Learning Python

COMP 6214 | Logan And Blake | 30024380, 30006830

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## Scope

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| **Scope Items** | **In Progress** | **Finished** | **Comments?** |
| Making a “Hello World” application using Python |  | **✓** | No issues occurred with this scope item as it is real basic |
| Making a basic application using loops using Python |  | **✓** | No issues occurred at this scope item as the tutorials on linkedin learning for loops are clear and concise |
| Making a slightly more advanced application that uses loops |  | **✓** | For this scope item it was a little more difficult as the loops were implemented into the connect four game that was created |
| Making a basic application using IF statements using Python |  | **✓** | No issues occurred at this scope item |
| Making a slightly more advanced application that uses IF statements |  | **✓** | For this scope item many of the games that were created: space invaders, pong and connect four all use IF statements consistently throughout |
| Making a basic application using dictionaries using Python |  | **✓** | For this scope item we were required to look further than linked in learning to find the information, but was easy other then that |
| Making an application using lists using Python |  | **✓** | This was easy to produce |
| Make a slightly more advanced application that uses lists |  | **✓** | A GUI with buttons was provided for interaction for this. |
| Making an application using methods using Python |  | **✓** | This was done with no complications |
| Making an application using classes using Python |  | **✓** | We produced 2 copies of applications using classes one using the oop method and one that isn’t |
| Making an application using arrays using Python |  | **✓** | This was a basic task |
| Making an application that can calculate basic math using Python |  | **✓** | This one was simple and no problems occured |

## Participation Report

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| Participation Report | | | |
| Member Name | Objectives in Progress | Objective Completion | Date of Completion |
| Blake Jensen  Logan Tawhiri | Create a basic Hello World program | **✓** | August 18th 2020 |
| Blake Jensen  Logan Tawhiri | Create a basic application utilizing Loops | **✓** | August 18th 2020 |
| Blake Jensen Logan Tawhiri | Create a basic application utilizing IF statements | **✓** | August 18th 2020 |
| Blake Jensen Logan Tawhiri | Create a basic application utilizing Dictionaries | **✓** | August 22nd 2020 |
| Blake Jensen Logan Tawhiri | Create a basic application utilizing Lists | **✓** | August 22nd 2020 |
| Blake Jensen Logan Tawhiri | Create a basic application utilizing Methods | **✓** | August 25th 2020 |
| Blake Jensen Logan Tawhiri | Create a basic application utilizing Classes | **✓** | August 25th 2020 |
| Blake Jensen Logan Tawhiri | Create a basic application utilizing Arrays | **✓** | August 25th 2020 |
| Blake Jensen | Create an advanced application utilizing Arrays | **✓** | September 1st 2020 |
| Logan Tawhiri | Create an advanced application utilizing Loops with Python | **✓** | September 1st 2020 |
| Blake Jensen Logan Tawhiri | Create an advanced application utilizing IF Statements with Python | **✓** | September 7th 2020 |
| Blake Jensen Logan Tawhiri | Create an advanced application utilizing Dictionaries with Python | **✓** | September 14th 2020 |
| Blake Jensen Logan Tawhiri | Create a calculator that can calculate simple arithmetic (Addition, Subtraction, Multiplication, Division) | **✓** | September 1st 2020 |

## Deliverables

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| --- | --- |
| **Deliverable** | **Delivered** |
| .py files | **✓** |
| Multiple programs showing basic Python functionality | **✓** |
| Having basic knowledge of Python | **✓** |
| Testing | **✓** |
| Participation Report | **✓** |

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## **Milestones**

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| **Milestones** | **Completed** |
| Completed watching the first batch of tutorials. | **✓** |
| Hello world program created & executed. | **✓** |
| Create a program that uses IF statements & execute. | **✓** |
| Create a program that uses loops & execute. | **✓** |
| Create a program that utilizes arrays & execute. | **✓** |
| Create a program that uses lists & dictionaries and execute. | **✓** |
| Create a program that uses methods & classes and execute. | **✓** |
| Create a program that calculates basic arithmetic & execute. | **✓** |
| Testing of programs to ensure a finished product. | **✓** |

## **Testing Plan**

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| Testing Report | | |
| Script/Application Being Test | Outcome | Date Tested |
| Basic Hello World script | No issues occurred, the script executed successfully without error | August 20th 2020 |
| Basic script using Conditional Statements | Script performed successfully without fail, each if statement in either script worked. | August 23rd 2020 |
| Basic script using Arrays | The script executed with success, the array was retrieved and output to the console as well as any extra commands were executed and were output as well. | August 22nd 2020 |
| Basic script using Dictionaries | The script worked according to expectation, the dictionary was retrieved from the variable it was stored in with the values stored inside it. | August 22nd 2020 |
| Basic script using Lists | Execution of the script was flawless, the list was recognised and output to the console for the user to see. No errors were addressed to the console when running the script. | August 22nd 2020 |
| Basic script using Methods | No errors were addressed by the console when the script was executed | September 1st 2020 |
| Basic script using Classes | There were no errors output by the console when the scripts that had classes inside them were executed. Meaning that the creation of these scripts was a success | September 1st 2020 |
| Basic script using Loops | The loops worked perfectly without failure | September 4th 2020 |
| Advanced application using Arrays | The application had a simple GUI, accompanied by a textbox with a message, a button was also present in the application that when pressed it retrieved the array and cleared the textbox and output the array on the textbox. All of this was completed without error. | September 12th 2020 |
| Advanced application using Dictionaries | Much like the GUI for the arrays application it had a textbox with a message and a button with what the button would do. Once pressed it retrieved the dictionary without failing and no errors were reported. Test was successful. | September 12th 2020 |
| Advanced application using Lists | No problems occurred when the button was clicked. The output for the textbox showed the List that was stored in the script. | September 12th 2020 |
| Advanced application using IF Statements | This application was quite different from the other applications that showed lists, dictionaries, and arrays. This one utilized message boxes to output messages with optional choices for the user to choose from. Each option had its own unique message as well as for the third choice it allowed the user to retrieve a list/dictionary and replace the message in the textbox to the list/dictionary. If the third button was clicked again and the other optional choice was selected the textbox would clear and the original message upon execution would appear. In other words the test was successful | September 24th 2020 |
| Advanced application that is a recreation of the game *Connect Four* | This game worked well, it allowed the user to place the tokens wherever they wanted to place them without error. Test was successful without errors | October 3rd 2020 |
| Advanced application that is a recreation of the game *Pong* | The game pong worked amazingly, the paddles for either side operated well and the ball would rebound when they collided with them. Success. | October 6th 2020 |
| Advanced application that is a recreation of the game *Space Invaders* | Works without failure, no errors were thrown. | October 8th 2020 |
| Advanced application that is a recreation of the game hangman | The game functions in the terminal as opposed to a GUI it is functioning correctly. | October 13th 2020 |

## **Conclusion**

Originally the project was to create basic applications that can do many of the basic functionalities of a program such as loops, if statements, lists, dictionaries, functions, methods, classes and a multitude of concepts. This was all and well to the team until we realised the project wouldn’t meet the needed requirements as things were too basic so we decided to dabble into coding basic GUI and games using python as this didn’t seem like a bad approach to meet the requirements. All applications reached their expected outcomes of success and were tested thoroughly before being marked off as complete.   
  
Overall the project went along smoothly with all project members contributing to completing the tasks that were set within the project proposal.  
  
In general we learned that Python is a good language for general purpose use and has many libraries that can be imported to make a numerous number of applications. An issue that occurred was unfortunately some of these libraries can not be imported if you are using a higher version of python or based on whether your system is Linux, macOS or Windows based, this did affect some of the tutorials that we watched as it made it harder to replicate the coding that was being done inside these tutorials.