Assignment-4

Write a C Program for the following problem statements

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

```
#include<stdio.h>
int main()
{
Char c;
Printf("enter a character");
scanf("%c",$&ch);
if(c=='a'|| c=='A'||c=='e'||c=='E'||c=='i'|| c=='I'||
c=='o'||c=='O'||c=='o'||c=='U')
{
printf(" it ia a vowel");
}

}
```

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

```
#include<stdio.h>
int main()
{
double a,b,c,discriminant,r1,r2,rpart,imagpart;
printf("enter the value of a,b,c");
scanf("%f %f %f",&a,&b,&c);
discriminant=b*b-4a*c;
if(discriminant>0)
{
 r1=(-b+sqrt(discriminant))/(2*a);
r1=(-b-sqrt(discriminant))/(2*a);
printf("r1=%f  and r2=%f",root1,root2);

}
else if(discriminant==0)
{
 r1 =r2=-b/2a;
printf("two equal and real root exists :%f and %f",r1,r2);
}
else{
rpart=-b/(2*a);
imagpart=sqrt(-discriminant)/(2*a);
printf("r1=%f+%f"and  r2=%f-%f",rpart,imagpart,rpart,imagprt);
}
}
```

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

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

```
{
Int year;
printf("enter a year");
scanf("%d",&year);
if(year %4==0)||(year %400==0)
{
printf("entered year is leap year");
}
else
{
printf("entered  year is not leap year");
}
}
```

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)

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)

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. The charge are as follow :
Unit Charge/unit
upto 199 @1.20
200 and above but less than 400 @1.50
400 and above but less than 600 @1.80
600 and above @2.00
If bill exceeds Rs. 400 then a surcharge of 15% will be charged and the minimum bill should be of Rs. 100/- (Using else if ladder)

```
#include<stdio.h>
int main()
{
int custid;
int cname;
float units,tamount ;
printf("enter custid:");
scanf("%d",&custid);
printf("enter cname:");
scanf("%c",&cname);

printf("enter units:");
scanf("%f",&units);
if(units<=199)
{
Tamount=units*1.20;
```

```
Printf("The electricity consumed is tamount=%f",tamount);
}
else  if(units>200)
{
tamount=units*1.50;
printf("The electricity consumed is tamount=%f",tamount);
}
else if(units>400 || units<600)
{
tamount=(units*1.80 )+surcharge;
surcharge=0.15;
printf("The electricity consumed is tamount=%f",tamount);

}

Else
{
tamount=(units*2.00)+surcharge;
surcharge=0.15;
}

}
```

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)

Average Grade
90-100 A
80-89 B
70-79 C
60-69 D
0-59 F

```
#include<stdio.h>
int main()
{
int mark1,mark2,mark3;
float average;
printf("enter mark1,mark2,mark3");
scanf("%d %d %d",&mark1,&mark2,&mark3);
average=(mark1+mark2=mark3)/3;
printf("the average is: ",average);
if(average>=90)
{
printf("The student secure Grade A");
}
if(average>=80)
{
```

```
printf("The student secure Grade ");
}
if(average>=70)
{
printf("The student secure Grade C");
}
if(average>=60)
{
printf("The student secure Grade D");
}
else
{
Printf("The student secure Grade F");
}
}
```

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

```
#include<stdio.h>
Int main()
{
int month;
printf(""enter the month number between(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 entry");


}
}
```

9. create Simple Calculator using switch case.

```
#include<stdio.h>
int main()
{
char operator;
int num1,num2;
printf("opertaor");
scanf("%c",&operator);
printf("enter values of num1 and num2");
scanf("%d",&num1,&num2);
switch(operator)
{
Case '+':
printf("%d +%d=%d",num1,num2,num1+num2);
break;

Case '-':
printf("%d -%d=%d",num1,num2,num1-num2);
break;
```

```
Case '*':
printf("%d *%d=%d",num1,num2,num1*num2);
break;
Case '/':
printf("%d /%d=%d",num1,num2,num1/num2);
break;

default:
printf("invalid opertaor");
}
return 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)

Grade	Meaning
A	Excellent
B	Good
C	Average
D	Deficient
F	Failing

```
#include<stdio.h>

int main()

{

Char grade;

Printf("enter grade");

Scanf("%c",&c);

Switch(grade)

{

case 'A':

printf("Excellent");

break;

case 'B':
```

```
printf(“Good”);
break;
case ‘C’:
printf(“Average”);
break;
case ‘D’:
printf(“Deficient”);
break;
case ‘E’:
printf(“Failed”);
break;
default:
printf(“invalid entry”);




}
}
```