**Q.1 Check Whether a Character is a Vowel or Consonant**

#include <stdio.h>

int main()

{

char ch;

printf("Enter a word whatever you want:");

scanf("%c",&ch);

if(ch=='a' || ch=='A' || ch=='e' || ch=='E' || ch=='i' || ch=='I' || ch=='o' || ch=='O' || ch=='U' || ch=='u')

printf("Inputed character is a Vowel");

else

printf("Inputed character is a Consonant");

return 0;

}

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

#include <stdio.h>

#include<math.h>

int main(){

double a,b,c,res,r1,r2;

printf("Enter the value for a:");

scanf("%lf",&a);

printf("Enter the value for b:");

scanf("%lf",&b);

printf("Enter the value for c");

scanf("%lf",&c);

res=b\*b-4\*a\*c;

if(res>0){

r1=(-b+sqrt(res))/(2\*a);

r2=(-b-sqrt(res))/(2\*a);

printf("root1=%.2lf and root2=%.2lf",r1,r2);

}

else if(res==0){

r1=r2=-b/(2\*a);

printf("root1=%.2lf",r1);

}

else{

r1=-b/(2\*a);

r2=sqrt(-res)/(2\*a);

printf("root1=%.2lf+%.2lfi and root2=%.2lf+%.2lfi",r1,r2,r1,r2);

}

}

Enter the value for b:4

Enter the value for c5.6

root1=-0.87+1.30i and root2=-0.87+1.30i

**Q.3 Check the Leap Year.(Using if..else)**

#include <stdio.h>

int main()

{

int yr;

printf("Enter a year:");

scanf("%d",&yr);

if(yr%4==0)

printf("The inputed year is a leap year");

else

printf("The inputed year is not a leap year");

return 0;

}

Enter a year:2024

The inputed year is a leap year

**Q.4 Check which number nearest to the value 100 among two given integers. Return 0 if the two numbers are equal**

#include <stdio.h>

int main(){

int a,b;

printf("Enter a value for a:");

scanf("%d",&a);

printf("Enter a value for b:");

scanf("%d",&b);

if(a<=100 && b<=100){

if((100-a)<(100-b)){

printf("a is the nearest value to 100");

}

else if((100-a)>(100-b)){

printf("b is the nearest value to 100");

}

else

printf("Both a & b are equaled");

}

else

printf("The inputed number should be less than 100");

}

Enter a value for a:120

Enter a value for b:456

The inputed number should be less than 100

**Q.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.**

#include <stdio.h>

int main() {

int s,m,l;

printf("enter 1st no : ");

scanf("%d",&s);

printf("enter 2nd no : ");

scanf("%d",&m);

printf("enter 3rd no : ");

scanf("%d",&l);

if ((s<m&&m<l)||(m<s&&s<l)||(l<m&&m<s)||(l<s&&s<m)||(m<l&&l<s)) {

if((m-s==l-m)||(s-m==l-s)||(m-l==s-m)||(s-l==m-s)||(l-m==s-l))

{

printf("Difference in between small and medium and medium and large is same.");

}

else {

printf("Difference in between small and medium and medium and large is not same.");

}}

else

printf("all the entered no are same . ");

return 0;

}

enter 1st no : 10

enter 2nd no : 20

enter 3rd no : 30

Difference in between small and medium  and medium and large is same.

**Q.6 Calculated and print the Electricity bill of given customer. The customer id, name and unit consumed y the user should be taken from the keyboard and display the total amount to pay to the customer. The charges 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 |

#include <stdio.h>

#include <string.h>

int main() {

char name[10];

int id;

int unit;

float bill;

float c1=1.20,c2=1.50,c3=1.80,c4=2.00,sc=0.15;

printf("Enter Customer Name : ");

scanf("%s",&name);

printf("Enter Customer id : ");

scanf("%d",&id);

printf("Enter the electricity units : ");

scanf("%d",&unit);

if (unit<=199){

bill=unit\*c1;

}

else if (unit>=200&&unit<400){

bill=unit\*c2;

}

else if (unit>=400&&unit<600)

{

bill= 400\*c3;

}

else if (unit>=600){

bill=600\*c4;

}

if (bill>400){

bill=bill + (bill\*sc);

}

if (bill<100){

bill=100;

}

printf(" Your unit is %d\n. and bill is %g.",unit,bill);

return 0;

}

Enter Customer Name : Gopal

Enter Customer id : 9348

Enter the electricity units : 400

 Your unit is 400

. and bill is 828.

**Q.7 The marks obtained by a student in 3 different subjects are input by the user. Your program should calculated the average of subject. The student gets a grade as per the following rules:**

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

#include <stdio.h>

int main(){

int m1,m2,m3,sum,avg;

printf("Enter the mark of subject1:");

scanf("%d",&m1);

printf("Enter the mark of subject2:");

scanf("%d",&m2);

printf("Enter the mark of subject3:");

scanf("%d",&m3);

sum=m1+m2+m3;

printf("The total mark of the student is:%d\n",sum);

avg=sum/3;

printf("Average of the student is:%d\n",avg);

if(avg<=100 && avg>=90){

printf("Excellent! You got Grade A");

}

else if(avg<=89 && avg>=80){

printf("Good! You got Grade B");

}

else if(avg<=79 && avg>=70){

printf("Average! You got Grade C");

}

else if(avg<=69 && avg>=60){

printf("Deficient! You got Grade D");

}

else

printf("Better luck next time! You got Grade F");

}

Enter the mark of subject1:30

Enter the mark of subject2:40

Enter the mark of subject3:20

The total mark of the student is:90

Average of the student is:30

Better luck next time! You got Grade F

**Q.8 Print total number of days in a month using switch case.**

#include <stdio.h>

int main()

{

int month;

printf("Enter a number(1-12):");

scanf("%d",&month);

switch(month)

{

case 1:

printf("Jan-31 days");

break;

case 2:

printf("Feb-28/29 days");

break;

case 3:

printf("Mar-31 days");

break;

case 4:

printf("Apr-30 days");

break;

case 5:

printf("may-31 days");

break;

case 6:

printf("Jun-30 days");

break;

case 7:

printf("Jul-31 days");

break;

case 8:

printf("Aug-31 days");

break;

case 9:

printf("Sep-30 days");

break;

case 10:

printf("Oct-31 days");

break;

case 11:

printf("Nov-30 days");

break;

case 12:

printf("Dec-31 days");

break;

default:

printf(“Enter a valid nuber”);

}

}

Enter a number(1-12):5

may-31 days

**Q.9 Create Simple Calculator using switch case.**

#include <stdio.h>

int main()

{

char op;

int a,b,c;

printf("Enter the operation symbol(+,-,\*,/):");

scanf("%c",&op);

printf("Enter the value for a:");

scanf("%d",&a);

printf("Enter the value for b:");

scanf("%d",&b);

switch(op)

{

case '+':

c=a+b;

printf("a+b=%d",c);

break;

case '-':

c=a-b;

printf("a-b=%d",c);

break;

case '\*':

c=a\*b;

printf("a\*b=%d",c);

break;

case '/':

c=a/b;

printf("a/b=%d",c);

break;

default:

printf("Enter a valid Operation Symbol");

}

}

Enter the value for a:4

Enter the value for b:2

a+b=6

**Q.10 Prompts the user to enter grade. Your program should display the corresponding meaning of grade as per the following table**

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

#include <stdio.h>

int main()

{

char grade;

printf("Enter the grade(A,B,C,D,F):");

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!");

default:

printf("Enter a valid grade");

}

}

Enter the grade(A,B,C,D,F):A

Excellent