monthly payment rounded off to the nearest dollar. The program should process each customer's account at a time.

PROGRAM & OUTPUT:

```c
#include <stdio.h>
#include <math.h>
int main()
{
    int an;
    float MA,IR,TI,TA,MT,MP;
    printf("Account Number");
    scanf("%d",&an);
    printf("Moratge Am");
    scanf("%f",&MA);
    printf("Mortage Teram");
    scanf("%f",&MT);
    printf("intrrst Rtae");
    scanf("%f",&IR);

    TI=MA*IR*MT;
    TA=TI+MA;
    MP=TA/(MT*12);
    printf("intrest payable %.f",round(MP));


}
```

```
Account Number200
Moratge Am12000
Mortage Teram10
intrrst Rtae0.045
intrest payable 145
--------------------------------
```