Introducing Libraries for Evolutionary Computing

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***Abstract*— In this report we are going to introduce two libraries that are going to be used in our future works. We use Pymoo and Deap libraries. These libraries work on the Python platform, also we work on Evolutionary Computing.**

Keywords—python, evolutionary computing, deap, pymoo

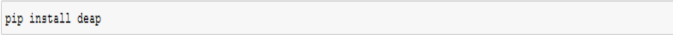
I. Introduction

Python is an interpreted high-level general-purpose programming language. Python is dynamically-typed and garbage-collected. It supports multiple programming paradigms, including structured (particularly, procedural), object-oriented and functional programming. Python's large standard library, commonly cited as one of its greatest strengths, provides tools suited to many tasks. Here we will introduce two of them [1].

II. Libraries

A. Deap

In this library, instead of providing closed initializers, it enables us to customize them as we wish. Instead of implementing many sealed algorithms, it allows us to write the ones that fit all our needs [2]. For installing this library, you should open command prompt and type:

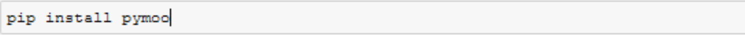


```
pip install deap
```

Creating an appropriate type might seem overwhelming but the creator makes it very easy. In fact, this is usually done in a single line. Once the types are created you need to fill them with sometimes random values or sometime guessed ones. Again, *Deap* provides an easy mechanism to do just that. The toolbox is a container for tools of all sorts including initializers that can do what is needed of them. Operators are just like initializers, except that some are already implemented in the tools module. Once you've chosen the perfect ones, simply register them in the toolbox [2].

B. Pymoo

You can install this library by typing following command in command window:



```
pip install pymoo
```

In this library you just need to import the algorithm you want to use. termination criterion needs to be defined to start the optimization procedure finally. Different kind of Termination Criteria are available. In *Pymoo*, we provide two interfaces for solving an optimization problem, functional and object oriented [3].

III. Works Cited

1 "python," [Online]. Available: https://en.wikipedia.org/wiki/Python_(programming_language).

2 "Overview," [Online]. Available: https://deap.readthedocs.io/en/master/overview.html.

3 "Problem," [Online]. Available: https://pymoo.org/problems/index.html.