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

**8+5= 13**

**5+6= 11**

**2+3= 5**

**1+1= 2**

**5+5= 10**

**5-6= -1**

**3-2= 1**

**11-5= 6**

**25-6= 19**

**1-1= 0**

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.

**8\*9= 72**

**1\*1= 1**

**6\*3= 18**

**8\*5= 40**

**3\*5= 15**

**9/3= 3.0**

**6/2= 3.0**

**35/5= 7.0**

**90/25= 3.6**

**45/8= 5.625**

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.

**20/10= 2.0**

**50/4= 12.5**

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.

**Round(2.0)= 2**

**Round(12.5)= 12**

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

**== means equal to**

* 1. What does “=” mean?

**= means a sum**

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.

**6<5+4= True**

**11<9+7= True**

**15<8+12= True**

**7<5+9= True**

**3<6+9= True**

**5<3= False**

**8<4+2= False**

**10<5+3= False**

**12<8+1= False**

**15<7= 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.

**Quotes initializes the command**

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

**Anything in a quotation repeats itself in 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 add strings but you can’t subtract or remove strings**

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

**Multiplying controls how many times we show a string so it just times the word that many times. But dividing won’t work because you can’t divide a word.**

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.

**‘H’+’A’+’R’+’R’+’Y’**

**0 1 2 3 4**

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”.

**The first letter is 0 and I is 3 if you want 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 prints 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.

**It gives an error because there are not 7 letters in the word hello.**

Level 1: Booleans & Variables

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?

**You get 12**

* 1. Why doesn’t typing kittens / 3 work?  
     **It doesn’t work because 6 times 6 is set to puppies and not kittens.**

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**

**You are giving a value to puppies which is 36 so whenever you type in puppies=36 in the IDE then you type puppies after then it is going to say 36 as the answer.**

**Puppies=puppies/6 is 6 because you are doing 36/6 because puppies is set to 36.**

**Puppies is 36 because you set the value of puppies to 36 before.**

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**
3. 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. Wht 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.

**"Harry" + “Dhaliwal"**

**= ‘HarryDhaliwal’**

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”)
   2. What is the value of: type( True )
   3. Why is the result different?

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?
2. 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?

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

**True**

* + 1. True and False

**False**

* + 1. False and True

**False**

* + 1. False and False

**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 used to compare to codes, but in math they are used between 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
      2. True
      3. True or False
      4. true
      5. False or True

True

* + 1. 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 but or has many more options**

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)
    2. **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 all 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.

**3==1 3==3, “Harry”== “Harry”, 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.

**Boston Celtics, Toronto Raptors**

* 1. Assign your list to a variable.
  2. Confirm that your variable and your list are the same.

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. **Sports[2]**
   3. 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?
2. 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

**Number = "1"**

**if Number == "1":**

**print("Hi Jeff!")**

**Hi Jeff!**

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”).

**if myname == "Harry":**

**print("Hi Harry!")**

**else:**

**print("Jeff!")**

1. Complete “Lesson 9: Logic – Adding Many Choices” and “Lesson 9: Logic – Practice” by typing the sample commands in the white area of the IDE.

Modify the tutorial code and “elif” statements to make a choice using at least 4 of your friends names. )

**if myname == "Harry":**

**print("Hi Harry!")**

**elif myname == "bob":**

**print("Hi bob!")**

**elif myname == "Jeff":**

**print("Hi Jeff!")**

**elif myname == "Karman":**

**print("Hi Karman!")**

**elif myname == "Rob":**

**print("Hi Rob!")**

**elif myname == "Larry":**

**print("Hi Larry!")**

**else:**

**print("Who are you?!?")**