

Square root extraction

User guide
2022

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Features overview

The program "Square Root Extraction" is a software product that helps the user to solve the problem of extracting a square root from rational numbers using special functions.

The program "Square Root Extraction" is designed to extract the square root from:
positive and negative numbers

- integers and real numbers
- zero
- long numbers

The main benefits of using the "Square Root Extraction" program are:

- the ability to extract the root from various types of numbers
- precision selection

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Software history

The program "Square root extraction" version 1

1. Added extraction of roots from rational numbers, zero, long numbers
2. Added precision selection
3. Improved error tolerance

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System requirements

For stable and efficient operation of the "Square Root Extraction" program, it is recommended to use the following configuration:

Processor Frequency (CPU): 1 GHz

Amount of RAM: 1 Gb

Amount of free disk space (HDD): 64 Gb

Operating System (OS): Windows, Linux, macOS

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Getting started

This topic will help you to quickly register, configure and start working with The program "Square root extraction".

Before you start working, please, review the recommended [system requirements](#) and [license agreement](#).

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Basic concepts and requirements

Before you start working in the "Square Root Extraction" program, we recommend that you familiarize yourself with the basic concepts and terms:

Concept 1

The square root of a is the number x that gives a when squared: $x * x = a$.

Concept 2

A rational number is a number that can be represented as an ordinary fraction.

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Installation

To install the "Square Root Extraction" program, please download the distribution of the latest version 1.0, available at <https://github.com/mikhail-pichkalyov/Project3>. Before installation review the [system requirements](#) and [license agreement](#).

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Initial setup

To get started in the "Square Root Extraction" program, we recommend that you first perform the following settings:

1. Installing the current version of Visual Studio
2. Installing the current version of Avalonia UI

The next step is to run the Project 3.sln file and build the project.

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Start

To launch the "Square Root Extraction" program, click on the shortcut of the Project 3 program in the downloaded folder...\Project3-master\bin\Debug\netcoreapp3.1

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User interface

This topic describes the main elements of the user interface of The program "Square root extraction" 1.0: the main operation modes, intended use of windows and screens, available operations.

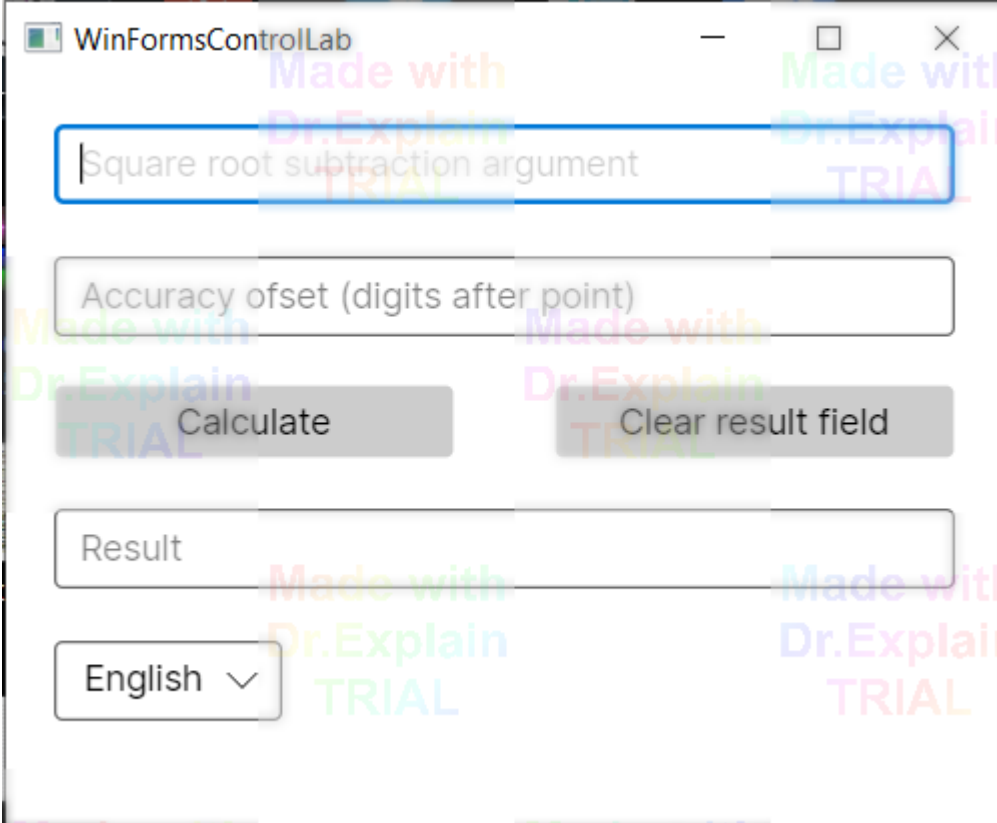
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The main window of the program

The main window of the program The program "Square root extraction" allows you to perform the following operations:

- Calculation of the square root
- Clearing the input field
- Language change



The screenshot shows a Windows application window titled "WinFormsControlLab". The interface includes a text input field at the top with the placeholder text "Square root subtraction argument". Below this is a text input field labeled "Accuracy offset (digits after point)". There are two buttons: "Calculate" and "Clear result field". Below these buttons is a text input field labeled "Result". At the bottom, there is a language selection dropdown menu currently set to "English".

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Working with the calculation of the square root

This section describes how to work with the calculation of the square root.

1. In the upper field "Square Root calculation argument", enter the number from which you want to extract the root.

Only numbers, ".", "-" can be entered in the field.

2. In the next field "Precision in decimal places", you can specify the accuracy of the calculation.

The maximum allowable accuracy is 1000. By default, the accuracy is set to 3.

Only numbers can be entered in the field.

3. After clicking the "Calculate" button, the result of calculations will appear in the next field.

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Working with clearing the input field

This section describes how to work with clearing the input field

After calculating the input field, you may need to clear the output field. To do this, click the "Clear output field" button.

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Working with language change

This section describes how to work with changing the language.

There are 3 types of language: Russian, English, German.

To switch, use the drop-down list at the bottom of the window.

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Use case

This topic contains the use cases of The program "Square root extraction", demonstrating the application of the product in various fields.

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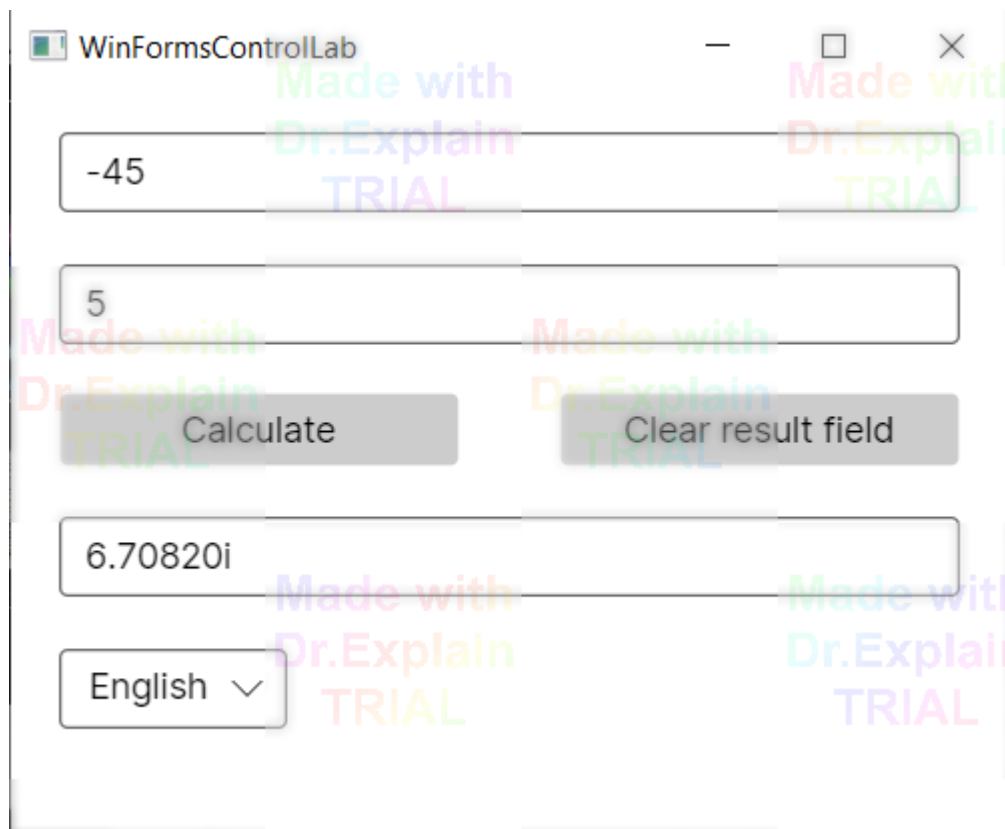
Case #1: Calculating the square root of a negative integer with a given accuracy

Task

The client had the following task - to calculate the square root of -45 with an accuracy of 5

Problem

Before using the "Square Root Extraction" program, the client had to calculate the expression manually



The result of using the program "Square Root Extraction" was:

- quick solution
- correct result

Conclusion

Using the example of this case, we can conclude that the implementation of the "Square Root Extraction" program has improved work efficiency.

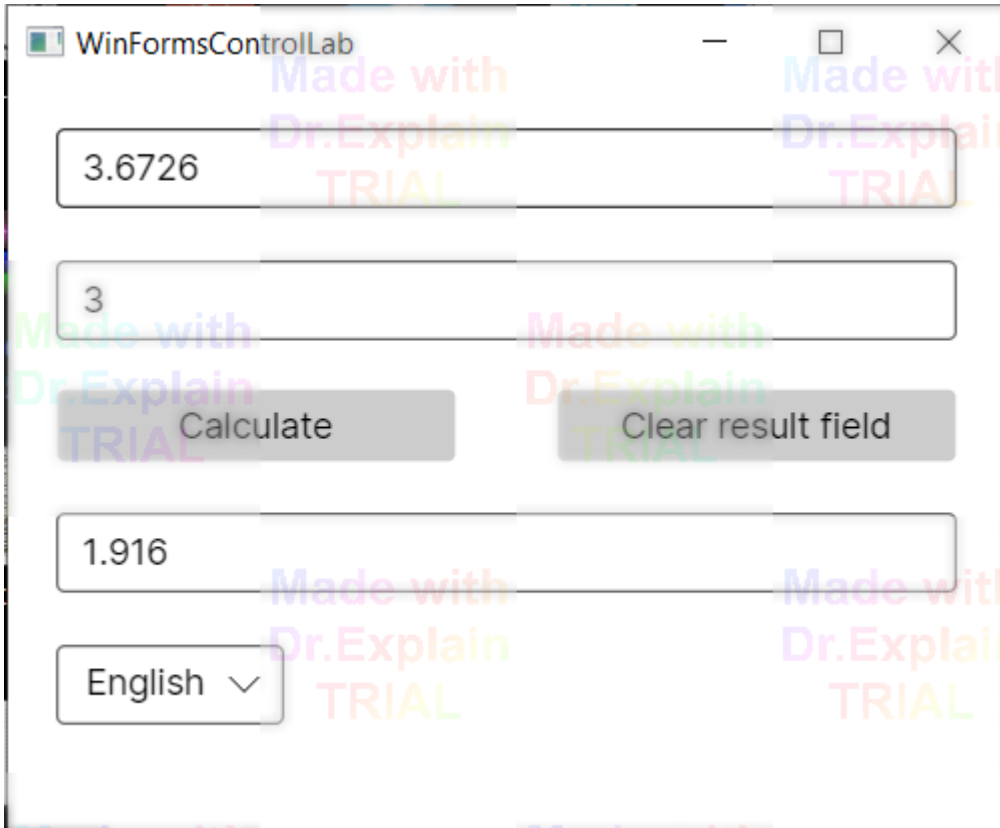
Case #2: Calculating the square root of a real number with a given accuracy

Task

The client had the following task - to calculate the square root of 3.6726 with an accuracy of 3

Problem

Before using the "Square Root Extraction" program, the client had to calculate the expression manually



The result of using the program "Square Root Extraction" was:

- quick solution
- correct result

Conclusion

Using the example of this case, we can conclude that the implementation of the "Square Root Extraction" program has improved work efficiency.

Troubleshooting FAQ

Description of a problem

It is not possible to write a real number in the format n,m

Solution:

Use a dot separator.

If you have not found the answer to your question, please [contact us](#).

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Frequently asked questions (FAQ)

What can the "Square Root Extraction" program be used for?

Answer:

Calculating the square root of rational numbers with a given accuracy within 1000 decimal places

If you have not found the answer to your question, please [contact us](#).

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Licensing

The following topics contain the information about the kinds and types of licenses of the The program "Square root extraction", as well as the information about the methods of purchase and licensing conditions.

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License types

The use of the The program "Square root extraction" implies your direct consent to the general [Ultimate User License Agreement](#).

The license model supports the following license types:

Free

This type of license allows you to use the program in full.

Please take into account the information about [the mode of the licenses acquisition](#).

License agreement

The program "Square root extraction"

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Date of drafting the text of the Agreement: May 28, 2022.

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Main terms of the Agreement

Software — software product "Program "Extraction of the square root"".

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Contact information

The program "Square root extraction" is developed and maintained by the **Morozov D., Pichkalev M., Soboleva A., Moseeva Yu.**, which is the copyright holder.

Technical support

You can ask the questions about The program "Square root extraction" using the following ways:

- Email address: adven.eksanov@mail.ru