Practical

Conditionals

1. Take 2 variables **n1** and **n2** of type int as a user input (using the input() function) and print the largest of the 2 numbers in the following format:

The number **100** is the greatest. (using the larger of the 2 numbers **n1** and **n2** instead of 100 in this example 100)

2. Create 2 variables **a** and **b** of type int with values of your choice. Check if the rectangle with sides **a** and **b** is a square and print *rectangle* or *square* accordingly.

3. Create the variables **name, age, password** with values of your choice: Write the following program:
If the value of the variable **name** is “Batman”, print “Welcome Mr. Batman!” no matter what the values of the other variables are. If the value of the variable **age** <16, print “Dear X, you are too young to register”, using the value of the variable **name** instead of X; if the value of the variable **password** doesn’t contain either ‘*’ or “&”, print “Please enter a different password”.

4. Create the dictionary **d** with the following values {“name”: “Armen”, “age”: 15, “grades”: [10, 8, 8, 4, 6, 7] }. Write the following program:
If the dictionary **d** doesn’t contain a key “weight” => take a number **n** of type int as a user input (using the function input()) and add the key:value pair **“weight” : n** to the dictionary **d**.
Otherwise, if the dictionary **d** contains a key “weight”, print the value at the key “weight”.

Loops

5. Print only the odd number 0-100, using a for or a while loop and an if/else statement.

6. Print all the numbers 0-6 except the numbers 2 and 4. (use continue)

7. Go over the numbers 1-20 in a loop, stop the loop (break) once you reach a number that is a multiple of both 3 and 5.

8. Go over the following list in a loop **list1** = [5, 7, -7, ‘abc’, 2, 4, True, 3, 4, 6, 7, 7], stop the loop (break) once you reach the value 3.

9. Create the variable **correct_num** = 5, create the variable **guess** and assign it a value of type int that you should get as a user input (using the function input()). Use a loop and repeat the following action 10 times: if the number **guess** guessed by the user is equal to **correct_num,** then print "That was a good guess!" and stop the loop, otherwise take another input from the user and check again.

List comprehension

10. Create the list **num** with the following values [7,8, 120, 25, 44, 20, 27]: Remove the even numbers from the list **num**, print the initial and changed versions of the list.

11. Create the list **list3**. The values of the list should be the squares of the number from 1 to 50. Print the list **list3**.

12. Create the list **list1** with the values of type int of your choice. Create the list **list2**, which should contain all the values from list **list1** which are larger than 20: Print both of the lists.

13. Get the variable **str1** of type String as a user input (using the function input()). Create the list **l1** each value of which is one character from the string **str1** (example: if **str1** = “lala” then **l1** = [‘l’, ‘a’, ‘l’, ‘a’]). Print both **str1** and **l1**.

14. Create the list **list1** with the following values ['a', 'abc', 'xyz', 's', 'aba', '1221']: Count how many items from the list **list1** are at least of length 2 and have the same first and last characters (i.e. ‘ala’,’sbhcues’, etc.). Print the result.

Homework

Conditionals

1. The store gives a discount if the overall cost of the purchased shoes is over 1000. Suppose that one pair of shoes costs 100. Create a variable **n_shoes** of type int and assign it a value got as a user input (using the function input()), which will show how many pairs of shoes the person wants to buy. Then print “You get a discount” or “You don’t get a discount”, depending on the overall cost of the purchase.

2. Crate the dictionary **d** with the following values {“name”: “Armen”, “age”: 15, “grades”: [10, 8, 8, 4, 6, 7] }. Write the following program:
Take the list of Armen’s grades from the dictionary **d** and calculate the average of his grades, using the appropriate function. If the average of the grades is larger than 7 - print “Good job”, otherwise - print “You need to work more."

Loops and loop control statements

3. Print only odd numbers 0-10 using the statement continue.

4. Create 2 lists with the following values: **list1** = [1, 3, 5, 7, 9, 11, 13, 15] և **list2** = [4, 6, 14, 11, 8, 16]: Go over the elements of **list1** using a for loop, break from the loop as soon as you see a value that is also present in **list2**.

5. Create the list **menu** with the following values ['ice cream', 'chocolate', 'apple crisp', 'cookies']. Create the variable **desert** of type String and assign it the user input (use the function input()). Write the following program:
If the value of the variable **desert** is present in the list **menu**, print “Your desert will arrive in 10 minutes”, otherwise, print “Please choose another desert” and ask the user for another input until the value entered by the user is from the list **menu.**

List comprehension

6. Create the list **list2** containing values of type int of your choice. Count how many of the values in your list are between 5 and 10 and print the result.

7. Create the list **list4** with the following values [[10, 20, 40], [40, 50, 60], [70, 80, 90]]. Replace the last elements of the list entries of **list4** with 100 and assign the new list to the variable **list5**. Print the lists **list4** and **list5**.