

RECONDO

Recondo Technology

Client

Recondo connects providers, payers, and patients using cloud computing solutions throughout the healthcare revenue cycle. Our software services are designed to ensure proper payments across the continuum of US healthcare and bring efficiencies and cost savings to healthcare payment processing, which currently costs US healthcare a staggering \$480 billion in annual expense.

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Working Environment

Recondo has a history of collaborative internship programs with the School of Mines. Our main offices are located in the Denver Tech Center. After the field session kick-off activities have been completed in our main office students will be able to work in any location that is convenient for them. There is convenient light rail access to our main offices.

Project

Central to our Auth-DP (Authorization Denial Prevention) product is a collection of rules which indicate whether an authorization is required for a particular patient visit. These rules vary by insurance company and are currently maintained and updated by business analysts. While Recondo has numerous internal tools to support this process, the actual creation of each rule is still entirely manual.

Insurance companies periodically release PDFs detailing their changes to authorization, which would be the input data to this framework. These PDFs vary in complexity, and do not have a consistent format, which adds to the challenge. Today, a business analyst reviews this PDF and applies any necessary changes to the existing rules.

Recondo plans to use this field session to create a framework that will process a PDF representation of changes to authorization requirements, parse out the information into an intermediate text-based format, and pass the resulting data to a series of existing APIs for integration, validation, and testing. This framework would run as a web service and would be called using an HTTP request. Given a PDF, plus instructions on how to parse it, the framework would generate a CSV representation of the authorization requirements as described within the

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file. It would then pass the file to a series of validation APIs. These validation APIs return a JSON response, which ultimately is passed back to the initial caller.

Time permitting, students will have the opportunity to integrate their API into the existing dashboard application that business analysts use to manage the deployment, testing, and validation of these rules.

Students will be expected to:

- Perform enough analysis of current authorization PDFs to understand how a generic interface for parsing can be designed
- Design an extensible, web-based framework to parse PDFs of varying composition and complexity to a standard CSV-based format
- Using Java or Ruby, implement this framework as a web service deployed onto a VM cluster running Tomcat 8.5
- Pass the converted CSV to existing APIs using HTTP protocols for further validation
- (Time Permitting) Update the existing dashboard application with an interface that will allow a user to submit a PDF for conversion and validation.

Valuable Skills

For this project, students should be familiar with the following concepts:

- Regular expressions (high level understanding, minimum)
- File I/O and text parsing in at least one language (Java/Ruby preferred but not required)

Students will have the opportunity to work with the following technologies:

- Java 8 and Ruby (existing web services and APIs)
 - Java libraries including Spring 5 and Spring-Boot 2
- Tomcat 8.5 (servlet container)
- Angular 5 (dashboard application)
 - Web technologies including StompJS, TypeScript, NPM/Node and Angular Material 2

Team Size

This project is appropriate for 3-5 students, with a preference toward a size of 3.