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Introduction to Python Project 2 Write-up

NumPy

NumPy is a Python library that gives coders the tools needed for numerical computation that can be applied to various different projects. NumPy is one of the most popular libraries for Python as it allows programmers to process data in ways that would require a lot of prior work. Processing data involving numbers is a very important part of programming as it can be used to achieve tasks that would otherwise be nearly impossible to achieve without computers. Any sort of streamlining when it comes to data processing can allow for progress in the computer space. NumPy allows for a foundation for programmers using Python to allow them to build their systems with far more efficiency then they would be able to without it.

NumPy provides resources that makes aspects of traditional data science easier. Within NumPy is an array object called ndarray, which provides plenty of supporting functions which can help programmers a lot since arrays are a crucial aspects of data science. This array object is one of the major benefits of using NumPy as it makes processing data far faster which in turn can allow programmers to be able to processes far more data faster then they would have been previously able to. In NumPy, arrays are used in similar ways that they would be used in other programming languages as they are able to store data and be called very quickly when needed.

PySimpleGUI

PySimpleGUI takes a number of GUI frameworks (tkinter, Qt, WxPython, and Remi) and transforms them in a way that makes them easier to understand with a simple interface. The primary goal of this library is to make developing GUI’s in Python easier for people who may be newer to Python. Creating effective and attractive user interfaces is an important part of creating worthwhile software. Backend development is very important to the software being made but without an effective frontend the software being created could be overlooked for a far more fleshed out solution. Making the process as simple as possible for creating GUI’s can be a big help for making them efficient as being more simplified can allow for faster testing and being able to make changes without having to be constantly hindered by a framework that is difficult to understand.

PySimpleGUI allows for the creation of GUI’s that are normally possible with the frameworks that were listed before. In theory, anything that can be made with those frameworks are able to be made through the interface that is provided by PySimpleGUI. Programmers are able to make GUI’s for their programs that would allow for more functionality then they would be able to do just within the console. GUI’s can be made to allow for better interactions between the program being developed and the user that is intended to use the program. While it is possible for a user to be able to interact with the program though the console, making a user interface specifically made for that program can allow for far better usability. Another way it can be used is to allow for the programmer to better develop the software. The reason for this would be because having a tailormade GUI for the program can allow the programmer to display anything that is important for them as they develop as they go so, they can make adjustments without having to dissect they code as much.

Pandas

Pandas is another very popular library for the Python programming language. The primary use of Pandas is for providing data structures for Python developers that can help when it comes to data processing. Pandas allows for more comprehensive data manipulation which can be very important in programming as working with data in efficient ways is something that is very important to developers. There are two primary data structures within Pandas. The first primary data structure is Series which is 1 dimensional and the other primary data structure is DataFrame which is 2 dimensional. The people who created and maintain Pandas primary focus was to address certain shortcomings that were present in other programming languages. This resulting in Pandas having a feature set that allows for the processing and manipulation of data as well as being able to keep them well organized for the user who would need to analyze the data after the work is done.

When it comes to real world applications of Pandas, it primarily gives the developer more tools to work with then processing and manipulating data. Some of the benefits can include handling of missing data in floating point, size mutability, and the ability to merge and join data in a more intuitive way. Another benefit of Pandas is that it is designed for working with different kinds of data like working with an SQL table and observational and statistical data sets. Other features of Pandas that can be useful for user is that it can provide certain information such as average, minimum, and maximum values of a data set. A feature like this is something that is more or a less a standard when it comes to people working with data sets as those values can give them a quick overview of the data set and have them be more familiar with what they are working with.