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 stzents

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.

5+6-2

=9

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.

5\*6/2

=15.0

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.

30/5=6

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.

Round(30/5)=6

Round(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

= means sum of an equation

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.

13+1>5\*4/2=> True

13+1<5\*4/2=> 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.
   2. Also explain why “2 + 5” does not equal 7.

Apple does not work when typed without quotes because it is not defined as a string.

The reason “5+2” does not equal seven is because it is referred as a string and not an expression

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

“appl”+”e” works because it is a supported operator and “apple”-“e” is an unsupported operator.

“Hello”\*10 is supported operator and “Hello”/10 is an unsupported operator.

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.

M+A+N+V+E+E+R= Manveer

M A N V E E R

1 2 3 4 5 6 7

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

The reason is because 4 is the index

It prints “”.

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.

Because there are only 6 digits and the maximum index is 6

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?
2. **6\*6**
3. => 36 **puppies=6\*6**
4. **puppies**
5. => 36 **puppies/3**
6. => 12.0
   1. Why doesn’t typing kittens / 3 work?

Because kittens does not have an assigned value.

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

Puppies equals 36 means that when you type puppies, puppies will equal to 36.

When you type puppies= puppies/6, this means that the amount of puppies will be divided by six

When you type puppies, puppies will = to 36.

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

Color is defined as red

Puppies is defined as 36

Color + puppies means “red + 36”.

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

**In the first operation**, when you are using BEDMAS according to it you have to multiply day\*fishes and then add that answer by color.

**In the second operation**, you have to follow BEDMAS, so do the brackets first, Color+day and then multiply that answer by fishes.

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”?
   2. Write an expression using mynumber to return ‘r’

The index of r in watermelon is 4

Mynumber=5

Friot[mynumber-2]

=>’e’

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 “==”?
   2. Create your own mnemonic to remember this difference.

==means equal to

= means sum of an equation

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?
   2. Wht is the difference between int and str?

It doesn’t work because it has to be a string not integer.

Int is an integer

Str is a 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?

“Friend” +5 is a type error which means it is also known as a syntax error.

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

**print("Manveer")**

Manveer

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?

Value of type(“true”) is <class ‘str’>

Type(true) results in error because is it not defined.

Because when you do type(“true)” it is defined but when you do it without quotes it is undefined.

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?

we use them in programming a lot when we need to make decisions about what to do in our code. For example, "If this expression is True, do something; if the expression is False, do something else instead.

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 Booleans data is used to tell if something is right or wrong or True or false. There is no answer of 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 **=True**
      2. True and False**= False**
      3. False and True**= False**
      4. False and False**=False**
   2. Explain if there are any other combinations of True / False.

There is 1==1 or 2==2, so there is an OR combination

* 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 numbers.

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
      2. True or False- True
      3. False or True- True
      4. False or False- False
   2. 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.

The use comparisons. They are different because the not operator is in front and the and or are in-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

These both statements are different and give different results. This is because one has brackets and one doesn’t.

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

The both have the same operators.

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

“Manveer” and “Manveer”

‘Manveer’

“Udi and “Udi”

‘Udi’

“Manveer” and “Udi”

‘Udi’

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.

Sportslist = [“Toronto FC”, “Blue Jays”, “Toronto Raptors”]

* 1. Assign your list to a variable.

Sportslist[2]

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.

The index is 2. (Cars[2] )

* 1. In the tutorial, the error produced by typing “fruit[3]” is an example of:

A syntax Error because was placed incorrectly causing an error.

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

Number= “2”

If Number ==2

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”).

If myname==”Manveer”

Print(“Hello Manveer”)

Else:

Print(“Sandhu”)

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

If myname== “Manveer”:

Print(“Hi, Manveer”)

Elif myname== “Udistan”:

Print(“Hi, Udistan”)

Elif myname== “Birkaran”:

Print(“Hi, Birkaran”)

Elif myname== “Nestor”:

Print(“Hi Nestor ”)

Else:

Print(“Who are you?”)