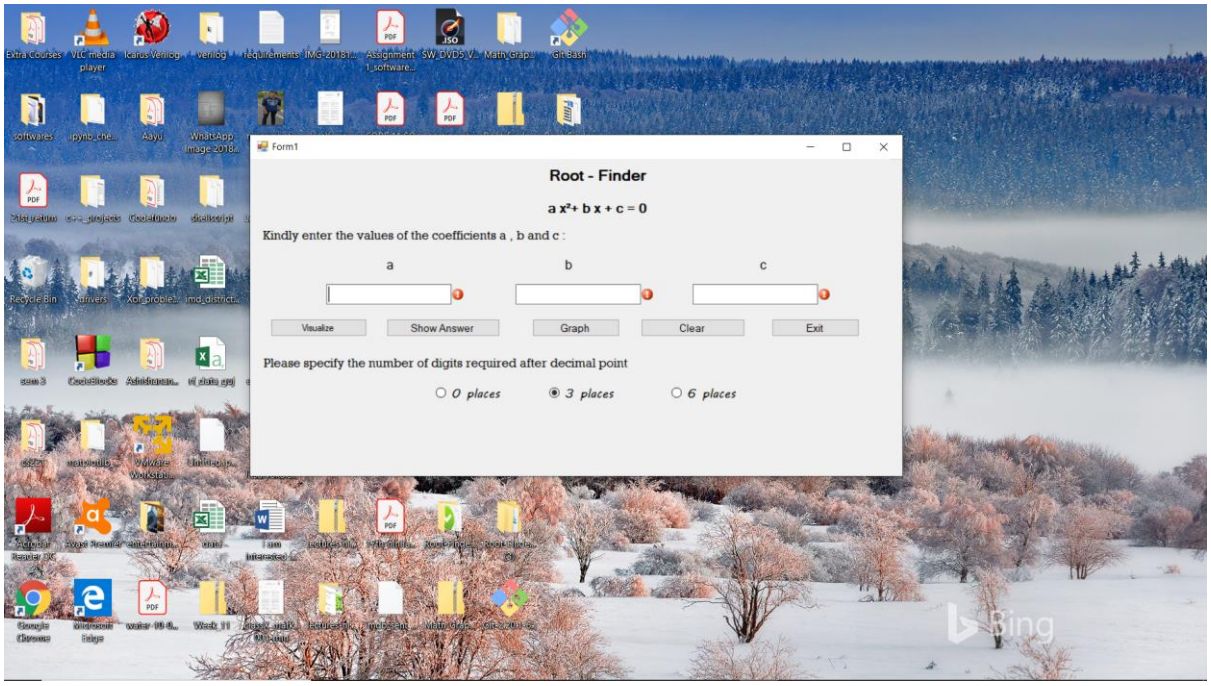
ROOT-FINDER USER MANUAL

OVERVIEW

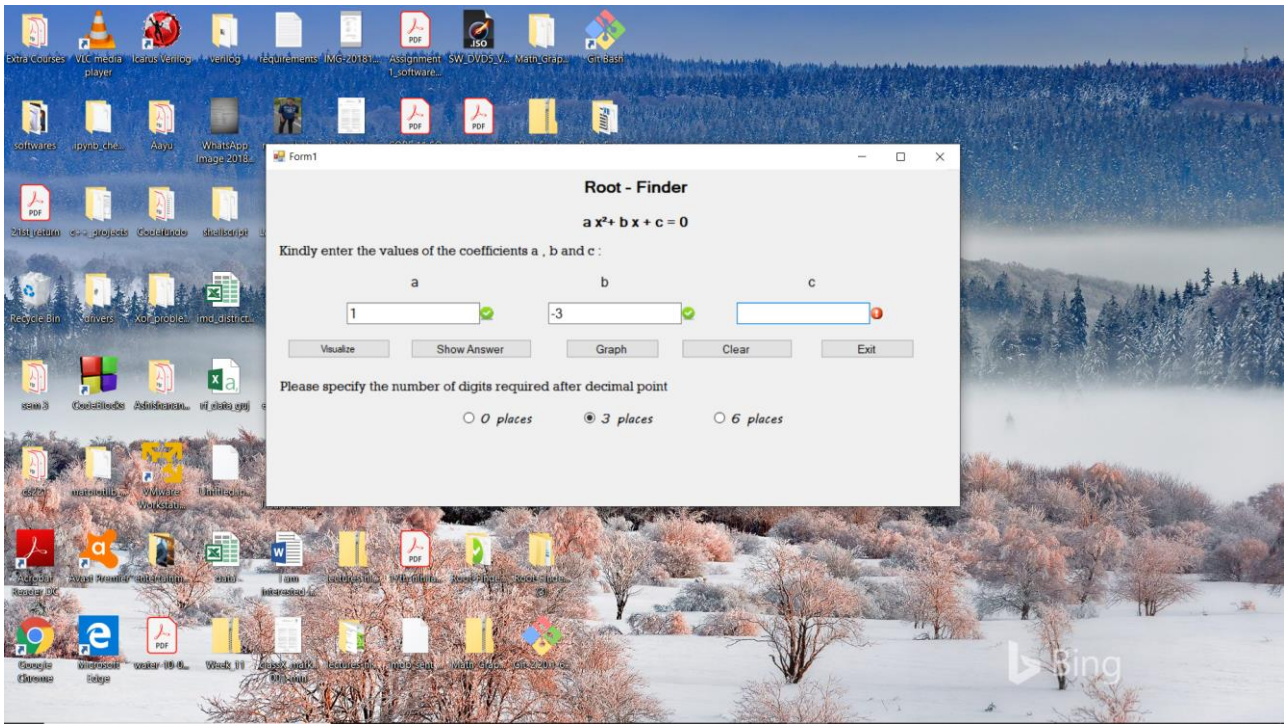
This software finds the roots of a quadratic equation with real coefficients. The coefficients are given as input to the program which then acts accordingly. A few buttons have been provided to you to cover different features like plot the graph, set the precision, etc.

FUNCTIONING

Text boxes have been given to input the values of the coefficients to the program. In case you enter some wrong input (like a string), appropriate messages will be shown.



The software when loaded

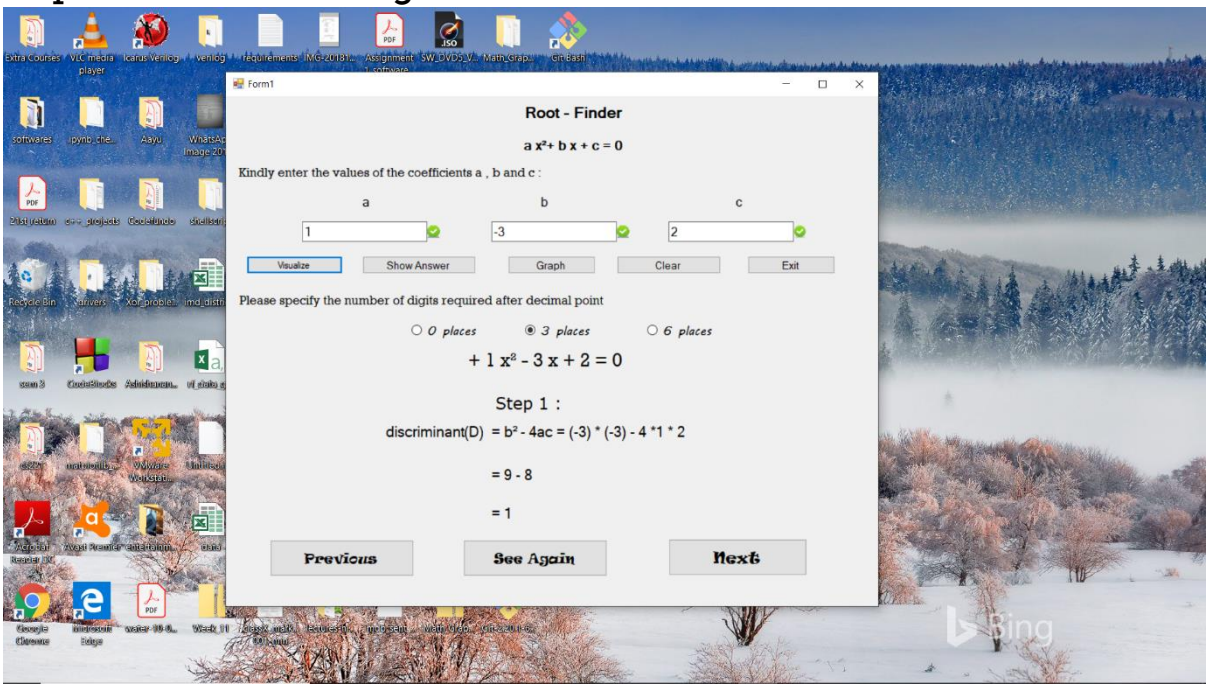


The software shows appropriate error when you try to enter wrong input or leave it blank

Clear from the figure, the buttons have been provided to give wide varying features. A few of them are:

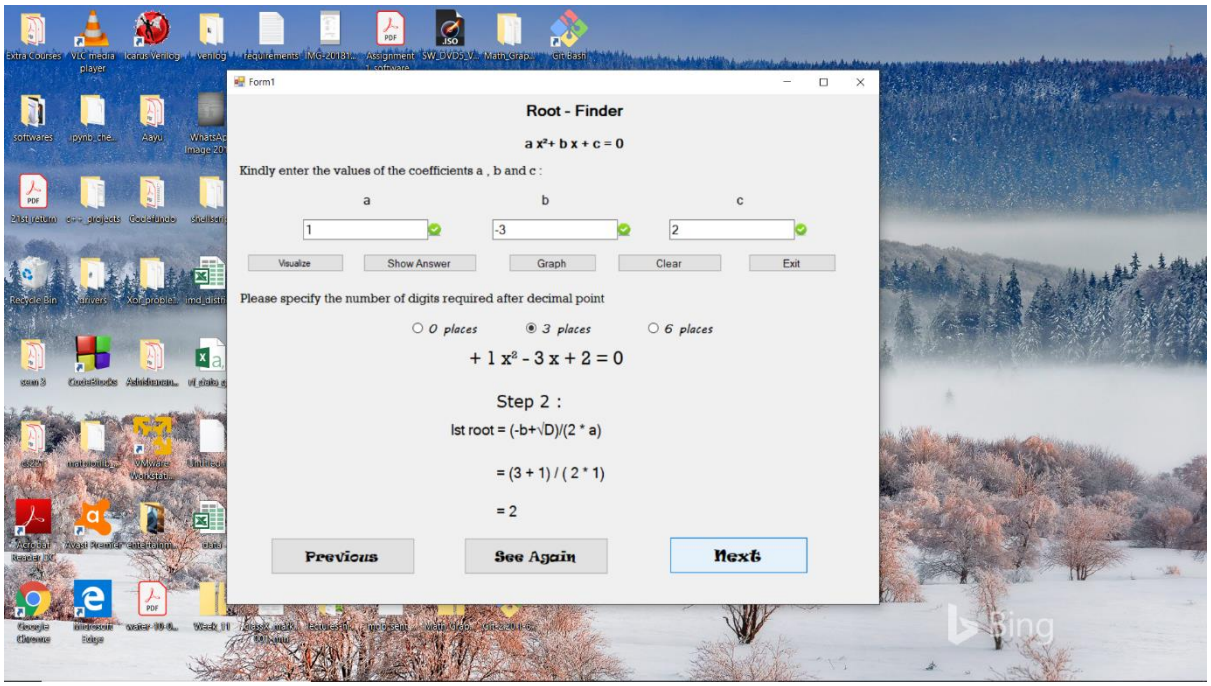
1) Visualize

   This button will show the step by step solution to you. The first step will involve finding the value of the discriminant.



This step involves calculation of the discriminant
Appropriate time delay has been added at each part to improve the user experience(UX)

The user has been given three buttons, viz a viz previous, show again, and next.
If the user presses previous button at this step, appropriate messages are shown telling you that you are still on the first step.
The show again button will show the this step again with all time dealys in case you missed it the first time. The next button will take you the next step ie step2.

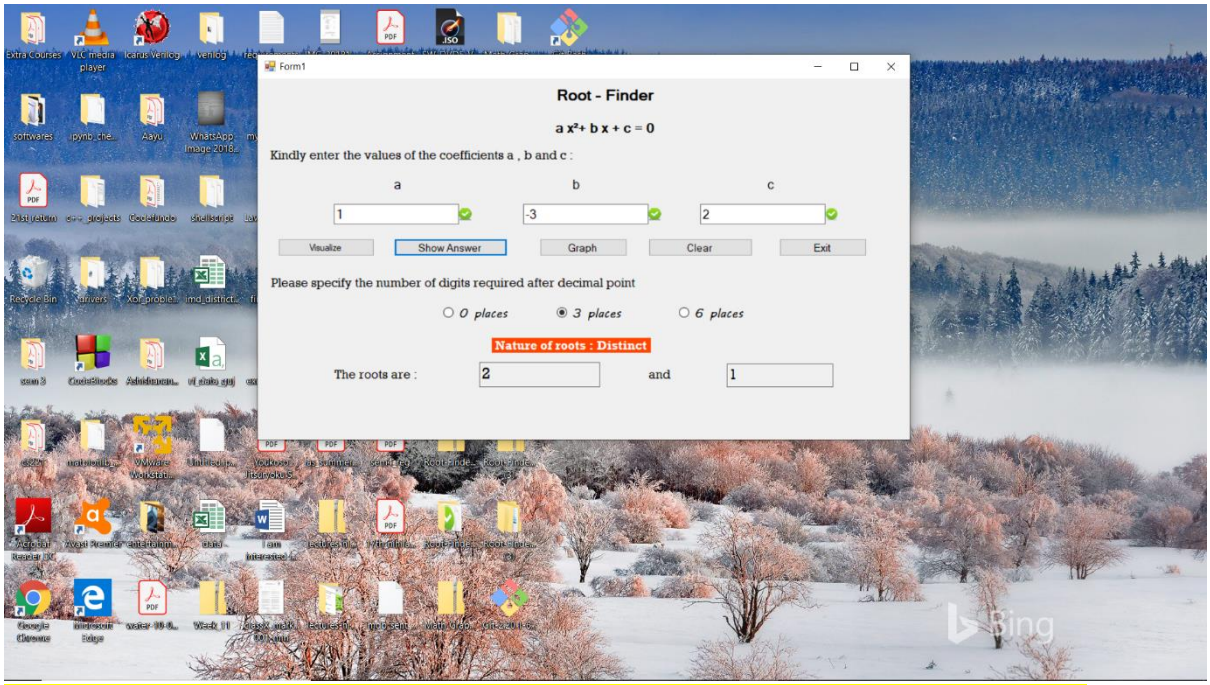


The second step show the calculation for the first root step by step. Again appropriate time delays has been given to improve UX. The same buttons are effective here also.

The second and the final step shows the calculation for the second root in a similar way the first root has been calculated. But the only

difference is that on clicking the next button you will be taken to the show answer function which displays the answer in a formatted format

2) Show answer



This button is useful if you are in a hurry and you want just want the answer without all the steps.
The algorithm designed for checking all the possible cases is run on the given input.

You can always change the number of decimal places you want after the decimal point i.e. 0, 3 or 6 places.
Appropriate time delay has been given to all the labels.

You will first be shown the nature of the roots in different colours, for example if the roots come out to be distinct, then the colour orange red has been used, etc.

You will then be shown both the roots one after another.
Text boxes has been used for displaying the root in case you want to copy paste the answer.

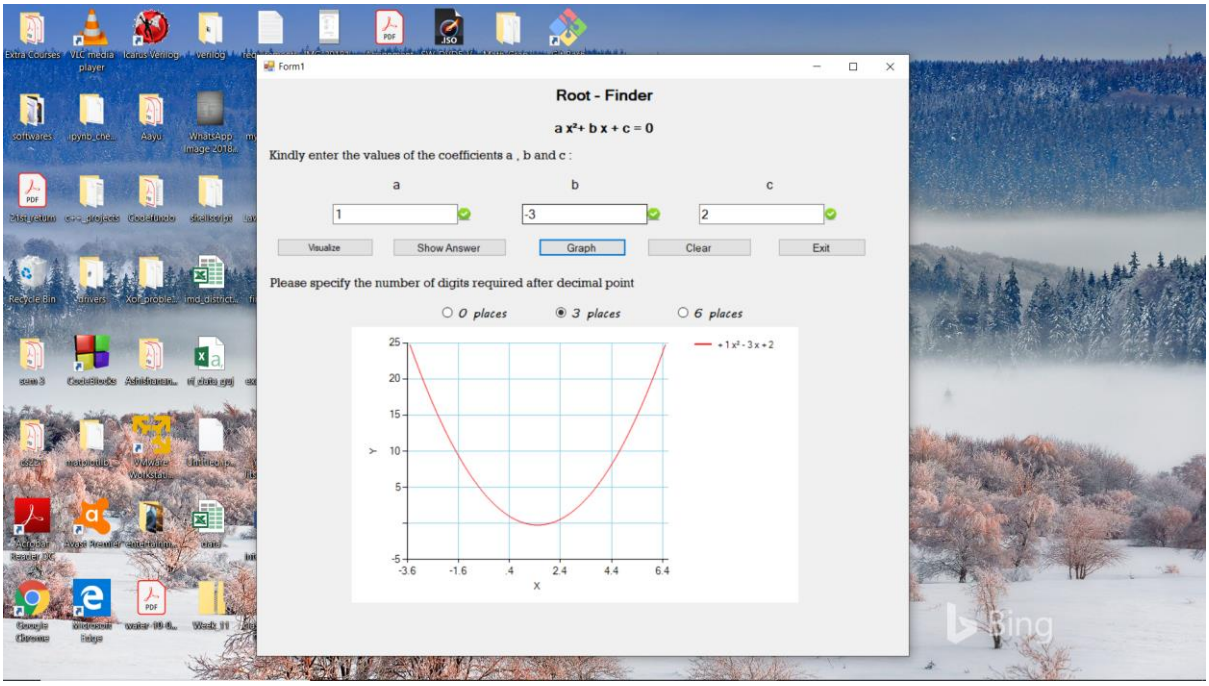
At any point if you feel like changing the precision, you can select the required radio button to do so.

In case you want the root of the linear equation px+qy=c, **no worries**!! Just set the value of a equal to 0 and you are good to go.
But just for you , we are still displaying the roots but with a message box showing that you have entered a linear equation.

3) Graph

Rightly said, a picture is worth a thousand words,
what is a quadratic equation without a graph?

So we have given you an option to show the graph of the equation you have entered. **Needless to say, if you try to give wrong input, we will catch it, like literally!!**
In case if you give a=0, we will still show the graph of the straight line.

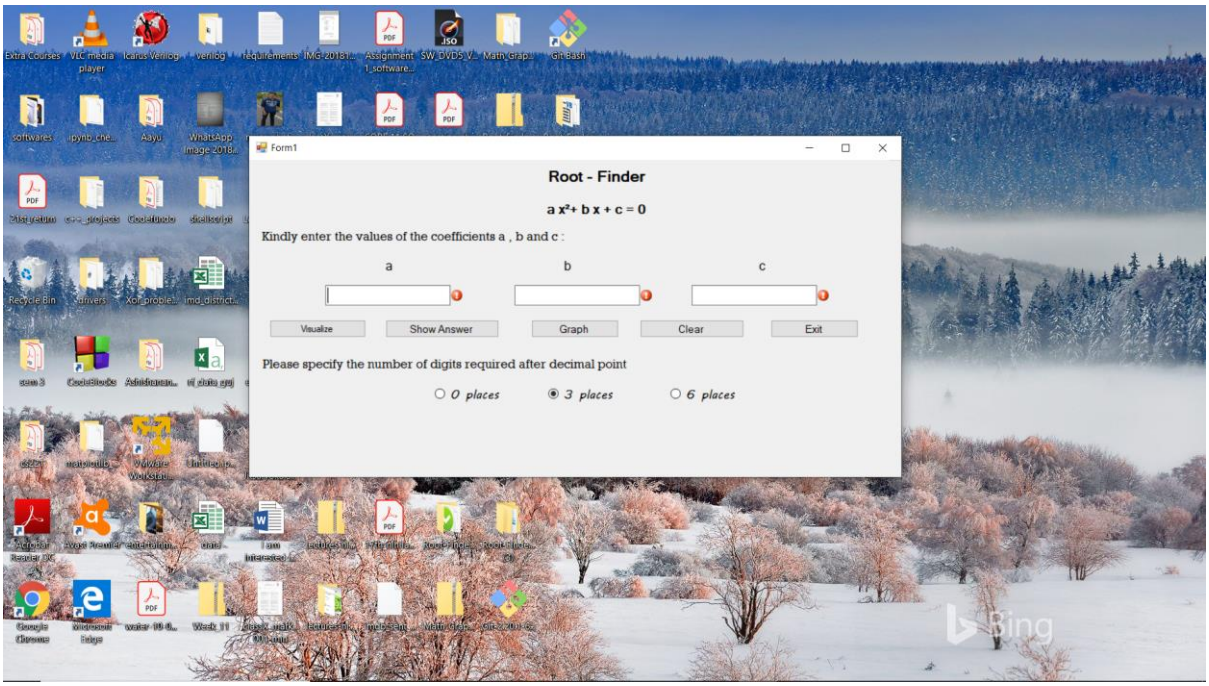


A graph of the equation x^2 – 3x +2 =0 looks like one in the picture!!

4) Clear

Too lazy to delete all the values you have entered so far to try another input. Well we have just the right button for you!!

The clear button is used to clear all the values of the coefficients and to empty the text box.
Appropriate messages boxes are popped up as you press the button.
In case you are in the middle of a process, for ex on the second part of calculation of the discriminant part, clear button will end all such processes and provide you the start window.



After pressing the clear button.

5) Exit
As the name suggests, this button will exit the program successfully and you can continue doing what were you doing before!!