

The system behind the scientific calculator computer science



**ASSIGN
BUSTER**

The first scientific calculator that included all of the basic features above was the programmable Hewlett-Packard HP-9100A,[1] released in 1968, though the Wang LOCI-2 and the Mathatronics Mathatron had some features later identified with scientific calculator designs. The HP-9100 series was built entirely from discrete transistor logic with no integrated circuits, and was one of the first uses of the CORDIC algorithm for trigonometric computation in a personal computing device, as well as the first calculator based on reverse Polish notation entry. HP became closely identified with RPN calculators from then on, and even today some of their high-end calculators (particularly the long-lived HP-12C financial calculator and the HP-48 series of graphing calculators) still offer RPN as their default input mode due to having garnered a very large following.

The HP-35, introduced on February 1, 1972, was Hewlett-Packard's first pocket calculator and the world's first handheld scientific calculator.[2] Like some of HP's desktop calculators it used reverse Polish notation. Introduced at US\$395, the HP-35 was available from 1972 to 1975. HP continues to develop and market high-end scientific calculators, like the HP-35s and HP-49 series, which have been favored by scientists and engineers, in labs, offices, as well as in the field.

Texas Instruments, after the introduction of several units with scientific notation, came out with a handheld scientific calculator on January 15, 1974 in the form of the SR-50.[3] TI continues to be a major player in the calculator market, with their long-running TI-30 series being one of the most widely used scientific calculators in classrooms.

Casio and Sharp have also been major players, with Casio's FX series (beginning with the Casio FX-1 in 1972[4]) being a very common brand, used particularly in schools. Casio is also the #3[citation needed] player in the graphing calculator market, and was the first company to produce one (Casio fx-7000G).

INTRODUCTIONScientific Calculator

Top of Form

Bottom of Form

The calculator was written by Rolf Howarth in early 1996.

A fully featured scientific calculator with proper operator precedence is implemented, including trig functions and logarithms, factorials, 12 levels of parentheses, logs to base 2 (a handy function for information entropists!), bitwise logical operators, hex, octal, binary and ASCII display.

The calculator is written in JavaScript and you are welcome to view the JavaScript source (visible within the HTML page) for personal educational purposes as long as you recognize that it is copyrighted and not in the public domain. This calculator is now available as part of Hummingbird's Enterprise Information Portal. All enquiries regarding licensing the calculator should be directed to Hummingbird Ltd.

Basic FunctionsAddition

The addition (sum function) is used by clicking on the “+” button or using the keyboard. The function results in $a+b$.

Subtraction

The subtraction (minus function) is used by clicking on the “-” button or using the keyboard. The function results in $a-b$.

Multiplication

The multiplication (times function) is used by clicking on the “x” button or using the keyboard “*” key. The function results in $a*b$.

Division

The division (divide function) is used by clicking on the “/” button or using the keyboard “/” key. The function results in a/b .

Sign

The sign key (negative key) is used by clicking on the “(-)” button. The function results in $-1*x$.

Square

The square function is used by clicking on the “ x^2 ” button or type “ 2 ”. The function results in $x*x$.

Square Root

The square root function is used by clicking on the “ $\sqrt{}$ ” button or type “`sqrt()`”. This function represents $x^{.5}$ where the result squared is equal to x .

Raise to the Power

The raise to the power (y raised to the x function) is used by clicking on the “ y^x ” button or type “`^`”.

Natural Exponential

The natural exponential (e raised to the x) is used by clicking on the “ e^x ” button or type “`exp()`”. The result is e (2. 71828...) raised to x .

Logarithm

The logarithm (LOG) is used by clicking on the “LOG” button or type “`LOG()`”.

Natural Logarithm

The Natural logarithm (LN) is used by clicking on the “LN” button or type “`LN()`”.

Inverse

Multiplicative inverse (reciprocal function) is used by pressing the “ $1/x$ ” button or typing “`inv()`”. This function is the same as x^{-1} or dividing 1 by the number.

Exponent

Numbers with exponents of 10 are displayed with an “ e”, for example 4.5e+100 or 4.5e-100. This function represents 10^x . Numbers are automatically displayed in the format when the number is too large or too small for the display. To enter a number in this format use the exponent key “ EEX”. To do this enter the mantissa (the non exponent part) then press “ EEX” or type “ e” and then enter the exponent.

Factorial

The Factorial function is used by clicking the “!” button or type “!”.

PI

PI is a mathematical constant of the ratio of a circle’s circumference to its diameter.

PROPOSED SYSTEM

The following documentation is a project the “ Name of the term paper allotted”. It is a detailed summary of all the drawbacks of the old system and how the new proposed system overcomes these shortcomings. The new system takes into account the various factors while designing a new system. It keeps into the account the Economical bandwidth available for the new system. The foremost thing that is taken care of is the Need and Requirements of the User.

DESCRIPTION

Before developing software we keep following things in mind that we can develop powerful and quality software

PROBLEM STATEMENT

Problem statement was to design a module:

Which is user friendly

Which will restrict the user from accessing other user's data.

Which will help user in viewing his data and privileges.

Which will help the administrator to handle all the changes.

FUNCTIONS TO BE PROVIDED:

The system will be user friendly and completely menu driven so that the users shall have no problem in using all options.

The system will be efficient and fast in response.

The system will be customized according to needs.

(View

Add

Delete

Modify)

SYSTEM REQUIRMENTS

<https://assignbuster.com/the-system-behind-the-scientific-calculator-computer-science/>

Operating system: MS Windows XP or Windows Vista

Language: C Language

Processor: Pentium IV Processor RAM: 512 MB Hard disk: 5 GB

SYSTEM DESIGN

Then we began with the design phase of the system. System design is a solution, a “HOW TO” approach to the creation of a new system. It translates system requirements into ways by which they can be made operational. It is a translational from a user oriented document to a document oriented programmers. For that, it provides the understanding and procedural details necessary for the implementation. Here we use Flowchart to supplement the working of the new system. The system thus made should be reliable, durable and above all should have least possible maintenance costs. It should overcome all the drawbacks of the Old existing system and most important of all meet the user requirements.

Welcome to main menu of Scientific Calculator

Enter Your Choice?

On calculator

Do your any task

Do you want to continue?

START

Trigonometry(sin, cos)

Inverse(1/x)

STOP

Switch off calculator

Yes

No

APPLICATIONS

In most countries, students use calculators for schoolwork. There was some initial resistance to the idea out of fear that basic arithmetic skills would suffer. There remains disagreement about the importance of the ability to perform calculations “in the head”, with some curricula restricting calculator use until a certain level of proficiency has been obtained, while others concentrate more on teaching estimation techniques and problem-solving. Research suggests that inadequate guidance in the use of calculating tools can restrict the kind of mathematical thinking that students engage in. Others have argued that calculator use can even cause core mathematical skills to atrophy, or that such use can prevent understanding of advanced algebraic concepts.

There are other concerns – for example, that a pupil could use the calculator in the wrong fashion but believe the answer because that was the result given. Teachers try to combat this by encouraging the student to make an

estimate of the result manually and ensuring it roughly agrees with the calculated result. Also, it is possible for a child to type in a?'1 A- a?'1 and obtain the correct answer ' 1' without realizing the principle involved. In this sense, the calculator becomes a crutch rather than a learning tool, and it can slow down students in exam conditions as they check even the most trivial result on a calculator.

FUTURE SCOPE OF THE PROJECT

Our project will be able to implement in future after making some changes and modifications as we make our project at a very low level. So the modifications that can be done in our project are:

To make it screen touch so no need to touch key buttons and one more change which can we made is to add snaps of the person who use it.

TESTING

Testing is the major control measure used during software development. Its basic function is to detect errors in the software. During requirement analysis and design, the output is a document that is usually textual and no executable. After the coding phase, computer programs are available that can be executed for testing purpose. This implies that testing not only, has to uncover errors introduced during coding, but also errors introduced during previous phase. Thus the goal of testing is to uncover the requirements, design and coding errors in the programs. The Sourcecode declared above for the program of Scientific Calculator has been tested and it has been

found that the above source code is okay and correct. The program involves many type of conversions. These conversions has to done carefully