Swinburne University of Technology

COS20007 Object Oriented Programming

# Preparing for Object Oriented Programming

PDF generated at 14:58 on Monday 7th August, 2023

Produced by OOP Submission Formatter

# 1.1P: Preparing for OOP – Answer Sheet

Student Id: 104215361
Name: Sanya Baweja

1. Explain the following terminal instructions:
    a. cd: It is used to change the current working directory.
    b. ls: It shows the files in the current directory.
    c. pwd: It displays the location of the current working directory.

2. Consider the following kinds of information, and suggest the most appropriate data type to store or represent each:

| **Information** | **Suggested Data Type** |
|---|---|
| A person's name | String |
| A person's age in years | Integer |
| A phone number | Integer |
| A temperature in Celsius | Float |
| The average age of a group of people | Float |
| Whether a person has eaten lunch | Boolean |

3. Aside from the examples already provided in question 2, come up with an example of information that could be stored as:

| **Data type** | **Suggested Information** |
|---|---|
| String | Lastname |
| Integer | Number of books |
| Float | Percentage |
| Boolean | Whether person is a student or not |

4. Fill out the last two columns of the following table, evaluating the value of each expression and identifying the data type the value is most likely to be:

| Expression | Given | Value | Data Type |
|---|---|---|---|
| `6` | | 6 | Integer |
| `True` | | True | Boolean |
| `a` | `a = 2.5` | 2.5 | Float |
| `1 + 2 * 3` | | 7 | Integer |
| `a and False` | `a = True` | False | Boolean |
| `a or False` | `a = True` | True | Boolean |
| `a + b` | `a = 1`<br>`b = 2` | 3 | Integer |
| `2 * a` | `a = 3` | 6 | Integer |
| `a * 2 + b` | `a = 2.5`<br>`b = 2` | 7.0 | Float |
| `a + 2 * b` | `a = 2.5`<br>`b = 2` | 6.5 | Float |
| `(a + b) * c` | `a = 1`<br>`b = 1`<br>`c = 5` | 10 | Integer |
| `"Fred" + " Smith"` | | Fred Smith | String |
| `a + " Smith"` | `a = "Wilma"` | Wilma Smith | String |

5. Using an example, explain the difference between **declaring** and **initialising** a variable.

The difference between the two is that declaring a variable reserves a place in the memory of the computer whereas initializing gives a value to the variable when we declare it . For example, in c#, declaring a variable is:

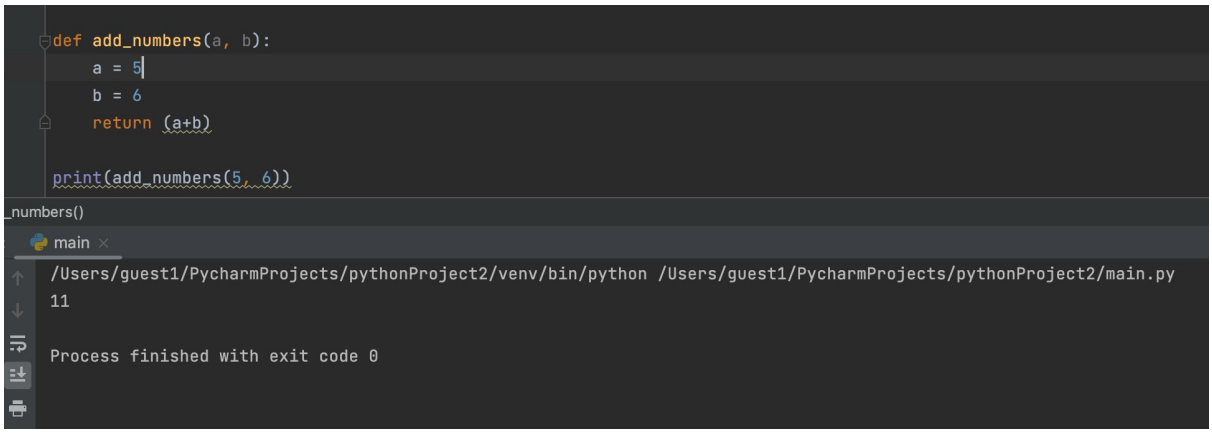
string lastname;

but initialising a variable is:

string lastname = “Baweja”;

6. Explain the term **parameter**. Write some code that demonstrates a simple of use of a parameter. You should show a procedure or function that uses a parameter, and how you would call that procedure or function.

A parameter is the entity which accepts values in a function. When we define a function, we may pass an argument which can be used in the code.

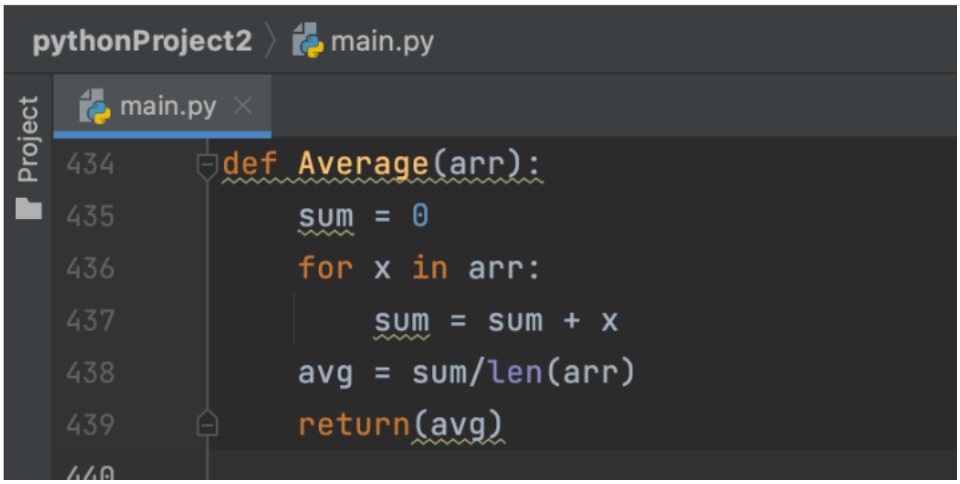



7. Using an example, describe the term **scope** as it is used in procedural programming (not in business or project management). Make sure you explain the different kinds of scope.

Scope is *basically where the variables can be accessed in the code. There are two types of scopes:*

*1)* Global scope: the variables which can be accessed and called anywhere within the program.
*2)* Local scope: these variables can be accessed only within special functions not in the whole program.

8. In a procedural style, in any language you like, write a function called Average, which accepts an array of integers and returns the average of those integers. Do not use any libraries for calculating the average. You must demonstrate appropriate use of parameters, returning and assigning values, and use of a loop. Note — just write the function at this point, we'll *use* it in the next task. You shouldn't have a complete program or even code that outputs anything yet at the end of this question.




9. In the same language, write the code you would need to call that function and print out the result.

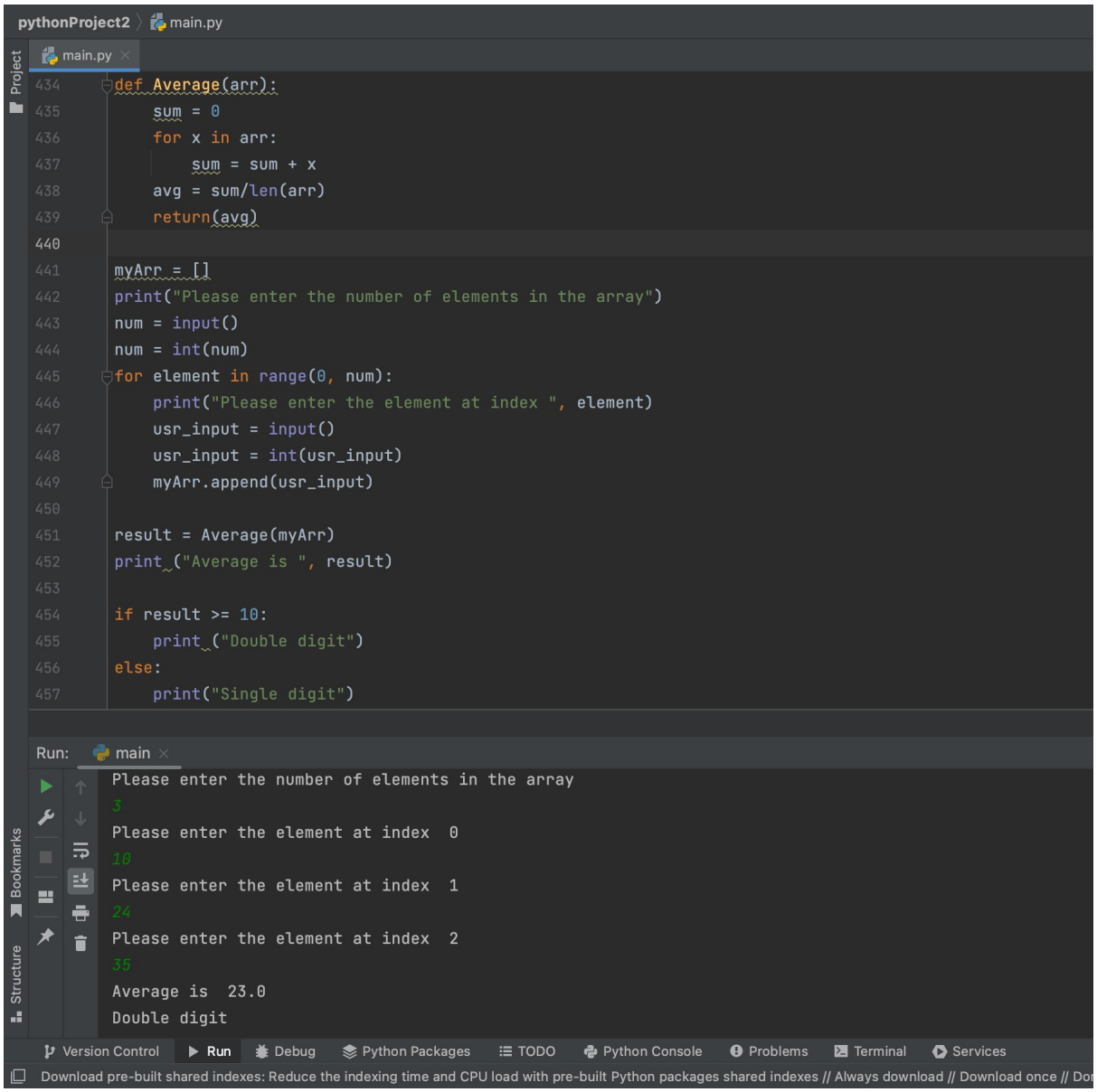
```
ain.py
def Average(arr):
    sum = 0
    for x in arr:
        sum = sum + x
    avg = sum/len(arr)
    return(avg)

myArr = []
print("Please enter the number of elements in the array")
num = input()
num = int(num)
for element in range(0, num):
    print("Please enter the element at index ", element)
    usr_input = input()
    usr_input = int(usr_input)
    myArr.append(usr_input)

result = Average(myArr)
print ("Average is ", result)
```

```
main
/Users/guest1/PycharmProjects/pythonProject2/venv/bin/python /U
Please enter the number of elements in the array
2
Please enter the element at index  0
3
Please enter the element at index  1
4
Average is  3.5
```

10. To the code from 9, add code to print the message “Double digits” if the average is above or equal to 10. Otherwise, print the message “Single digits”. Provide a screenshot of your program running.


pythonProject2
main.py
main.py
def Average(arr):
sum = 0
for x in arr:
sum = sum + x
avg = sum/len(arr)
return(avg)
myArr = []
print("Please enter the number of elements in the array")
num = input()
num = int(num)
for element in range(0, num):
print("Please enter the element at index ", element)
usr_input = input()
usr_input = int(usr_input)
myArr.append(usr_input)
result = Average(myArr)
print("Average is ", result)
if result >= 10:
print("Double digit")
else:
print("Single digit")
Run:
main
Please enter the number of elements in the array
3
Please enter the element at index 0
10
Please enter the element at index 1
24
Please enter the element at index 2
35
Average is 23.0
Double digit
Version Control
Run
Debug
Python Packages
TODO
Python Console
Problems
Terminal
Services
Download pre-built shared indexes: Reduce the indexing time and CPU load with pre-built Python packages shared indexes // Always download // Download once // Do
Project
Bookmarks
Structure