Web IDE – Python3 Environment

Accessing the IDE

1. Go to: <https://repl.it/>
2. Select Python3
3. Sign-up / Create an account
4. Make sure you can remember your account information for the rest of the course.

Using the IDE

* Use the black area like a calculator to try simple statements or commands
* Use the white area to create programs with multiple statements

Level 0: Basic Math & Strings

Accessing the Tutorial

* Go to: <http://www.letslearnpython.com/learn/>
* Skip directly to “Lesson 3: Math”

Questions

1. Complete “Lesson 3: Math – Math Basics” by typing the sample commands in the black area of the IDE.
   1. Create your own expression using 5 “+” and “-“ operators.
   2. List your expression and the result .
   3. below.

**2 + 1 - 3 + 2 + 8 - 4**

=> 6

1. Complete “Lesson 3: Math – More Operators” by typing the sample commands in the black area of the IDE.
   1. Create your own expression using 5 “\*” and “/” operators.
   2. List your expression and the result below.

**2 \* 4 / 2 \* 8 / 2 / 2**

=> 8.0

1. Complete “Lesson 3: Math – More Division” by typing the sample commands in the black area of the IDE.
   1. Create one division expression that gives a whole number answer
   2. And one division expression that gives a decimal number answer.
   3. List your expressions and the results below.

60 / 2

= 30.0

30 / 4

=7.5

1. Complete “Lesson 3: Math – Floats” by typing the sample commands in the black area of the IDE.
   1. Use the “round()” function for the expressions you created in question #3 above.
   2. List your “round()” expressions and the results they return below.

30 / 4

=7.5

1. Read through “Lesson 3: Math – Comparison Operators”.
   1. Why do you think Equals is “==” instead of “=”?
   2. What does “=” mean?

== means equal to and = means the sum of the answer.

1. Complete “Lesson 3: Math – Practice” and “Lesson 3: Math – Practice Answers” by typing the sample commands in the black area of the IDE.
   1. Create an expression using 5 different operators that returns a “True” result
   2. And an expression using 5 different operators that returns a “False” result.
   3. List your expressions and the results returned below.

**12 + 2 - 3 \* 4 / 2 >= 8**

=> True

**12 + 2 - 3 \* 4 / 2 >= 9**

=> False

1. Complete “Lesson 4: Strings – Strings” and “Lesson 4: Strings – Examples” by typing the sample commands in the black area of the IDE.
   1. Explain why typing “apple” works and why typing apple without quotes gives an error.

Because with quotations the command/character itself is being initialized as each of those characters has a position in the string called an index.

* 1. Also explain why “2 + 5” does not equal 7.

Any string/word that is written in quotations “” equates to an answer in single quotes as it looks at it as just words

1. Complete “Lesson 4: Strings – Operators” by typing the sample commands in the black area of the IDE.
   1. Explain why typing “appl” + “e” works and why typing “apple” - “e” gives an error.

You can only add (+) numbers/words/characters not subtract them (-)

* 1. Also explain why “Hello” \* 10 works but why “Hello” / 10 does work.

You can repeat/multiply “apple” but you can’t divide it.

1. Complete “Lesson 4: Strings – Indexes” by typing the sample commands in the black area of the IDE.
   1. List the letters in your first name and the index for each letter in your first name.

D A N I E L

0 1 2 3 4 5

1. Complete “Lesson 4: Strings – Indexes Examples” by typing the sample commands in the black area of the IDE.
   1. Explain why print(“Hello!”[4]) does not print “l”.

He forgot to add 0 and started the index with 1 instead.

* 1. What does print(“Hay, Bob!”[4]) print? For a hint try print(“Hay, Bob!”[3]) and print(“Hay, Bob!”[5])

It prints “o”

1. Complete “Lesson 4: Strings – Rules” by typing the sample commands in the black area of the IDE.
   1. Explain why print(“Hello!”[7]) gives an error.

It give an error because there is no 7th characters in “Hello” only 4.

Level 1: Basic Math & Strings

Accessing the Tutorial

* Go to: <http://www.letslearnpython.com/learn/>
* Skip directly to “Lesson 5: Variables”

Questions

1. Complete “Lesson 5: Variables – Save a Value” by typing the sample commands in the black area of the IDE.
   1. What do you get if you type puppies / 3?

12.0

* 1. Why doesn’t typing kittens / 3 work?

It is because kitten are not verified/identified as a number like puppies being 36. If it was thought then any term typed will work.

1. Complete “Lesson 5: Variables – Assign a New Value” by typing the sample commands in the black area of the IDE.
   1. Explain how the following sequence of commands works:
      * puppies = 36
      * puppies = puppies / 6
      * puppies  
        Dividing puppies (36) by 6 will give you a single answer of 6.0
2. Read through “Lesson 5: Variables – Rules”.

Done and read

1. Complete “Lesson 5: Variables – Math Operators” by typing the sample commands in the black area of the IDE.
   1. Explain what happens for following sequence of commands:
      * colour = “red”
      * puppies = “36”
      * colour + puppies

‘red36’ as you add what equates to colour and puppies.

1. Complete “Lesson 5: Variables – String Operators” by typing the sample commands in the black area of the IDE.
   1. Explain why the following commands give different results:
      * Color + day \* fishes
      * ( Color + day ) \* fishes

'yellowMondayMondayMonday' Multiples Monday

'yellowMondayyellowMondayyellowMonday' Multiples yellow Monday

1. Complete “Lesson 5: Variables – Indexes” by typing the sample commands in the black area of the IDE.
   1. What is the index of ‘r’ in “watermelon”?

4

* 1. Write an expression using mynumber to return ‘r’

r = "watermelon"

r [4]

= 'r'

1. Complete “Lesson 5: Variables – Assignments or Comparisons” by typing the sample commands in the black area of the IDE.
   1. What is the difference between “=” and “==”?

When we're assigning a value, we're saying "this equals that". That's a short sentence, so it only gets one equal sign: =. But when we're comparing values, we're asking "is this thing equal to that thing?". And that's a longer sentence, so it gets two equal signs: ==

* 1. Create your own mnemonic to remember this difference.

1. Complete “Lesson 6: Errors – Examples” by typing the sample commands in the black area of the IDE.
   1. What doesn’t “friend” + 5 work?

TypeError: must be str, not int

* 1. What is the difference between int and str?

int means an integer variable and str means string.

1. Read through “Lesson 6: Errors – Parts of an Error Message”.
   1. Is “friend” + 5 an example of:
      1. A Syntax Error?
      2. A Runtime Error?
      3. A Logic Error?

A syntax error as it is a typing error in the code/

1. Read through “Lesson 6: Errors – Fixing Errors”.
   1. Use the ‘print’ command to print your first name and last name.

"Daniel" + "Gopal"

= 'DanielGopal'

1. Complete “Lesson 7: Booleans – Types of Data” by typing the sample commands in the black area of the IDE.
   1. What is the value of: type(“True”)

<class 'str'>

* 1. What is the value of: type( True )

<class 'bool'>

* 1. Why is the result different?

This is because of the quotations not being used in the second example.

1. Complete “Lesson 7: Booleans – What Is A Boolean” by typing the sample commands in the black area of the IDE.
   1. Why do you think that having a Boolean data type is important in computer programming?

They are very important as we use them in programming a lot when we need to make decisions about what to do in our code:

1. Complete “Lesson 7: Booleans – Trying Out Booleans” by typing the sample commands in the black area of the IDE.
   1. Why do you think that there is no Maybe” Boolean data value in computer programming?

There is no maybe because our technology is not in term advanced for there to be a maybe.

Level 2: Lists & Logic

Accessing the Tutorial

* Go to: <http://www.letslearnpython.com/learn/>
* Skip directly to “Lesson 7: Booleans”

Questions

1. Complete “Lesson 7: Booleans – AND Comparisons” by typing the sample commands in the black area of the IDE.
   1. Try the following Python statements and record the results.
      1. True and True
      2. True and False
      3. False and True
      4. False and False

True==True

= True

True==False

= False

False == True

= False

False==False

= True

* 1. Explain if there are any other combinations of True / False.

No there is only these 4.

* 1. Explain how the AND operator is similar to a math operator and how it is different.

They are both used between two comparisons but math operators have different numerials such as + - / x.

1. Complete “Lesson 7: Booleans – OR Comparisons” by typing the sample commands in the black area of the IDE.
   1. Try the following Python statements and record the results.
      1. True or True
      2. True or False
      3. False or True
      4. False or False

True or True

= True

True or False

= True

False or True

= True

False or False

=> False

* 1. Explain how the OR operator is similar to the AND operator and how it is different.

They both use comparisons.

1. Complete “Lesson 7: Booleans – NOT Comparisons” by typing the sample commands in the black area of the IDE.
   1. Try the following Python statements and record the results.
      1. not (True or True) = False
      2. not (True or False) = False
      3. not (False or True) = False
      4. not (False or False)= True
   2. Explain how the combination of the NOT & OR operators is similar to the AND operator by itself and how it is different.

They all use comparisons. They are different from the NOT operator is in front of a comparison while as an OR/AND is between the comparison.

1. Complete “Lesson 7: Booleans – Expressions” by typing the sample commands in the black area of the IDE.
   1. Explain why the following two Python statements give different results.
      1. not (True or True)
      2. not True or True

One has a bracket and the other does not.

* 1. Explain why the following two Python statements give the same results.
     1. not (True and True)
     2. not True and True

There is an AND operator between them.

1. Complete “Lesson 7: Booleans – Practice” by typing the sample commands in the black area of the IDE.
   1. Create three more practice expressions similar to those in the tutorial.
   2. Provide the results for your practice expressions

“Daniel” and “Daniel”

= ‘Daniel’

“Bikram” and “Bikram”

= ‘Bikram’

“Bikram” and “Daniel”

= ‘Daniel’

1. Complete “Lesson 8: Lists – A Collection of Objects” by typing the sample commands in the black area of the IDE.
   1. Create a list of your favorite sports teams.
   2. Assign your list to a variable.
   3. Confirm that your variable and your list are the same.
2. Complete “Lesson 8: Lists – List Indexes” by typing the sample commands in the black area of the IDE.
   1. What is the list index of the last team in your list of favorite sports teams.
   2. In the tutorial, the error produced by typing “fruit[3]” is an example of:
      1. A Syntax Error?
      2. A Runtime Error?
      3. A Logic Error?
3. Complete “Lesson 8: Lists – Practice” and “Lesson 8: Lists – Practice Answers” by typing the sample commands in the black area of the IDE.

NOTE: Starting with Lesson 9 you should use the WHITE area of the IDE for entering example code with multiple statements.

1. Complete “Lesson 9: Logic – Making Decisions” by typing the sample commands in the white area of the IDE.
   1. Modify the tutorial code to print “Hi Alfred!” based on a decision using numbers
2. Complete “Lesson 9: Logic – Adding A Choice” by typing the sample commands in the white area of the IDE.
   1. Modify the tutorial code to print your first name or your last name based on a choice (using “else”).
3. Complete “Lesson 9: Logic – Adding Many Choices” and “Lesson 9: Logic – Practice” by typing the sample commands in the white area of the IDE.
   1. Modify the tutorial code and “elif” statements to make a choice using at least 4 of your friends names.