



National University of Computer & Emerging Sciences



AL2002 – Artificial Intelligence – Lab (Spring 2024)

BSCS-6B

Lab Work 2 (Advanced Python)

Lab Instructor	Momna Javaid
Department	Computer Science



Instructions:

1. Write codes in Jupyter Notebook.
2. You have to submit .ipynb file.
3. Comments in the code explaining chunks of the code are important.
4. Plagiarism is strictly prohibited; 0 marks will be given to students who cheat.

Lab Tasks:

Task 1:

There is a cleaning robot named “AutoCleaner”. The room has the shape of a rectangle. It needs to calculate the room for this you have to create a class named “AutoCleaner”. Take the length, width and height of a rectangle from the user. Create a member function of this class “Calculate_area” to calculate the area of the rectangle. Create another member function of the class “Calculate_volume” to calculate the volume of the rectangle. The program displays all the calculations in another member function named “display”. At the end, it displays “Cleaning Starts...”.

Use tuple for input values.

Task 2:

Create a class of fruit. Add member functions in this class for each task you perform. Create two sets of fruits, one for winter season fruits and one for summer season fruits. Demonstrate adding a fruit, removing a fruit, checking if a fruit is present, and performing set operations like intersection, union, and difference.

Use built-in functions for sets in this task.

Task 3:

Create a Malaria Detection System. Ask the user about his symptoms and tell him whether he is Malaria positive or not. Use Dictionary to create a data set as given below:

Symptoms of Malaria may include:

fever: 4,
chills: 3,
sweating: 2,
headache: 4,
nausea: 3,
muscle aches: 5,
fatigue: 3,
joint pain: 2



User input for “yes” will be considered as 1 and “no” will be 0. Sum the user symptoms weights to the already given weights to calculate the total score. Define a threshold of 15 for considering the user as potentially having Malaria if the total score of the user is higher than the threshold.

Display these statements to the user having malaria risk:

Based on your symptoms, there is a possibility that you may have Malaria.

It is important to consult with a healthcare professional for further guidance.

Display these statements to the user having no risk of malaria:

Based on your symptoms, it is less likely that you have Malaria.

However, if you have concerns, it is always a good idea to consult with a healthcare professional.

Use class concepts and dictionary in this task.

Task 4:

Write a Program for a Car Rental Reservation System. Ask the user about his name, CNIC, phone no. and create a dictionary to store all this information. if his CNIC exists say Hello with his name otherwise add his information as a new user. Give the user choices to select from different car types like (sports, luxury, electric, micro...), after selecting the car type at the end give him all the information about the car he has selected. The information you have to display is given as car type, car name, generate random time (Using random, datetime libraries).

Use class concepts and graphs for writing this program.