**CS120 Fundamental of Programming**

**Homework 3: Relational Operators and IF…ELSE Statement**

**Homework Examples**

**Example 1:**

A C program to relate two integers.

#include <stdio.h>

int main()

{

int numb1, numb2;

printf("Enter two integers to check".\n);

scanf("%d %d",&numb1,&numb2);

if(numb1==numb2) //checking whether two integers are equal.

printf("Result: %d=%d",numb1,numb2);

else if(numb1>numb2) //checking whether numb1 is greater than numb2.

printf("Result: %d>%d",numb1,numb2);

else

printf("Result: %d>%d",numb2,numb1);

return 0;

}

**Example 2:**

This program finds roots of a quadratic equation when coefficients are entered by user.

#include <stdio.h>

#include <math.h>

main()

{

float a, b, c, determinant, r1,r2, real, imag;

printf("Enter coefficients a, b and c: ");

scanf("%f%f%f",&a,&b,&c);

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

if (determinant>0)

{

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

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

printf("Roots are: %.2f and %.2f",r1 , r2);

}

else if (determinant==0)

{

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

printf("Roots are: %.2f and %.2f", r1, r2);

}

else

{

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

imag = sqrt(-determinant)/(2\*a);

printf("Roots are: %.2f+%.2fi and %.2f-%.2fi", real, imag, real, imag);

}

}

**Example 3:**

This program determines a year entered by user is a leap year.

All years which are perfectly divisible by 4 are leap years except for century years( years ending with 00 ) which is a leap year only it is perfectly divisible by 400. For example: 2012, 2004, 1968 etc. are leap year but, 1971, 2006 etc. are not leap year. Similarly, 1200, 1600, 2000, 2400 are leap years but, 1700, 1800, 1900 etc. are not.

#include <stdio.h>

main(){

int year;

printf("Enter a year: ");

scanf("%d",&year);

if(year%4 == 0)

{

if( year%100 == 0) /\* Checking for a century year \*/

{

if ( year%400 == 0)

printf("%d is a leap year.", year);

else

printf("%d is not a leap year.", year);

}

else

printf("%d is a leap year.", year );

}

else

printf("%d is not a leap year.", year);

}

**Homework Assignment**

1. Write a C program to check whether a number entered by user is even or odd.
2. Write a program that will ask a user to enter 2 numbers. Determine if the first number is greater than, less than, or equal to the second number.
3. Write a program that takes character input and determines the character is vowel or not.