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Linear Algebra

Laboratory Activity No. 1

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# Getting Acquainted with Python

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## I. Objectives

This laboratory activity aims to learn the basic principles and different techniques that be use in python. And learn the transition of language from c++ to python.

## II. Methods

In this activity, we get to know the basic command in Python and on how are we translate from c++ t python. Python is an interpreted, high-level and general-purpose programming language. It suppots multiple programming paradigms.

According to my research “Python can be used on a server to create web applications, can be used alongside software to create workflows, can connect to database systems. It can also read and modify files, can be used to handle big data and perform complex mathematics, can be used for rapid prototyping, or for production-ready software development.” (*W3Schools.com*)

“The terms parameter and argument can be used for the same thing: information that are passed into a function. A parameter is the variable listed inside the parentheses in the function definition. An argument is the value that is sent to the function when it is called.” (*W3Schools.com*)

## III. Results

```
In [13]: party = ['Charmander', 'Pidgey', 'Sandshrew', 'Rattata', 'Abra']; levels = [15, 11, 18, 5, 14]
```

Figure 1

In figure one (1) ,I’ve declaire the vaariables for party, inside the party is the list of pokemons and on the levels is their respective levels. Semicolon is use to separate two list and to make your code in a one liner. Also, you can just press enter if you don’t want to use semicolon its just the same function.

```
In [7]: for pokemon,level in zip(party, levels): print(pokemon, "at level", level)
Charmander at level 15
Pidgey at level 11
Sandshrew at level 18
Rattata at level 5
Abra at level 14
```

Figure 2

In figure two (2), I used zip function to combine the two sets of variables that are declaired in figure one (1) and the print function is used to show what you want to be seen by the users or the output.

```
In [14]: reserves = [('Onix',10),('Slowpoke',18),('Dialga', 2),('Feebas', 32),('Magikarp', 22),('Swablu', 19),('Regigigas', 3), ('Unown', 50)]
```

Figure 3

In figure three (3) I declare all the pokemons and their respective levels and name it as a group of reserves.

```
In [15]: reserves.sort(reverse=True, key=lambda level: level[1]); picks = [pick[0] for pick in reserves[:3]]; print(picks)
['Unown', 'Feebas', 'Magikarp']
```

Figure 4

In figure four (4) there are two function used those are sort and lambda. For sort function it is used to sort the level in descending order and the function lambda is used to create anonymous function that sorts the level in the list.

```
In [21]: def create_party(party,candidates):
suggested_parties = party; suggested_parties.append(candidates[0]);print(suggested_parties)
suggested_parties.pop(); suggested_parties.append(candidates[1]);print(suggested_parties)
suggested_parties.pop();suggested_parties.append(candidates[2]);return suggested_parties
```

Figure 5

In figure five (5) Creating a group that will select candidates, and let the program pick from the cell one (1) and print the first output.

```
In [18]: create_party(party,picks)
['Charmander', 'Pidgey', 'Sandshrew', 'Rattata', 'Abra', 'Unown']
['Charmander', 'Pidgey', 'Sandshrew', 'Rattata', 'Abra', 'Feebas']
Out[18]: ['Charmander', 'Pidgey', 'Sandshrew', 'Rattata', 'Abra', 'Magikarp']
```

Figure 6

In figure six (6) it is where the program will call all those group that are made in figure five (5) which will be the output of the figure 6.

## IV. Conclusion

I conclude that I should read more to learn new ways and techniques on how to code a program using the language python and be knowledgeable on the different function that can be used in next activities and also be mindful of the parameters that I may use. I've learned a lot in this activity by simply remaking what has been shown to us and also it helps us to learn and know how to convert the c++ language to python language.

## GUIDE QUESTION

1. In your perspective, what is the difference between Python and C++ or other languages you have used before? (30 words)

The difference of the two programming language is they made it short and they made it mor easier to remember, and it made our work easier and more logical way.

2. Enumerate and briefly discuss the functions you have used in the laboratory exercise, please cite their usage using their respective documentations. (200 words)

The function that I use in this laboratory are zip, sort, lambda, print, pop, append and return. First is the zip function, it is use to make your parameter to be join in a way that you want the output to be seen. And also, it helps you to print the list in your program it lessens the work to retype and to reencode. Second is Sort Function, it is use to arrange your data inside the program depending on what you want whether you like it ascending or descending order. Third function is lambda it can take any numbers of arguments but only accepting one expression for the entire program. Print Function is like printing what is the outcome of the product or it is the way how the user of the program sees what you want to see them as a user's perspective. Pop function is use to remove and return the las value from the list in the parameter. Append is use to add another list in the end of the parameter. And lastly the return is used in the of the program it is the way of ending or execution of the whole program running.

3. In your perspective, what is the advantages and disadvantages of using Python and Jupyter Notebooks? (100 words)

Using Jupyter notebook is a big help because it's accessible to all and most especially friendly user like to us students who are beginner in this specific programming language. And it helps to correct and to give some comments on what is wring that you've made. In this pandemic,it's such a big help that even you are practicing and familiarizing the functions, tools and all the things inside that software you can

familiarize it and it helps a lot when your coding in your activity and in the middle you accidentally type a wrong function and its form you can easily identify it.

## **References**

- [1] D.J.D. Lopez. “Adamson University Computer Engineering Department Honor Code,” AdU-CpE Departmental Policies, 2020.
- [2] [w3schools.com/python/python\\_functions.asp](https://www.w3schools.com/python/python_functions.asp)
- [3] [https://www.w3schools.com/python/python\\_dictionaries.asp](https://www.w3schools.com/python/python_dictionaries.asp)