Green University of Bangladesh

Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering

Semester: (Spring, Year:2023), BSc. in CSE (Day)

LAB REPORT - 01

Course Title: Artificial Intelligence Lab

Course Code: CSE-316 **Section:** PC-201 DC

Student Details

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Lab Date: 18-03-2023

Submission Date: 24-03-2023

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Lab Report Status	
Marks: ……	**Signature: ……**
Comments: ……	**Date: ……**

1. TITLE OF THE LAB EXPERIMENT

Implement three basic problem using python.

2. OBJECTIVES/AIM

- To learn Basic Operations on Python such as Lists, Tuple, Dictionary.
- To acquire knowledge about python.
- To learn variables in python.
- To learn python operators.
- To learn conditional statements in python.
- To learn loops in python.
- To learn functions in python.

3. PROCEDURE / ANALYSIS / DESIGN

Problem-1: Write a Python program to crate two empty classes, Student and Marks. Now create some instances and check whether they are instances of the said classes or not. Also, check whether the said classes are subclasses of the built-in object class or not.

Problem-2: Write a Python program to convert an array to an ordinary list with the same items.

Problem-3: Write a Python program to remove duplicates from the dictionary.

4. IMPLEMENTATION

Code of problem-1:

```
class Students:
pass

class Marks:
pass

student1 = Students()
student2 = Students()
marks1 = Marks()
marks2 = Marks()
print("Check if the instances are of the said classes:")
print(isinstance(student1, Students))
print(isinstance(student2, Students))
print(isinstance(marks1, Marks))
print(isinstance(marks2, Marks))

print("\nCheck if the classes are subclasses of the built-in object class:")
print(issubclass(Students, object))
```

```
print(issubclass(Marks, object))
```

Code of problem-2:

```
import array

Romzan = array.array('i', [1, 2, 3, 4, 5, 6, 7, 8, 9])

list = Romzan.tolist()

print("The final convert list: ",list)
```

Code of problem-3:

```
student_data = {'R1':
{'name': ['Romzan'],
'class': ['4th year'],
},
'R2':
{'name': ['Romzan1'],
'class': ['3rd year'],
},
'R3':
{R4':
{'name': ['Romzan1'],
'class': ['3rd year'],
},
}

result = {}

for key,value in student_data.items():
if value not in result.values():
result[key] = value

print("The unique dictionary = ",result)
```

5. TEST RESULT / OUTPUT

```
Check if the instances are of the said classes:
True
True
True
True

Check if the classes are subclasses of the built-in object class:
True
True
```

Figure_01: Output of problem1

In this problem1, we first define two empty classes, Student and Marks, using the class keyword and the pass statement. We then create instances of these classes using the class name followed by parentheses.

We then use the isinstance() function to check whether each instance is an instance of the corresponding class. This function takes two arguments: the instance to check and the class to check against. It returns True if the instance is an instance of the class, and False otherwise.

Finally, we use the issubclass() function to check whether each class is a subclass of the built-in object class. This function takes two arguments: the class to check and the class to check against. It returns True if the first class is a subclass of the second class, and False otherwise. Since all classes in Python are subclasses of object by default, we expect these checks to return True for both classes.

```
print("The final convert list: ",list)

The final convert list:  [1, 2, 3, 4, 5, 6, 7, 8, 9]
```

Figure_02: Output of problem2

In this problem2, we first import the array module, which provides support for arrays in Python. We then create an array using the array() function, specifying the type of elements in the array ('i' for integers) and the initial values of the array ([1, 2, 3, 4, 5, 6, 7, 8, 9]).

We then use the tolist() method of the array object to convert the array to a list. This method returns a new list object containing the same items as the original array.

Finally, we print the resulting list using the print() function. The output should be [1, 2, 3, 4, 5, 6, 7, 8, 9], which is the same as the original array.

```
print("The unique dictionary =",result)
```

```
The unique dictionary =  {'R1': {'name': ['Romzan'], 'class': ['4th year']}, 'R2': {'name': ['Romzan1'], 'class': ['3rd year']}}
```

Figure_03: Output of problem3

In this problem3, we first create a dictionary with some duplicates using curly braces and key-value pairs. We then create an empty dictionary called result dictionary to store the unique key-value pairs.

We then loop through the original dictionary using the items() method, which returns a sequence of (key, value) pairs. For each pair, we check if the key is already in the result dictionary using the in operator. If it's not, we add the key-value pair to the result dictionary.

Finally, we print the resulting result dictionary using the print() function. Which is the dictionary with duplicates removed.

6. ANALYSIS AND DISCUSSION

This experiment mainly based on software. So, it may have so software error. Based on the focused objective(s) to learn the step-by-step working system of those three problems. Those three problems are interrelated that’s why I can easily understand. The task will help us to create new new solution from different problems. The main hard part of this experiment is successfully completed those problems. We face so many problem for understanding new new function of python and their working system. Now, we get so many knowledge to execute those function. Those are very important for our future lab task.