Architecture

System design

This program is 100% implemented by Python. There is no database and UI, clients are satisfied with using command line. The extraction is more focused in this project.

The process of the project can be simply exlpained in three steps: extract parameters from the file, compare the value with truth table, and show the result. Based on that, three python files are created: app.py, parameter_retrieval.py, and outputter.py.

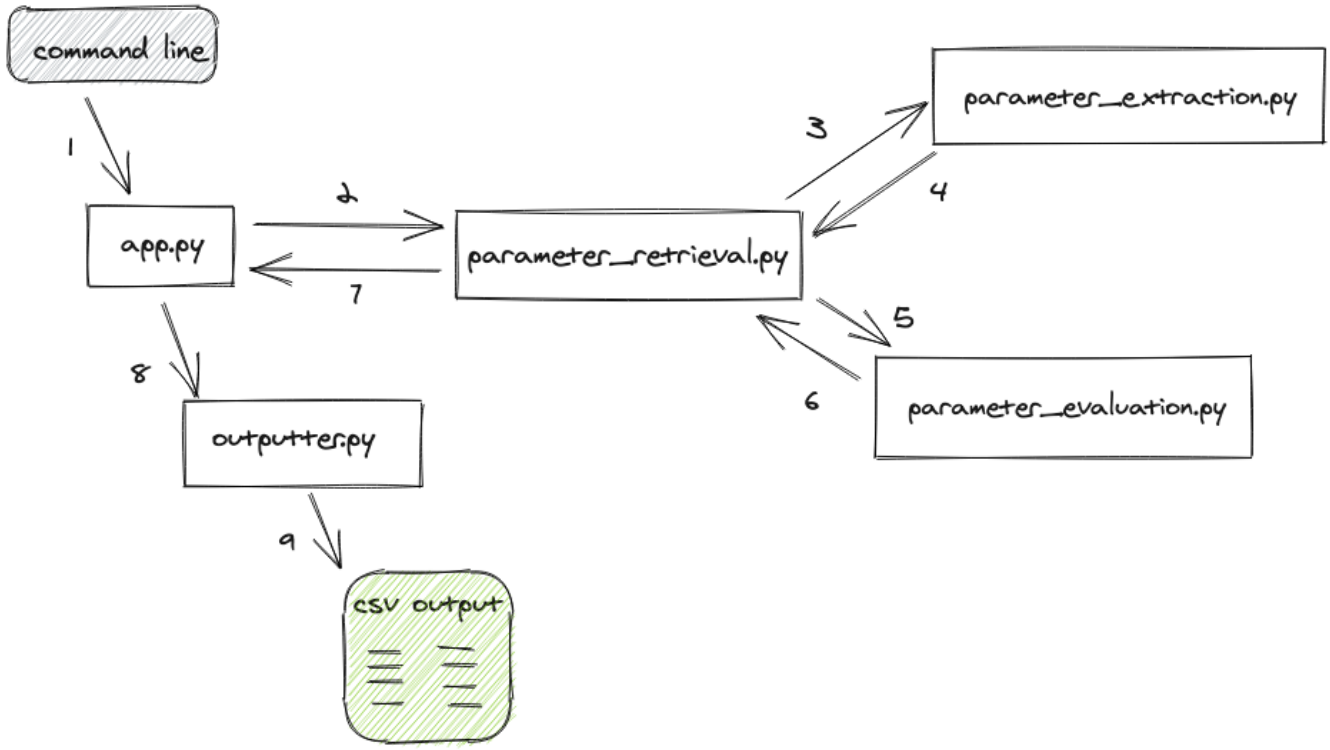
Parameter extraction and evaluation are managed in parameter_retrieval.py, the outputter file contains collection of functions to output the extracted parameters into the format specified by the user, as required, CSV. User can get a CSV file after running the program, which is clear and intuitive. The app file, as the main module, is used to apply two files above.

Since the primary entry point for the program using command line interface, users only need to mention file name as one of the command line arguments when they want to run the program.(Currently multiple input is implemented; case number can entered as a command line argument.) In general, the main function asks for user inputs using command line arguments, then pass it to the extractor. The extractor result is then passed to the outputter.

We separated each parameter extraction into its own function, instead of one big function, to optimize the code.

The main module is app.py, so `python app.py` forms the base for all commands. More details can be found in the "User guide" page or "Readme" in github.

Diagram



Architecture considerations

There are plans for future development projects to convert this into a web app for their clients to verify DICOMs automatically. Therefore separating the command-line interactions and the extraction logic allows the extraction component can be reused as a webapp backend (or as part of it). Graphical user interface(GUI) is also considered as further development.

Further parameters may be desired by clients in the future, which they want to program themselves. Therefore the extraction functions are separated into their own module, giving a clear location to add further parameters to be extracted.