PRACTICA DE PROGRAMACION

Manual de usuario

Camilo Cañas Jaramillo

David Felipe Garcia

Esteban Gonzalez Tamayo

Ximena Guerrero Villa

Analisis Numerico

ST0256-002

Alejandro Arenas Vasco

EAFIT

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Medellin

Ingieneria de Sistemas

CONTENT

1. DESCRIPTION

Our system is a web page that allows the user to use different quantitative methods online, which will be available on the site.

2. MINIMAL KNOWLEDGE

The user that will use the website must have a knowledge of the methods that they will use, equally if them misuses the page, the page will be able to support the error of the action.

3. TECHNICAL REQUIREMENTS

An internet connection is required, and a browser that supports JavaScript

4. BASIC FUNTIONS

Incremental Searches

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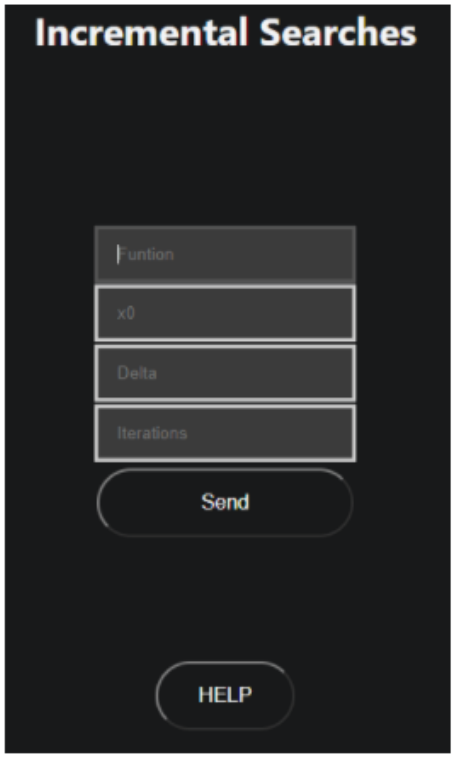
Welcome to help section of Incremental searches explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- Function to evaluate
- X_0: start point
- Delta: to find the value with an error less than delta
- Iterations: or maximum iteration that your need to execute this method

How to write a function

Example

- Function $f(x)$: (x-1)^3-2*x^2 + x
- X_0: -1
- Delta: 0.5
- Iterations: 32

Bisection

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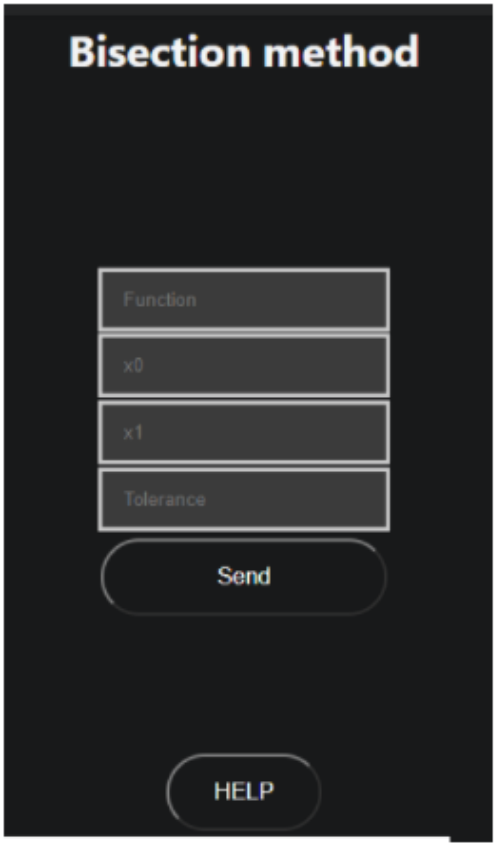
Welcome to help section of bisection explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- Function to evaluate
- X_0: Initial value of range
- X_1: Final value of range
- Tolerance: value with error lower or equal than tolerance

How to write a function

Example

- $f(x)$: x^3-5
- X_0: 1.5
- X_1: 1.75
- Tolerance: 1e-5

Regula Falsi

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Welcome to help section of Regula Falsi explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

- Function to evaluate
- X_0: Initial value of range
- X_1: Final value of range
- Tolerance: value with error lower or equal than tolerance

How to write a function

Example

- Function: x^3-5
- X_0: 1.5
- X_1: 1.75
- Tolerance: 1e-5

Fixed Point

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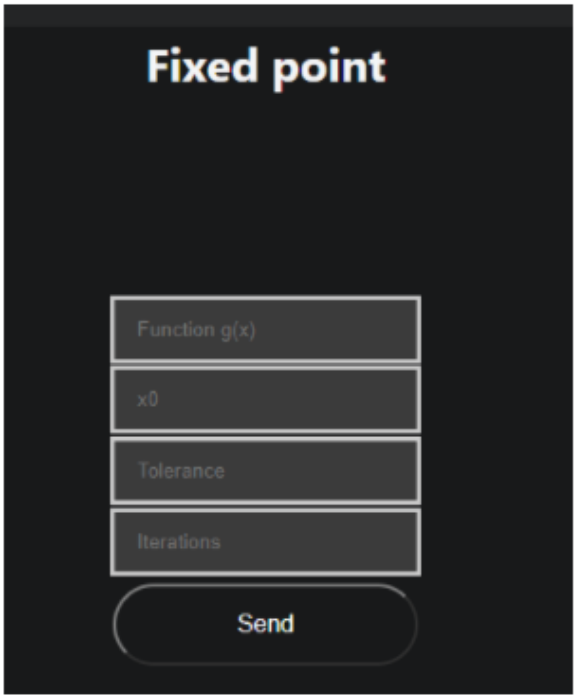
Welcome to help section of Fixed point explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- Function to evaluate
- X_0: start point
- Tolerance: to find the value with an error less than delta
- Iterations: or maximum iteration that your need to execute this method

How to write a function

Example

- Function $g(x)$: x^3-5
- X_0: 1
- Tolerance: 1e-5
- Iterations: 10

Newton

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Welcome to help section of Newton method explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

- Function to evaluate
- X0: start point
- Tolerance: to find the value with an error less than delta
- Iterations: or maximum iteration that your need to execute this method

How to write a function

Example

- Function: log(x ^ 2 - 2*x + 2)
- X0: 0.5
- Delta: 0.005
- Iterations: 500

Multiple Roots

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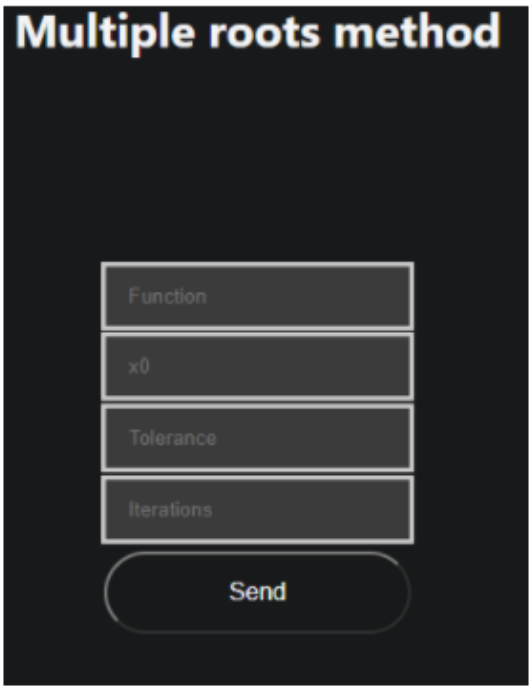
Welcome to help section of Multiple roots explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- Function to evaluate
- X_0: start point
- Tolerance: to find the value with an error less than delta
- Iterations: or maximum iteration that your need to execute this method

How to write a function

Example

- Function $f(x)$: x^3-x^2-2*x+2+sin(x-1)
- X_0: 0.5
- Delta: 0.005
- Iterations: 500

Secant

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Welcome to help section of Secant explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

- Function to evaluate
- X_0: Initial value of range
- X_1: Final value of range
- Tolerance: value with error lower or equal than tolerance
- Iterations: or maximum iteration that your need to execute this method

How to write a function

Example

- Function $f(x)$: x^5 - 5*x + 3
- X_1: 0
- X_1: 0.5
- Tolerance: 1e-5
- Iterations: 100

Gauss normal

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Welcome to help section of Gaussian method explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

- Matrix: Need to be as Mx(M+1) the last column is for the independent vector x

Example

$$\left\{\begin{array}{rrrcr} x & 4y & -z & = & -5 \\ x & y & -6z & = & -12 \\ 3x & y & -z & = & 4 \end{array}\right\} = \left[\begin{array}{ccc|c} 1 & 4 & -1 & -5 \\ 1 & 1 & -6 & -12 \\ 3 & 1 & -1 & 4 \end{array}\right]$$

Required matrix expressed as extended matrix

Gaussian Partial Pivoting

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Welcome to help section of Gaussuian Partial Pitoving explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

- Matrix: Need to be as Mx(M+1) the last column is for the independent vector x

Example

$$\left\{\begin{array}{rrrcr} x & 4y & -z & = & -5 \\ x & y & -6z & = & -12 \\ 3x & y & -z & = & 4 \end{array}\right\} = \left[\begin{array}{ccc|c} 1 & 4 & -1 & -5 \\ 1 & 1 & -6 & -12 \\ 3 & 1 & -1 & 4 \end{array}\right]$$

Required matrix expressed as extended matrix

Gaussuian Total Pitoving

November 22, 2021 · One min read

Welcome to help section of Gaussuian Total Pitoving explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

- Matrix: Need to be as Mx(M+1) the last column is for the independent vector x

Example

$$\left\{\begin{array}{rrrcr} x & 4y & -z & = & -5 \\ x & y & -6z & = & -12 \\ 3x & y & -z & = & 4 \end{array}\right\} = \left[\begin{array}{ccc|c} 1 & 4 & -1 & -5 \\ 1 & 1 & -6 & -12 \\ 3 & 1 & -1 & 4 \end{array}\right]$$

Required matrix expressed as extended matrix

Gaussian simple (LU)

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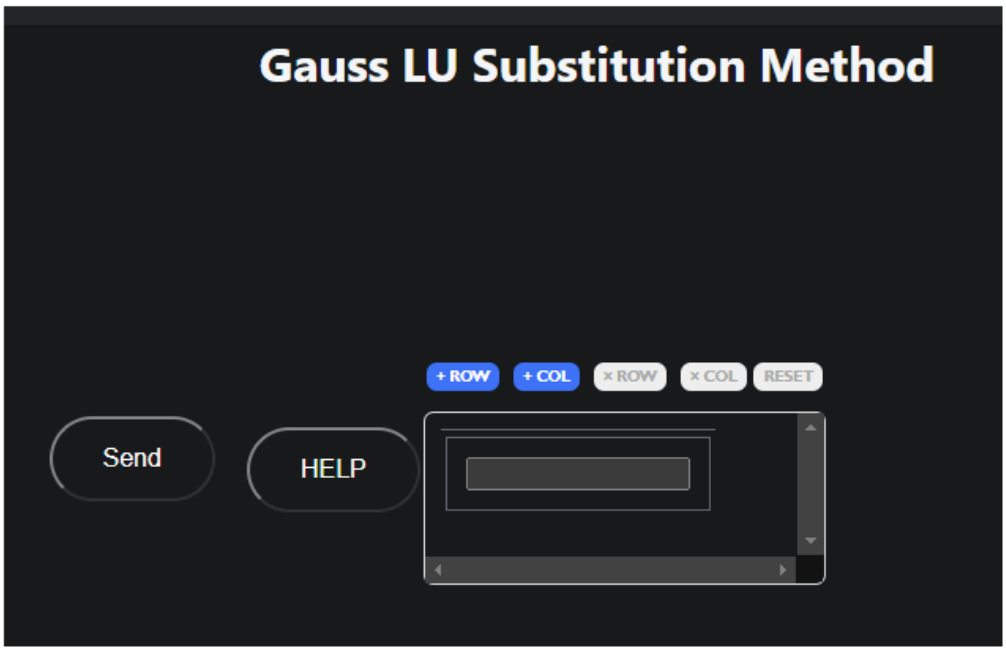
Welcome to help section of Gaussian simple (LU) explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- Matrix: Need to be as Mx(M+1) the last column is for the independent vector x

Example

$$\left\{\begin{array}{rrrcr} x & 4y & -z & = & -5 \\ x & y & -6z & = & -12 \\ 3x & y & -z & = & 4 \end{array}\right\} = \left[\begin{array}{ccc|c} 1 & 4 & -1 & -5 \\ 1 & 1 & -6 & -12 \\ 3 & 1 & -1 & 4 \end{array}\right]$$

Required matrix expressed as extended matrix

Jacobi

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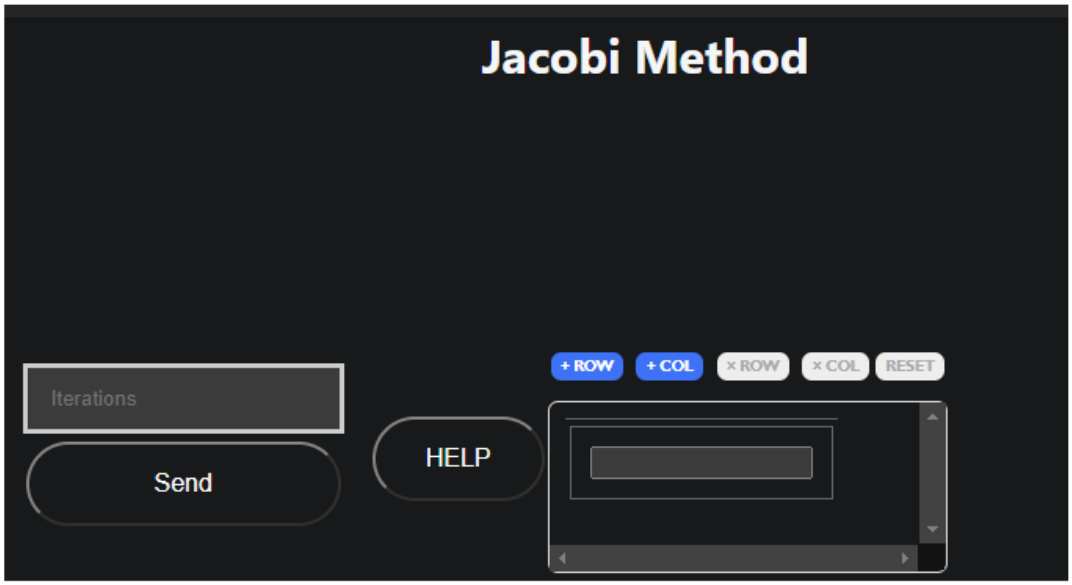
Welcome to help section of Jacobi method explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- Matrix: Need to be as Mx(M+1) the last column is for the independent vector x
- Iterations: or maximum iteration that your need to execute this method

Example

- Matrix: $\left[\begin{array}{cc|c} 2 & 1 & 11 \\ 5 & 7 & 3 \end{array}\right]$

Required matrix expressed as extended matrix

- Iterations: 30

Gauss seidel

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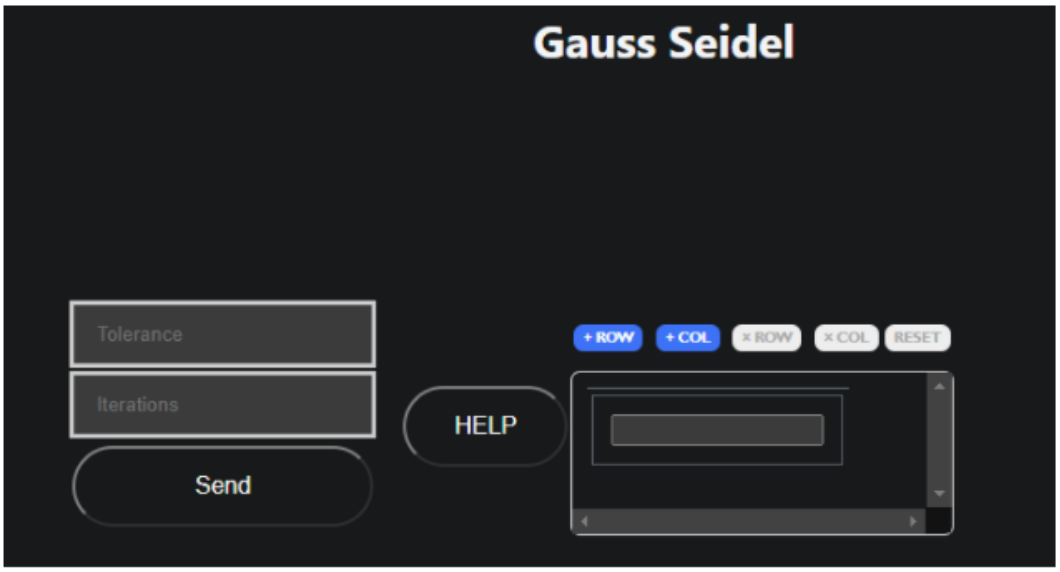
Welcome to help section of Gaussuian Seidel explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- Matrix: Need to be as Mx(M+1) the last column is for the independent vector x
- Tolerance: value with error lower or equal than tolerance
- Iterations: or maximum iteration that your need to execute this method

Example

- Matrix: $\left[\begin{array}{cc|c} 16 & 3 & 11 \\ 7 & -11 & 3 \end{array}\right]$

Required matrix expressed as extended matrix

- Tolerance: 0.005
- Iterations: 30

Lagrange

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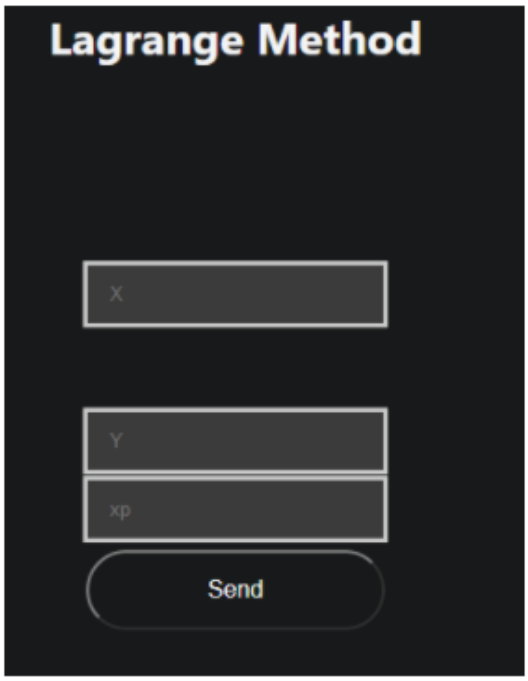
Welcome to help section of Lagrange explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- X: x coordinates
- Y: y coordinates
- xp: value to find

Example

- X: 0,1,2,5
- Y: 2,3,12,147
- xp: 3

Express X and Y coordinates as values separated by a comma

Newton (Split Differences)

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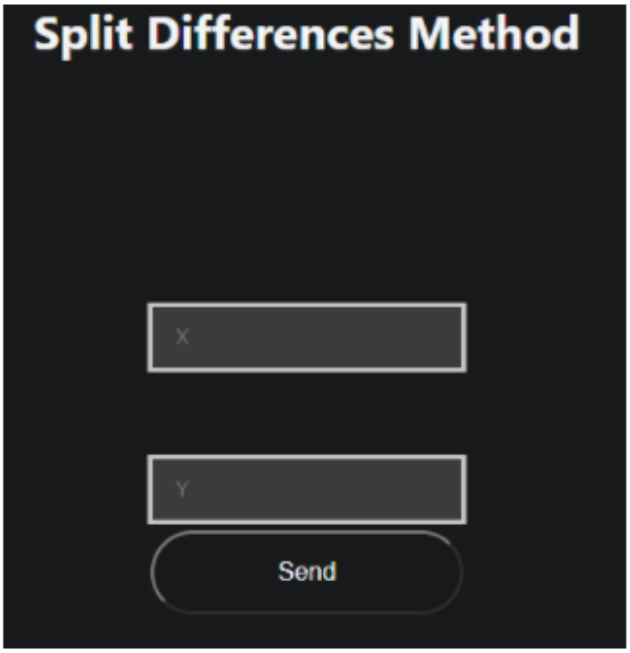
Welcome to help section of Split Differences explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- X: x coordinates
- Y: y coordinates

Example

- X: 0,1,2,5
- Y: 2,3,12,147

Express X and Y coordinates as values separated by a comma

Vandermonde

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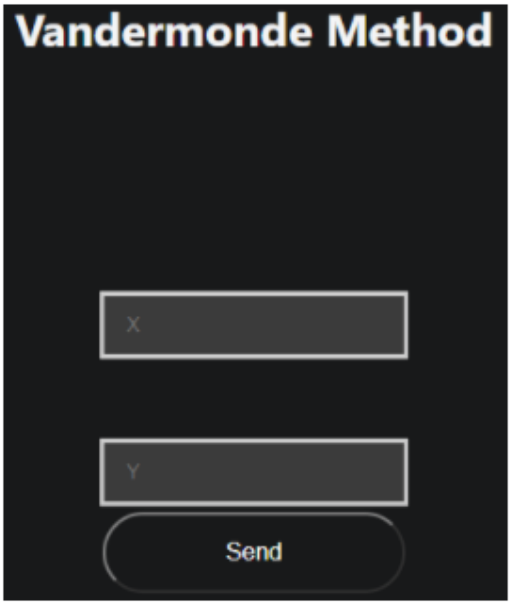
Welcome to help section of Vandermonde explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- X: x coordinates
- Y: y coordinates

Example

- X: 0,1,2,5
- Y: 2,3,12,147

Express X and Y coordinates as values separated by a comma

Lineal Splines

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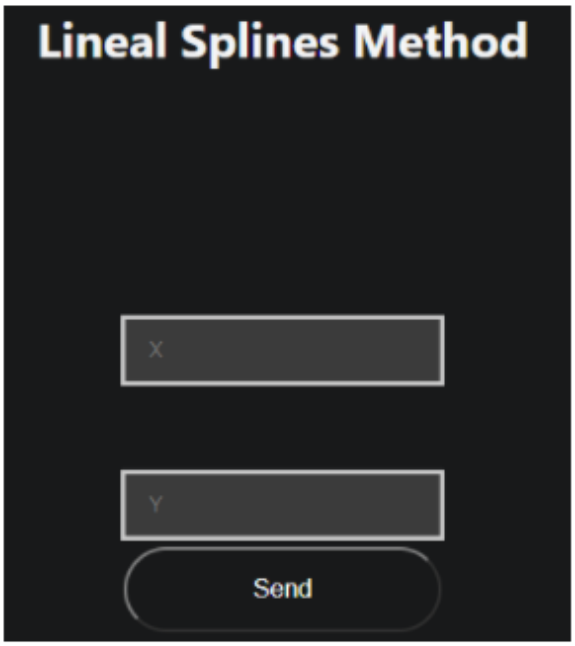
Welcome to help section of Lineal Splines explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- X: x coordinates
- Y: y coordinates

Example

- X: 0,1,2,5
- Y: 2,3,12,147

Express X and Y coordinates as values separated by a comma

5. TROUBLESHOOTING

In case the result's delivered takes too much time, it is recommended to restart the page or check your internet connection