



Lab 6: List and Tuple

Task: Managing Student Data

Objective

The objective of this task is to practice using Python lists and tuples to manage structured data. Students will learn to store, update, and access nested lists while understanding the immutability of tuples.

Task Description

The goal of this task is to design a small student management system using lists and tuples. Students will create lists for names and grades, tuples for roll numbers, update grades, attempt to modify immutable data, and display the information in a readable format.

Procedure

Created a list of student names: ["Ali", "Usman", "Hassan", "Kamran"].

Created a tuple of student roll numbers: (101, 102, 103, 104).

Created nested lists for each student's grades, e.g., [[85, 90, 78], [88, 92, 80], ...].

Updated Ali's second grade to 95.

Added a new grade for Hassan for the fourth subject.

Attempted to change Kamran's roll number and observed that it cannot be modified because tuples are immutable.

Printed all students' names along with their updated grades in a readable format.

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In [1]: students = ["Ali", "Usman", "Hassan", "Kamran"]
roll_numbers = (101, 102, 103, 104)
grades = [[85, 90, 78], [88, 92, 80], [75, 85, 90], [80, 70, 60]]

grades[0][1] = 95
grades[2].append(88)

print("Cannot change roll number: tuples are immutable.")

for s, r, g in zip(students, roll_numbers, grades):
    print("Student:", s, "Roll:", r, "Grades:", g)
```

```
Cannot change roll number: tuples are immutable.  
Student: Ali Roll: 101 Grades: [85, 95, 78]  
Student: Usman Roll: 102 Grades: [88, 92, 80]  
Student: Hassan Roll: 103 Grades: [75, 85, 90, 88]  
Student: Kamran Roll: 104 Grades: [80, 70, 60]
```