lab_09. Tuples

1. Write a tpl_sort ( ) function that sorts a tuple of integers in ascending order and returns it. If at least one element is not an integer, then the function returns the original tuple.

2. The slicer () function takes a tuple and a random element as input. It is required to return a new tuple starting with the first occurrence of the element in it and ending with its second occurrence, inclusive.

If there is no element at all, return an empty tuple.

If the element occurs only once, then return a tuple that starts with it and goes to the end of the original one.

3. The student faces a task: the input of the sieve () function is a list of integers. This function will return a tuple of unique list items in reverse order.

4. The student knows that tuples are immutable, but he is not ready to agree with this. He decided to create a del_from_tuple ( ) function that would remove the first occurrence of a particular element from a tuple by value and return the tuple without it .

5. Create a tuple of 7 named tuples of university students. The named tuple will contain the following fields: student name, age, semester grade, city of residence. The good_students () function will take this tuple, calculate the average grade for all students , and print the following message: "The students of {list of students separated by commas} are doing well this semester! " The list of students that are displayed based on the results of the function will include only those whose semester grade is equal to or higher than the average for all students.

6. From this list of athletes, print information about those of them who are engaged in swimming. Indicate the age, how many years they have been playing sports.

7. Create a tuple that stores information about the results of the figure skaters' qualifying performances. Only those who received results above the average are allowed to compete. Put a program that determines the number of athletes who have qualified.

8. Write a function that will remove an element from a tuple. Write a program that removes the maximum and minimum elements from a tuple and prints the remaining results in descending order.

9. In a tuple of integers, find the maximum and minimum elements, and also exchange them.

10. Given a tuple of integers, calculate the arithmetic mean of the squares of the positive elements.

11. A list of contacts is given, in which each contact is represented by a tuple with the name and age of the contact. Complete the program to take a string as input , look up the name in the contact list, and output the contact's age in the format shown below:

Sample input: John Sample output: John is 31

If the contact is not found, the program displays " Not found "

12. You accept a comma-separated sequence of characters from the user. Make a list and a tuple with these numbers.

13. Four lists are given (Name, age, specialty, Group). We need to combine them by the corresponding values and get a list of tuples.

14. Create a queue with 13 elements of any type, try to repeat some of the values. Append to this queue a word " Qalaisyn ?" with index 7. Print proper results.

Now take a copy of a value at index 6, put it at the beginning of the queue and delete the original one. Show something readable on a screen.

Count a number of repeated values. Sort a queue.

15. Create a tuple with 2 lists and 1 queue. Fill these lists using appropriate methods. The first list stores only subject names, the second stores grades, and the queue stores student names. Print a table which will look like:

Subject Name | Subject Grade | student

Physical Education 100   Uzumaki Naruto

Change the mark of a student who failed *mathematics (had 45 before, and now more than 50).* Show new table.

Guess a way to remove an item from a tuple.

16. Count a number of unique values in this list: different = ["one", "two", "one", "1", 1, "5", 1, "1", 123, 321, 123, 321 , 90, "Python", "python", "Python", "lecture 4]. Print the number and these unique values. Result write in form vortex .

Create two sets of strings. Add one to another and store it in third set.

From previous problem, try to find a subset in the third set.

Create two sets of different numbers. Find a maximum and minimum value in each set, and maximum set. *Hint: search for ready functions that can retrieve maximum and minimum values*

17 . Create a mini dictionary of words. A key will be a word, and value can be any data type. Note that one word can have one or more definitions. Ask a user to input a word, if this word inside of your dictionary then give the definition(s) of the word. Print pretty results.

Create a mini database of people. A key will be his/her individual identification number (or you can choose something else) and value will be personal information like full name, birthday, mobile number or you can choose yourself. Ask a user to input IIN. print results.

Create a currency exchange point using dictionary. User enters currency name and you will give how much it is in Kazakhstani Tenge .