

# **Quickest Path**

**User Manual  
Team 3**



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# Introduction

## Welcome To Quickest Path !

Quickest path is a high-performance REST API software solution developed in C++ which will calculate the quickest path to link cities.

### Key features

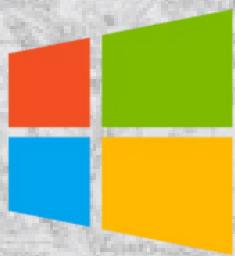
- **Pathfinding:** The system needs to determine the fastest route between two landmarks using a given dataset, which, in this case, is a CSV file containing American landmarks.
- **Data Validation:** A dedicated utility will check the dataset's integrity, confirming the graph is connected and free of loops.
- **Response Format Options:** Users can choose between XML and JSON formats for the system's responses.
- **Error Management:** The API will adhere to standard REST error handling, returning relevant status codes and descriptive error messages.

# Software / Hardware requirement

Software:



MacOS Sequoia



Windows 11



Linux Mint Wilma

**Note:** Previous OS versions **might work**, but we recommend the **latest OS** version for optimal performance.

# Software / Hardware requirement

## Hardware

Category	Recommended	Minimum
<b>CPU</b> (Windows / Linux)	x86_32 CPU with SSE2 instructions, any x86_64 CPU, ARMv8 CPU <b>Intel(R) Core(TM) i7-1065G7</b>	<b>Intel Core 2 Duo E8200,</b> <b>AMD Athlon XE</b>
<b>CPU</b> (macOS)	x86_64 or ARM CPU (Apple Silicon)  <b>Apple M3 Chip</b>	<b>Intel Core 2 Duo SU9400,</b> <b>Apple M1</b>
<b>RAM</b> (All systems)	16 GB	8Gb

# Application Usage

**The application will work like by:**

Request checking: The system will check the validity of the user's HTTP request, if the request is valid (i.e., contains the required parameters), it will proceed to the next step.

Pathfinding: The system will compute the shortest path between the source and destination landmarks based on the dataset provided by the user.

Formatting: The system will format the result in the user-selected format (XML or JSON).

**Result: The system will return the result to the user.**

# Installation process:

## For Mac:

- Install G++ via Homebrew with the command:

brew install gcc

- clone the repository from our [Github](#)
- Complete The integrity of the document by adding the .csv file in the “Data” folder.
- Build the program with the following command.

```
g++ -std=c++17 -o RestApiApp \
RestApi.cpp QuickestPath.cpp PathFinder.cpp Graph.cpp
```

- Run the program with the command:

`./RestApiApp`

# Installation process:

## For Windows:

- Install [msys2](#)
- clone the repository from our [Github](#)
- Complete The integrity of the document by adding the .csv file in the “Data” folder.
- Run the program in the command prompt with the command:

```
C:\Users\JulianREINE>g++ -std=c++23 -O3 main.cpp src/PathFinder.cpp src  
/Graph.cpp src/RestApi.cpp -o main lpthread ./main
```

# Troubleshooting

If quickest path is not working, please verify that your are updated with the following softwares:

- C++ compiler: GCC 10+ or Clang 11+
- Web server framework: Crowcpp or Restbed
- IDE: Visual Studio Code or CLion
- Testing framework: GitHub Actions
- HomeBrew (For MAC Users) | Visual Studio Community (For windows users)
- Verify the integrity of the program; Uninstalling the program may resolve bugs if it was not correctly installed at first.

# Error Handling

When using the system, you might encounter error and error codes. Here is a list of the corresponding error with their codes and their meanings

Error	Meaning
<b>"Error: Could not open the file "</b>	The system is checking for ".csv" files and couldn't find one. Check the path in which you copied your file and verify its format (.csv required)
<b>"Error: Invalid line format in CSV file: "</b>	The csv line format is invalid; you may check on the integrity of your document.

Example of error code returned by the system

```
{  
    "error_code": 400,  
    "error_message": "Invalid ID provided"  
}
```

```
<error>  
    <error_code>400</error_code>  
    <error_message>Invalid ID provided</error_message>  
</error>
```

# **Technical support**

## **Support**

For any issues, please contact us at **Project3Team3@algosup.com**

Our team is here to help troubleshoot and resolve your issue.

If you have any other questions or support requests, don't hesitate to contact us through the same email. We'll make sure your concerns are handled promptly.

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# Credits



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**Thanks for using our software !**