

ME1 Computing- Session 1: Variables and Statements

Learning outcomes:

- Being familiar with the concept of variables and their basic types
- Being familiar with the concept of assignment
- Being able to perform basic variable operations
- Being familiar with the concept of list

Please provide feedback at: www.menti.com with code 7394 6262

Before you start

In your H drive create a folder `H:\ME1MCP\Session1` and work within it.

Task A: Perform a list of instructions

1. Perform in Python the following set of instructions:

a = 2
b = 4
c = a + b
a = a + 1
b = a
c = a + b

After any instruction, print and observe the value of each variable.

2. Calculate the value of $z = 3x + y^2$ for $x = 11$ and $y = -3$.

Answer Question 1

Task B: Assignments and basic variable operations

1. Create a variable *var* and assign the value 3.14 to it. Copy the value of *var* into another variable *varcopy*. Double the value of *var*.
2. Create a variable *MyPints* and assign the value 3 to it. Create another variable *drink2more* with value 2. Increment the value of *MyPints* by the value of *drink2more*. Increment it again (you are getting drunk!).
3. Create a variable *Num* with value 3 and a variable *Den* with value 4. Divide the value of *Num* by the value of *Den* and assign the result to the variable *Res*.

Answer Question 2

Task C: Swapping

1. Create two variables a and b with values 10 and 5 respectively. Swap their values.
2. Continuing on the previous point, create a third variable c with value = 20. Swap a with c and then c with b .

Answer Question 3

Task D: Type conversion

1. Assign the value 2 as a string to variable a and the value 2 as a number to variable b .
2. Add a and b into variable f . What does happen when you run the code and why?
3. Assign the value 3 as a string to variable c and the value 3 as a number to variable d .
4. Add a and c into variable g . Add b and d into variable h .
5. Convert a and c into numbers and add again a and c into variable m .

Answer Question 4

Task E: Creating Lists

In sequence:

1. Create manually two lists A and B , with integer values from 10 to 20 (included) and from 20 to 30 (included), respectively.
2. Sum up the third and the fourth element of A and assign it to the fifth element of B . Double the sixth element of B .
3. Swap the first and the last elements of A .
4. Set the two variables i and j to 3 and 5, respectively. Swap the i -index element of B with the j -index element of A .

Answer Question 5

Task F: Slicing and concatenation

Following up from Task E:

1. Slice the first six elements of list A and assign it to list C.
2. Slice the last six elements of list B and assign it to list D.
3. Concatenate list C and D into list E.
4. Print out list E and slice the central part, from cell with value 13 to cell with value 26 included, and assign it to list F
5. Concatenate list F with list C, into list G.
6. Alter the second element of list C, with the sum of the fifth element of list F with the fifth element of list C.
7. Alter the last element of list C, with the sum of the last element of list F with the first element of list C.

Answer Question 6**Answer Question 7**