PROGRAM - 1

```
/*************************************************************************************************/
/* Name of the Program   :     quadratic.c                                                       */
/* Aim                   :     To find the solution of a quadratic equation.                     */
/* Author                :     Basith Hameem                                                     */
/* Date Written          :     31/08/2016                                                        */
/* Revision              :     1                                                                 */
/*************************************************************************************************/

/*************************************************************************************************/
/*PROGRAM                                                                                        */
/*a                :     To store the coefficient of X^2                                         */
/*b                :     To store the coefficient of X                                           */
/*c                :     To store the constant value                                             */
/*root_1           :     store the first root                                                    */
/*root_2           :     store the second root                                                   */
/*d                :     Store the value of (b*b)-(4*a*c)                                        */
/*discriminant     :     To store the value of discriminant                                      */

#include <stdio.h>
#include <math.h>
int main()//main starts
      {
      float a,b,c,root_1,root_2,d,discriminant;
      printf("Enter the coefficients of the quadratic equation of the form
      ax^2+bx+c=0\n");
      scanf("%g %g %g",&a,&b,&c);//Reading coefficients
      if(a==0)
            {
            printf("The coefficients cannot form a quadratic equation,\"a\"
            cannot equal to zero\n");
            }
      else
            {

            d=(b*b)-(4*a*c);//Finding the value of discriminant
            discriminant=sqrt(d);
            if (discriminant==0)//equal roots condition
                  {
                  printf("The given quadratic equation have real and equal
                  roots\n");
                  root_1=root_2=(-b)/(2*a);
                  printf("Root 1= %g \n",root_1);
                  printf("Root 2= %g \n",root_2);
                  }
            if(discriminant<0)//Imaginary distinct roots condition
                  {
                  printf("The given quadratic equation have imaginary
                  distinct roots\n");
                  }
            if(discriminant>0)//Real distinct roots condition
                  {
                  printf("The given quadratic equation have real distinct
                  root\n");
                  root_1=((-b)+discriminant)/(2*a);
                  root_2=((-b)-discriminant)/(2*a);
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```
                printf("Root 1= %g \n",root_1);
                printf("Root 2= %g \n",root_2);
                }

    }

    return 0;
    }
```

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/*****************************************************************************************/
/* OUTPUT:                                                                               */

Enter the coefficients of the quadratic equation of the form ax^2+bx+c=0
1
-4
4
The given quadratic equation have real and equal roots
Root 1= 2
Root 2= 2

/*****************************************************************************************/
```