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 below.**
2. **5+5-2**
3. => 8 **9+5-10**
4. => 4 **10-20**
5. => -10 **56+79**
6. => 135 **8+9-16**
7. => 1 **9+10**
8. => 19
9. **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.**
10. **5\*6**
11. => 30
12. **7\*9**
13. => 63
14. **12\*12**
15. => 144
16. **4\*4/2**
17. => 8.0
18. **9\*16**
19. => 144
20. **18/4**
21. => 4.5
22. **100/5**
23. => 20.0
24. **2/2**
25. => 1.0
26. **5/2**
27. => 2.5
28. **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**
29. **10/2**
30. => 5.0

* 1. **And one division expression that gives a decimal number answer.**

1. **7/4**
2. => 1.75
3. **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.**
4. **round(7/4)**
5. => 2
6. **Read through “Lesson 3: Math – Comparison Operators”.** 
   1. **Why do you think Equals is “==” instead of “=”?**

“==” Means equal to

* 1. “=” translates to “is”

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. **16 \* 2 == 32**
3. => True
4. **5<6**
5. => True
6. **34<=45**
7. => True
8. **25==25**
9. => True
10. **23<=23**
11. => True
    1. And an expression using 5 different operators that returns a “False” result.
12. **16 != 16**
13. => False
14. **5>6**
15. => False
16. **16!=16**
17. => False
18. **23<=6**
19. => False
20. **45>100**
21. => False
22. **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 a string is letters and characters such as the abc’s and commas and other symbols and “Apple” consists of letters which makes it a string and need qoutes

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

Because the question has quotes around it, the program considers it a string

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 cannot subtract strings

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

Because you cannot divide strings

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.

‘K’+‘A’+‘R’+‘M’+‘A’+‘N’

0 -1-2-3-4-5-6

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”.

Because the first letter is 0 and “I” is 3 if you wanted to print it

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

It print outs “B”

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.**

(“Hello!”[7]) produces an error because there are not a total of 7 letters

\*Level 1 is on the next page

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?**

**Puppies = 6\*6**

Puppies / 3 then you get 12.0

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

Kittens / 3 produces an error because it is not assigned the variable: 6\*6

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 now has a new value of 36

* + - **puppies = puppies / 6**

Since the new value for puppies is 36, when divided by 6, the new value is 6

* + - **puppies**

When you type in puppies it will return a value of 6

1. **Read through “Lesson 5: Variables – Rules”.**
2. **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

When you type in the sample commands then the output will Red36

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**

‘yellowMondayMondayMonday

* + - **( Color + day ) \* fishes**

YellowMondayyellowmondayyellowmonday

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”?**

The index of r is 4.

**b)Write an expression using mynumber to return ‘r’**

r = ‘Watermelon’

r[4]

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: ==

**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: should be str, not int

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

int = integer, str = 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?**

It is an example Syntax error

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

print("Karman", "Gill")

**Karman Gill**

1. **Complete “Lesson 7: Booleans – Types of Data” by typing the sample commands in the black area of the IDE.**

**What is the value of: type(“true”)**

a) type("True")

      <class 'str'>

**What is the value of: type(true)**

   b)  type(True)

     <class 'bool'>

**Why is the result different**

    c) It’s because one has quotations and the other doesn’t

1. **Complete “Lesson 7: Booleans – What Is A Boolean” by typing the sample commands in the black area of the IDE.**

**a)Why do you think that having a Boolean data type is important in computer programming?**

We use Boolean type data in programming a lot when we need to make decisions about what to do in our code,  the Boolean data type is a data type, having two values (usually denoted true and false), intended to represent the truth values of logic and Boolean algebra.

1. **Complete “Lesson 7: Booleans – Trying Out Booleans” by typing the sample commands in the black area of the IDE.**

**a)Why do you think that there is no Maybe”  Boolean data value in computer programming?**

There is no “Maybe” because our technology is not yet advanced enough

**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**

Returns true

* + 1. **True and False**

Returns false

* + 1. **False and True**

Returns false

* + 1. **False and False**

Returns False

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

There are no other possible outcomes with True/False because the outcomes listed above are the only outcomes(2\*2=4)

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

They are both similar because you use them to compare codes, however in math they are used to compare numerals

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**

True

* + 1. **True or False**

False

* + 1. **False or True**

False

* + 1. **False or False**

False

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

The “OR” operator and the “AND” operator are similar because they both use comparisons and they are different because “OR” is giving more options while “AND” only gives you one

Example ( You can have both apple AND orange // You can have the apple OR the orange)

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

* + 1. **not (True or False)**

False

* + 1. **not (False or True)**

False

* + 1. **not (False or False)**

True

* 1. **Explain how the combination of the NOT & OR operators is similar to the AND operator by itself and how it is different.**

They are similar because they use comparisons. They are different because the “NOT” operator is in front while the “OR” and “AND” operator is between

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**

because one is saying that it can’t be True and the second one is saying that it can’t be true but can be true.

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

because both of them are saying that True cannot be the answer given so that’s why it gave false

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. 3==1 3==3, “Karman”== “Karman”, 2==2,2==1
   1. **Provide the results for your practice expressions**

False True, True, True False

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.**

Arsenal, Raptors

* 1. **Assign your list to a variable.**

Sports[1]

* 1. **Confirm that your variable and your list are the same.**

teams = ["TFC", “Arsenal", "Toronto raptors"]

1. **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. ['TFC', 'Arsenal', 'Toronto Raptors']

0 1 2

1. The answer is teams [0]
   1. **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?**

A syntax error known as index error that list index out of range

1. **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**

myname = "Alfred"

if myname == "Alfred":

print("Hi Alfred!")

1. **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”).**
2. myname = "Karman"
3. if myname == "Karman":
4. print("Hi Karman!")
5. else:
6. print("Hi Karman!")
7. **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.**
8. if myname == "Amar":
9. print("Hi Amar!")
10. elif myname == "Helal":
11. print("Hi Helal!")
12. if myname == "Amar":
13. print("Hi Amar!")
14. elif myname == "Gurnoor":
15. print("Hi Gunoor!")
16. else:
17. print("Who are you?!?")