ASSIGNMENT-4

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Q1)CHECK WHETHER A CHARACTER IS A VOWEL OR A CONSONANT?

```
#include <stdio.h>


void main()
{
   char c;
   printf("enter the value of c:");
   scanf("%c",&c);


   if(c=='a'||c=='e'||c=='i'||c=='o'||c=='u')
   {
      printf("%c is a vowel",c);
      }
      else
      {
          printf("%c is consonant",c);


   }
   return 0;
}
```

OUTPUT

```
Enter the value of c: u
u is vowel
```

Q2)FIND ROOTS OF A QUADRATIC EQUATION(USING ELSE IF LADDER)?

```
#include <stdio.h>
#include<math.h>

int main()
{
  int a,b,c,x1,x2,d,imaginary;
  printf("enter the number a,b and c:");
  scanf("%d%d%d",&a,&b,&c);
  d=(b*b)-(4*a*c);
  if(d>0){
     x1=(-b+sqrt(d))/2*a;
     x2=(-b-sqrt(d))/2*a;
     printf("real root x1=%d and x2=%d",x1,x2);
  }
     else if(d==0){
        x1=x2=-b/2*a;
        printf("real root x1=%d and x2=%d",x1,x2);
     }
        else if(d<0){
           x1=x2=-b/2*a;
           imaginary=sqrt(-d)/2*a;
           printf("complex root=%d",imaginary);
```

```
  }
   return 0;
}
```

OUTPUT

enter the number a,b and c:10 15 20

complex root=119

Q3)CHECK LEAP YEAR(USING IF ELSE)?

```
#include <stdio.h>


int main()
{
  int year;
  printf("enter year:");
  scanf("%d",&year);
  if((year%400==0)||(year%4==0)&&(year%100!=0))
  printf("%d is a leap year",year);
  else
  printf("%d is not a leap yaer",year);
     return 0;
}
```

OUTPUT

enter year:1200

1200 is a leap year

Q4)CHECK WHICH NUMBER NEAREST TO THE VALUE 100 AMOUNG TWO GIVEN INTEGERS.RETURN 0 IF THE TWO NUMBERS ARE EQUAL.(USING NESTED IF…ELSE)?

```
#include <stdio.h>


int main()
{


int num1,num2,var1,var2;
printf("enter two numbers:");
scanf("%d%d",&num1,&num2);
var1=100-num1;
var2=100-num2;
if(var1<=var2){
  if(var1==var2){
     printf("return 0");
  }
   else{
      printf("num1 is nearest");


   }
   }
   else{
      printf("num2 is nearest");
   }
   return 0;
```

}

OUTPUT

```
enter two numbers:98 91                                                    num1 is nearest

enter two numbers:99 99                                                     return 0
```

Q5)CHECK THREE GIVEN INTEGERS(SMALL,MEDIUM AND LARGE)AND RETURN TRUE IF THE DIFFERENCE BETWEEN SMALL AND MIDIUM AND THE DIFFERENCE BETWEEN MEDIUM AND LARGE IS SAME.(USING NESTED IF ELSE)

```
#include <stdio.h>
int main()
{
int s,m,l;
printf("enter three number:");
scanf("%d%d%d",&s,&m,&l);
if(s<m&&m<l){
   if(m-s==l-m){
       printf("return true");
   }else{
       printf("difference between them is possible to equal");
   }
   }
  else{
      printf("three numbers are may or may not equal");
  }
 return 0;
}
```

OUTPUT

```
enter three number:10 20 30                                                    return true

enter three number:4 9 13                                                      difference between th
em is possible to equal

enter three number:10 10 10                                                    three numbers are may
 or may not equal
```

Q6)CALCULATE AND PRINT THE ELECTRICITY BILL OF 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 FOLLOWS:

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 SURCHANGE OF 15% WILL BE CHARGED AND MINIMUM BILL SHOULD BE OF RS 100/-(USING ELSE IF LADDER)

```
#include <stdio.h>

int main()

{

char name;

int id,unit;

float bill;

float u1=1.20,u2=1.50,u3=1.80,u4=2.00,sc=0.15;
```

```
printf("enter customer name:");
scanf("%s",&name);
printf("enter customer id:");
scanf("%ld",&id);
printf("customer consumed unit:");
scanf("%d",&unit);
if(unit<=199){
bill=unit*u1;
}else if(unit>=200&&unit<=400){
   bill=unit*u2;
}else if(unit>=400&&unit<=600){
   bill=unit*u3;
}else if(unit>=600){
   bill=unit*u4;
}
if(bill>400){
   bill=bill+(bill*sc);
}
if(bill<100){
   bill=100;
}
printf("your unit is %d and bill is %g",unit,bill);
```

```
    return 0;
}
```

OUTPUT

```
enter customer name:Sourav
enter customer id:566678
customer consumed unit:600
your unit is 600 and bill is 1242
```

Q7)THE MARK OBTAINED BY A STUDENT IN 3 DIFFERENT SUBJECTS ARE INPUT BY USERS.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,total,avg;
printf("enter mark1 mark2 mark3:");
scanf("%d%d%d",&mark1,&mark2,&mark3);
```

```
total=mark1+mark2+mark3;
printf("total secured mark is:%d\n",total);
avg=total/3;
printf("avg mark is:%d\n",avg);
if(avg>=90&&avg<=100){
printf("secured A grade");
}else if(avg>=80&&avg<=89){
  printf("secured B grade") ;
}else if(avg>=70&&avg<=79){
   printf("secured c grade");
}else if(avg>=60&&avg<=69){
   printf("secured D grade");
}else if(avg>=0&&avg<=59){
   printf("secured F grade");
}
   return 0;
}
```

OUTPUT

```
enter mark1 mark2 mark3:60 80 100
total secured mark is:240
avg mark is:80
secured B grade
```

Q8)PRINT TOTAL NUMBER OF DAYS IN A MONTH USING SWITCH CASE?

```
#include <stdio.h>
int main()
{
   int month;
   printf("Enter Month No: ");
   scanf("%d",&month);
   switch (month)
   {
   case 1:
   printf("Month no is :%d\nDays:31\nMonth name : January
",month);
   break;
   case 2:
   printf("Month no is: %d\nDays:28 0r 29\nMonth name :
February" ,month);
   break;
   case3:
   printf("Month no is :%d\nDays are 31 days\nmonth name :
March ",month);
   break;
   case 4:
   printf("Month no is :%d\nDays are 30 days\nMonth name : April
",month);
   break;
```

```
    case 5:
    printf("Month no is :%d\nDays31\nMonth name : May ",month);
    break;
    case 6:
    printf("Month no is :%d\nDays:30\nMonth name : June
",month);
    break;
    case 7:
    printf("Month no is :%d\nDays:31\nMonth name : July ",month);
    break;
    case 8:
    printf("Month no is:%d\nDays:31\nMonth nam : August
",month);
    break;
    case 9:
    printf("Month no is :%d\nDays:30\nMonth name: September
",month);
    break;
    case 10:
    printf("Month no is: %d\nDays:31\nMonth name : October
",month);
    break;
    case 11:
```

```
    printf("Month no is: %d\nDays:30\nMonth name : November
",month);
    break;
    case 12:
    printf("Month no is:%d\nDays:31\nMonth name : December"
,month);
    default:
    printf("error please input valid month");
}
    return 0;
}
```

OUTPUT

```
Month no is: 11
Days:30
Month name : November
```

Q9)SIMPLE CALCULATOR USING SWITCH CASE?

```
#include <stdio.h>
#include<math.h>
int main()
{
int num1,num2,add,sub,div,mul;
char operator;
printf("Enter operator:");
scanf ("%c",&operator);
```

```
printf("Enter Number1 : ");
scanf("%d",&num1);
printf("Enter Number2 : ");
scanf("%d",&num2);
switch(operator){
case'+':
   add=num1+num2;
   printf("Addition of%dand%d is:%d",num1,num2,add);
    break;
case '-':
   sub= num1-num2;
   printf("Substraction of%dand%d is:%d",num1,num2,sub);
break;
case '/':
   div=(num1/num2);
   printf("division of%dand%d is:%d",num1,num2,div);
break;
case '*':
   mul=(num1*num2);
   printf("multiplication of%dand%d is:%d",num1,num2,mul);
break;
default :
```

```
printf("invalid! please input valid operator");
}
 return 0;
}
```

OUTPUT

```
Enter operator:*
Enter Number1 : 9
Enter Number2 : 9
multiplication of 9and9 is:81
```

Q10)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("Please Enter Grade : ");
   scanf("%c",&grade);
```

```
    switch (grade)
    {
        case 'A':
        printf("Excellent");
        break;
        case 'B':
        printf("Good");
         break;
        case 'C':
        printf("Average");
         break;
         case 'D':
         printf("Deficient");
         break;
         case 'F':
         printf("Failing");
         break;
    }

 return 0;
}
```

OUTPUT

```
Please Enter Grade : F
```

OPTIONAL QUESTIONS

Q11)CHECH WHETHER A TRIANGLE IS EQUILATERAL,ISOSCELES,SCALENE?

```
#include <stdio.h>
int main()
{
int s1,s2,s3;
printf("Enter three sides of triangle: ");
   scanf("%d%d%d", &s1,&s2,&s3);
  if(s1==s2&&s2==s3) {

  printf("Equilateral triangle");
   }else if(s1==s2||s1==s3||s2==s3){
 printf("Isosceles triangle");
 }else{

printf("Scalene triangle");
   }

 return 0;
}
```

OUTPUT

```
Enter three sides of triangle: 5 7 9
Scalene triangle
```

Q12)CHECK WHETHRE A NUMBER IS EVEN OR ODD?

```
#include <stdio.h>
int main()
{
int num;
   printf("Enter an integer: ");
   scanf("%d", &num);
   if(num % 2 == 0)
      printf("%d is even", num);
   else
      printf("%d is odd.", num);

 return 0;
}
```

OUTPUT

```
Enter an integer: 14
14 is even
```

Q13)CHECK WHETHER A CHARACTER IS AN ALPHABET OR NOT?

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

```
{
 char c;
    printf("Enter a character: ");
    scanf("%c", &c);

    if ((c >= 'a' && c <= 'z') || (c >= 'A' && c <= 'Z'))
        printf("%c is an alphabet", c);
    else
        printf("%c is not an alphabet",c);

 return 0;
}
```

OUTPUT

```
Enter a character: s
s is an alphabet
```

Q14)FIND THE LARGEST AMOUNG THREE NUMBER

```
#include <stdio.h>
int main()
{
 int a,b,c;
 printf("enter the value of a b and c:");
 scanf("%d%d%d",&a,&b,&c);
 if(a>b)
 if(a>c) printf("a is greater");
```

```
else
printf("c is greater");
if(b>c)
printf("b is greater");
else
printf("c is greater");

return 0;
}
```

OUTPUT

```
enter the value of a b and c:18 6 12
a is greater
```

Q15) find the larger from two given integers. However, if the two integers have the

same remainder when divided by 5, then the return the smaller integer. If the two integers are the same, return 0