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EnrollMe

Making enrollment process at UPRM simpler

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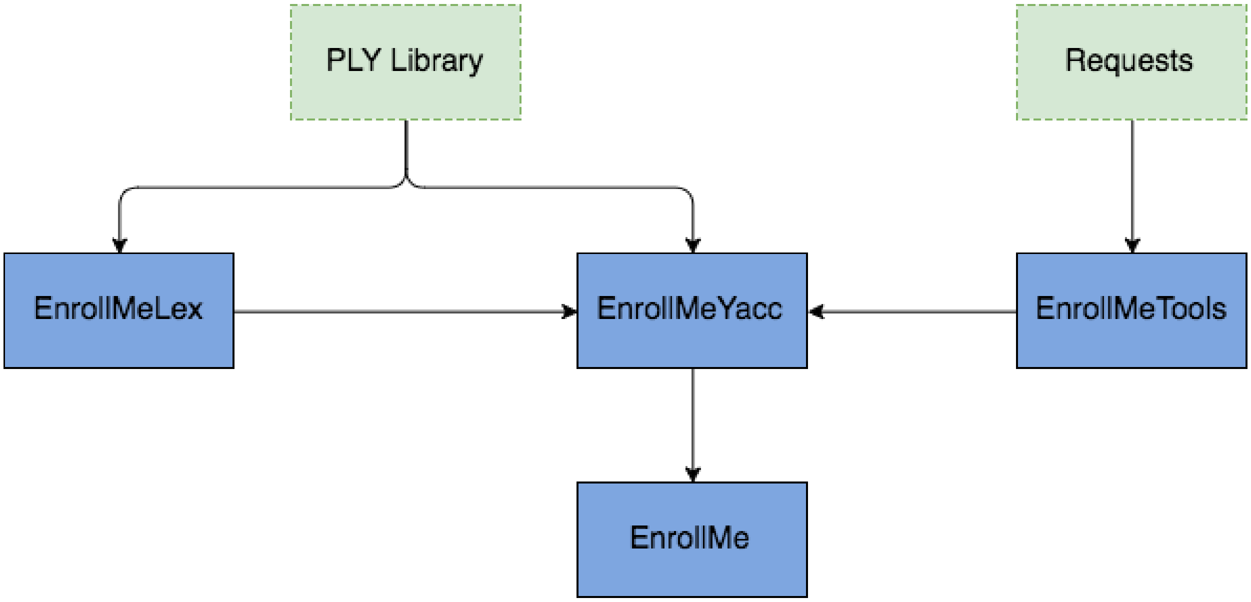
Introduction

The EnrollMe project consists of a programming language to aid UPRM students during the enrollment process. The current enrollment process is tedious and confusing, which causes that many students, specially first-year students, to seek help somewhere else. The purpose of this project is to provide the users with a tool that is easy to use by using clear commands and simple vocabulary. Overall, our goal is to give students the option of using EnrollMe in order for them to enroll in the most convenient classes for them more quickly and efficiently.

Language Development

EnrollMe Translator Architecture



Module Interaction description

In EnrollMe.py is where the main execution starts. Here, the programs keeps running while receiving inputs from the user. These inputs are the commands and parameters required for the enrollment process. The execution stops when the user enters the quit command.

The inputs received are passed as arguments to the parser EnrollMeYacc.py which imports Yacc from the PLY library. The Yacc parser uses the same Python functions defined in the module. Theses functions are responsible of defining the grammar of the inputs entered by the user.

The Yacc parser verifies that the inputs match the specifications of the tokens defined in the EnrollMeLex.py. These specifications consist of the token name followed by the regular expression required in the inputs.

Next, the Yacc parser sends the inputs as arguments to EnrollMeTools.py. In EnrollMeTools.py, the code imports the Request module, which is used to post, get, put and delete courses from the user schedule.

Lastly, all changes made to the user schedule are reflected in the database hosted on Digital Ocean, which uses Laravel for the backend API.

Development Tools

PyCharm - Main IDE used to develop the EnrollMe programming language.

Laravel - A PHP Framework that facilitates the development of backend-APIs. Used to develop the mockup database which had the data regarding: classes, professors, timeslots, etc.

Digital Ocean - Used to host the Database and the laravel framework.

Github - A web-based Git repository hosting service. Used to collaborate between team members during the development process.

SourceTree - Git client for Windows and Mac that provides a graphical user interface (GUI) for Git repositories.

Testing Methodology

Each module was tested individually before testing the entire program. The following descriptions explain how each module was tested:

- **EnrollMeLex** - We verified that the tokens were labeled correctly as well as the regular expressions.
- **EnrollMeYacc -** We had to check that the functions were working properly with the input statements so that the correct arguments were passed to EnrollMeTools.
- **EnrollMeTools -** We tested the Request module by verifying that the correct JSON data was passed and received.

Testing was done using **PyUnit** (*unittest module*) in order to assure that our language was behaving according to our design specifications. These testing programs can be located under the *EnrollMeTester.py* module.

Programs used for testing

Program 1:

```
enroll QUIM3132 010

schedule #shows the user schedule

enroll MATE3031 030

enroll ESPA3102 091

schedule

drop MATE3031

schedule

available QUIM3132 AM ‘’’shows available sections for that course in

                      the morning ‘’’

change QUIM3132 022
```

Program 2:

```
enroll MATE3031 030

enroll ESPA3102 091

schedule

available QUIM3132 Jorge ‘’’shows available sections for that course

                          with professors named Jorge ‘’’

enroll QUIM3132 022

change ESPA3102 030

schedule
```

Conclusion

During the process of developing the EnrollMe programming language some roadblocks were found. For example, the integration of the Database with the language (intermediate code) was not an easy task and some libraries such as Requests: HTTP for Humans were needed in order to achieve our purpose. Another difficulty that was found during the development process was understanding how PLY worked and going through all the documentation so that we could then build the lexer and subsequently, the parser. Nevertheless, we feel proud that our initial idea of providing students with a programming language that facilitates the enrollment process in UPRM was successful. As a group, one feature that we really cared about was the “available” functionality since it makes the process faster and it is really easy to filter classes by professor’s name/last name, classes during the morning or afternoon, etc. Overall, this project helped us become familiar with how programming languages are created and all the complexity behind them. Also, we became more proficient with Python which is a skill that will definitely help us in our professional career. Finally, as a group we improved team skills such as communicating collaborating, and managing our time effectively. It was a complete learning experience, that can easily be transferable to our professional careers in a near future.