"Dropbox" Homework

Build an application, consisting of two separate components, to synchronise a destination folder from a source folder over IP:

1.1: A simple command line client which takes one directory (the source) as argument, keeps monitoring changes in that directory, and uploads any change to its server

1.2: A simple server which takes one directory (the destination) as argument and receives any change from its client

Bonus 1: Optimise data transfer by avoiding uploading the same file multiple times.

Bonus 2: Optimise data transfer by avoiding uploading the same partial files (files sharing partially the same content) multiple times.

You should use Python as the programming language, unless you have had a prior conversation with the hiring manager and agreed on an alternative. We're happy for you to develop on any operating system of your choice, but you should be aware that reviewers use a combination of Windows, macOS, and Linux. If you know your solution is not cross-platform, be sure to mention it.

You need to avoid using high level libraries such as *librsync* and *dirsync* that would render your solution trivial. If you are unsure about which libraries you can use just let us know and we will work it out.

Please provide your solution as a git repository (via GitHub, GitLab, Bitbucket, etc.), being sure to include a README file describing how to run the application. You should document any known shortcomings of your solution and describe improvements that you might have liked to make.

We are often asked how much time you should spend on this project. It's difficult to give a definitive answer as people work at different rates, and have varying amounts of time they can dedicate to this process. A guideline would be somewhere between 3 and 6 hours based on feedback from successful candidates. Please give us an indication of how much time you spent in the README file.

There's no deadline by which you have to submit your solution; just come back to us when you've found time to look at this.

Finally, if there's anything that's unclear or you have any questions about the brief then please let us know and we'll do our best to help you.