Department of Computer Science and Engineering

29th Batch

Lab Report 4

Course title   : Artificial Intelligence Lab
Course Code   : CSE - 414

Submitted By		Submitted To	
Name	: Md. Nahid Hasan	Name	: Md. Mahfujur Rahman
ID	: 221311131	Designation	: Lecturer,
Section	: D		Varendra University,
Semester	: 8th		Rajshahi.
Batch	: 29th	Name	: D.M. Asadujjaman
		Designation	: Lecturer,
			Varendra University,
			Rajshahi.

_____   _____

Signature   Signature

➢ Question: Implementing list Comprehension in Python.

❖ Solution(Code):

```python
Sec_D = {
    "221311121": {
        "Cse-321": "A+",
        "Cse-323": "A+",
        "Cse-324": "A+",
        "Eco-331": "A+",
        "Cse-331": "A+",
        "Cse-332": "A+",
        "Cse-333": "A+",
        "Cse-334": "A+",
        "Cse-336": "A+",
        "CGPA": 4.00
    },
    "221311123": {
        "Cse-321": "A-",
        "Cse-323": "C+",
        "Cse-324": "A-",
        "Eco-331": "A-",
        "Cse-331": "A",
        "Cse-332": "A",
        "Cse-333": "B",
        "Cse-334": "B",
        "Cse-336": "D",
        "CGPA": 3.19
    },
    "221311125": {
        "CGPA": 3.75,
        "Cse-321": "A",
        "Cse-323": "A",
        "Cse-324": "A",
        "Eco-331": "A",
        "Cse-331": "A",
        "Cse-332": "B+",
        "Cse-333": "A",
        "Cse-334": "A",
        "Cse-336": "B",
        "CGPA": 3.75
    },
    "221311126": {
        "Cse-321": "A",
        "Cse-323": "A",
        "Cse-324": "A",
        "Eco-331": "A",
        "Cse-331": "A",
        "Cse-332": "A",
        "Cse-333": "A",
        "Cse-334": "A",
        "Cse-336": "B",
        "CGPA": 3.67
    },
    "221311127": {
        "Cse-321": "B",
        "Cse-323": "C+",
        "Cse-324": "A",
        "Eco-331": "A",
        "Cse-331": "A",
        "Cse-332": "A+",
        "Cse-333": "A",
        "Cse-334": "A",
        "Cse-336": "A",
        "CGPA": 3.20
    },
```

```
    "221311128": {                          "221311131": {
        "Cse-321": "F",                         "Cse-321": "A+",
        "Cse-323": "C",                         "Cse-323": "A+",
        "Cse-324": "B",                         "Cse-324": "A+",
        "Eco-331": "B",                         "Eco-331": "A+",
        "Cse-331": "B",                         "Cse-331": "A+",
        "Cse-332": "A+",                        "Cse-332": "A+",
        "Cse-333": "B",                         "Cse-333": "A+",
        "Cse-334": "B+",                        "Cse-334": "A+",
        "Cse-336": "C",                         "Cse-336": "A+",
        "CGPA": 2.90                            "CGPA": 4.00
    },                                      },
    "221311129": {                          "221311132": {
        "Cse-321": "A-",                        "Cse-321": "A+",
        "Cse-323": "B+",                        "Cse-323": "B",
        "Cse-324": "A",                         "Cse-324": "A",
        "Eco-331": "A",                         "Eco-331": "A",
        "Cse-331": "A",                         "Cse-331": "A+",
        "Cse-332": "A+",                        "Cse-332": "A",
        "Cse-333": "A+",                        "Cse-333": "A",
        "Cse-334": "A",                         "Cse-334": "A",
        "Cse-336": "A",                         "Cse-336": "A",
        "CGPA": 3.69
        "CGPA": 3.65                            "Cse-336": "A+",
    },                                          "CGPA": 4.00
     "221311130": {                         },
        "Cse-321": "A+",                      "221311135": {
        "Cse-323": "A",                         "Cse-321": "A+",
        "Cse-324": "A",                         "Cse-323": "A+",
        "Cse-331": "A",                         "Cse-324": "A+",
        "Cse-332": "B+",                        "Eco-331": "A-",
        "Cse-334": "A",                         "Cse-331": "A+",
        "Cse-336": "B",                         "Cse-332": "A+",
        "CGPA": 3.68                            "Cse-333": "A+",
    },                                          "Cse-334": "A",
                                                "Cse-336": "A",
```

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```
    "221311139": {
        "Cse-321": "A+",
        "Cse-323": "A+",
        "Cse-324": "A+",
        "Eco-331": "A+",
        "Cse-331": "A+",
        "Cse-332": "A+",
        "Cse-333": "A+",
        "Cse-334": "A+",
        "Cse-334": "B+",
        "Cse-336": "A-",
        "CGPA": 3.45,
    },
     "221311143": {
        "Cse-321": "A+",
        "Cse-323": "A+",
        "Cse-324": "A+",
        "Eco-331": "A+",
        "Cse-331": "A+",
        "Cse-332": "A+",
        "Cse-333": "A+",
        "Cse-334": "A+",
        "Cse-336": "A+",
        "CGPA": 4.00,
    },
        "221311144": {
        "Cse-321": "A+",
        "Cse-323": "A",
        "Cse-324": "A",
        "Eco-331": "A+",
        "Cse-331": "A",
        "Cse-332": "A+",
        "Cse-333": "A-",
        "Cse-333": "A+",
        "Cse-334": "A+",
    "221311145": {
        "Cse-321": "A",
        "Cse-323": "A",
        "Cse-324": "A-",
        "Eco-331": "B+",
        "Cse-331": "A+",
        "Cse-332": "A-",
        "Cse-333": "A+",
        "Cse-334": "A",
        "Cse-336": "A-",
        "CGPA": 3.67
},
     "221311150": {
        "Cse-321": "A+",
        "Cse-323": "A+",
        "Cse-324": "A+",
        "Eco-331": "A+",
        "Cse-331": "A+",
        "Cse-332": "A+",
        "Cse-332": "A+",
        "Cse-333": "A+",
        "Cse-334": "A",
        "Cse-336": "A",
        "CGPA": 3.72,
},

    "221311151": {
        "Cse-321": "A-",
        "Cse-323": "A",
        "Cse-324": "B+",
        "Eco-331": "A+",
        "Cse-333": "A+",
        "Cse-334": "A-",
        "Cse-336": "A",
        "CGPA": 3.65},
```

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```
        "Cse-336":  "A+",                          "Cse-336":  "A+",
        "CGPA":  4.00                              "CGPA":  4.00},
    },                                          "221311156": {
        "221311152": {                           "Cse-321":  "A-",
        "Cse-321":  "A-",                         "Cse-323":  "B+",
        "Cse-323":  "A",                          "Cse-324":  "A",
        "Cse-324":  "A",                          "Eco-331":  "A+",
        "Eco-331":  "A+",                         "Cse-333":  "A+",
        "Cse-331":  "A+",                         "Cse-334":  "A",
        "Cse-332":  "B+",                         "Cse-336":  "A-",
        "Cse-333":  "A+",                         "CGPA":  3.32
        "Cse-334":  "A",                     },
        "Cse-336":  "A-",                       "221311159": {
        "CGPA":  3.42                            "Cse-321":  "A+",
    },                                           "Cse-323":  "A-",
    "221311154": {                               "Cse-324":  "B+",
        "Cse-321":  "A-",                        "Eco-331":  "A",
        "Cse-323":  "A",                         "Cse-331":  "A+",
        "Cse-324":  "A",                         "Cse-332":  "A+",
        "Eco-331":  "A+",                        "Cse-333":  "A+",
        "Cse-331":  "A+",                        "Cse-334":  "A-",
                                                 "Cse-336":  "A",
        "Cse-331":  "A-",                        "CGPA":  3.50
        "Cse-332":  "A+",                    },
        "Cse-333":  "A+",                      "221311160": {
        "Cse-334":  "A-",                        "Cse-321":  "A+",
        "Cse-336":  "A",                         "Cse-323":  "B",
        "CGPA":  3.62                            "Cse-324":  "B+",
    },                                           "Eco-331":  "A",
    "221311155": {                               "Cse-331":  "A+",
        "Cse-321":  "A+",                        "Cse-332":  "A+",
        "Cse-323":  "A+",                        "Cse-333":  "A+",
        "Cse-324":  "A+",                        "Cse-334":  "A",
        "Eco-331":  "A+",                        "Cse-336":  "A-",
        "Cse-331":  "A+",                        "CGPA":  3.61}}
         "Cse-332":  "A+",
```

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```python
course_code =  input("Enter course code: ")
print("Course Code:",course_code)


result = [Sec_D[var][course_code] for var in Sec_D]
print("Result for: ",result)


print()


id = input("Enter Student ID: ")
print("Student id:",id)
if id in Sec_D:
    result = Sec_D[id]["CGPA"]
    print("Result is:",result)
else:
    print("ID not found.")
```

❖ **Input & Output:**

Cse-323

Enter course code: (Press 'Enter' to confirm or 'Escape' to cancel)

221311131

Enter Student ID: (Press 'Enter' to confirm or 'Escape' to cancel)

```
Course Code: Cse-323
Result for Cse-323 : ['A+', 'C+', 'B', 'A', 'A', 'C+', 'C', 'B+', 'A', 'A+', 'B', 'A+', 'A+', 'A+', 'B', 'A+', 'A', 'A', 'B+'

Student id: 221311131
Result is: 4.0
```

❖ **Conclusion**: In this lab, I learned how to use list comprehension to efficiently display specific information. First, I created a dictionary called Sec_D to store details about the students. Then, using list comprehension, I Sort the data to display the results of students enrolled in the CSE-323 course. Lastly, I was able to show my GPA by looking up my ID in the dictionary. This approach made it easier and faster to work with large sets of student information.