

Students are requested to download C program in their Laptop and write the following program in it.

To find the roots of a Quadratic equation in C

```
#include <stdio.h>
#include <math.h>
int main()
{
    int a, b, c, d;
    double root1, root2;

    printf("Enter a, b and c where a*x*x + b*x + c = 0\n");
    scanf("%d%d%d", &a, &b, &c);

    d = b*b - 4*a*c;

    if (d < 0) { //complex roots
        printf("First root = %.2lf + i%.2lf\n", -b/(double)(2*a), sqrt(-d)/(2*a));
        printf("Second root = %.2lf - i%.2lf\n", -b/(double)(2*a), sqrt(-d)/(2*a));
    }
    else { //real roots
        root1 = (-b + sqrt(d))/(2*a);
        root2 = (-b - sqrt(d))/(2*a);

        printf("First root = %.2lf\n", root1);
        printf("Second root = %.2lf\n", root2);
    }

    return 0;
}
```

C Program to arrange numbers in ascending order

```
/*
 * C program to accept numbers as an input from user
 * and to sort them in ascending order.
 */
```

```

#include <stdio.h>

void sort_numbers_ascending(int number[], int count)
{
    int temp, i, j, k;
    for (j = 0; j < count; ++j)
    {
        for (k = j + 1; k < count; ++k)
        {
            if (number[j] > number[k])
            {
                temp = number[j];
                number[j] = number[k];
                number[k] = temp;
            }
        }
    }
    printf("Numbers in ascending order:\n");
    for (i = 0; i < count; ++i)
        printf("%d\n", number[i]);
}

void main()
{
    int i, count, number[20];

    printf("How many numbers you are gonna enter:");
    scanf("%d", &count);
    printf("\nEnter the numbers one by one:");

    for (i = 0; i < count; ++i)
        scanf("%d", &number[i]);

    sort_numbers_ascending(number, count);
}

```

```

C:\Windows\system32\cmd.exe

C:\Users\Chaitanya Singh>gcc num_ascending.c -o num_ascending

C:\Users\Chaitanya Singh>num_ascending
How many numbers you are gonna enter:5

Enter the numbers one by one:1 45 7 80 9
Numbers in ascending order:
1
7
9
45
80

C:\Users\Chaitanya Singh>

```

===== C Program to Calculate the Mean, Variance & Standard Deviation

```

/*
 * C program to input real numbers and find the mean, variance
 * and standard deviation
 */
#include <stdio.h>
#include <math.h>
#define MAXSIZE 10

void main()
{
    float x[MAXSIZE];

```

```

int i, n;
float average, variance, std_deviation, sum = 0, sum1 = 0;

printf("Enter the value of N \n");
scanf("%d", &n);
printf("Enter %d real numbers \n", n);
for (i = 0; i < n; i++)
{
    scanf("%f", &x[i]);
}
/* Compute the sum of all elements */
for (i = 0; i < n; i++)
{
    sum = sum + x[i];
}
average = sum / (float)n;
/* Compute variance and standard deviation */
for (i = 0; i < n; i++)
{
    sum1 = sum1 + pow((x[i] - average), 2);
}
variance = sum1 / (float)n;
std_deviation = sqrt(variance);
printf("Average of all elements = %.2f\n", average);
printf("variance of all elements = %.2f\n", variance);
printf("Standard deviation = %.2f\n", std_deviation);
}

```