

Numbers and Strings

HORT 530

Lab 9

Instructor: Kranthi Varala

Today's pairs

Pair#1	Pair#2	Pair#3	Pair#4	Pair#5	Pair#6
Brenden, Mithila	Scott, Maria	Chris, Rachel	Emily, Freddie	Meredith, Hui	Xiaohui, Sharlene

Python command line

- Open an SSH connection to scholar.rcac.purdue.edu and at the command line type in python ↵

```
kvarala@scholar-fe02:~ $ python
Python 2.7.5 (default, Nov 16 2020, 22:23:17)
[GCC 4.8.5 20150623 (Red Hat 4.8.5-44)] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

- You are now in a shell for python2 (default on Linux)
- Press `Ctrl+l+d` to exit.

Python3 command line

- At the command line type in python3 

```
kvarala@scholar-fe02:~ $ python3
Python 3.6.8 (default, Nov 16 2020, 16:55:22)
[GCC 4.8.5 20150623 (Red Hat 4.8.5-44)] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> |
```

- You are now in a shell for python3 (available on most Linux machines).
- You can type python statements in here and they will be executed immediately.

Working with numbers

```
>>> A=10
>>> B=20
>>> type(A)
<class 'int'>
>>> type(B)
<class 'int'>
>>> C=a/B
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
NameError: name 'a' is not defined
>>> C=A/B
>>> type(C)
<class 'float'>
>>>
```

Object created

Object created

Identify class

Case-sensitive names

Datatype determined by operation

Arithmetic operators

- Multiplication *
- Division /
- Addition +
- Subtraction -
- Exponent **
- Modulus %
- Floor //
- Increment +=
- Decrement -=

Math module

```
>>> import math
>>> dir(math)
['__doc__', '__file__', '__loader__', '__name__', '__package__', '__spec__', 'acos', 'acosh', 'asin', 'asinh', 'atan', 'atan2', 'atanh', 'ceil', 'copysign', 'cos', 'cosh', 'degrees', 'e', 'erf', 'erfc', 'exp', 'expm1', 'fabs', 'factorial', 'floor', 'fmod', 'frexp', 'fsum', 'gamma', 'gcd', 'hypot', 'inf', 'isclose', 'isfinite', 'isinf', 'isnan', 'ldexp', 'lgamma', 'log', 'log10', 'log1p', 'log2', 'modf', 'nan', 'pi', 'pow', 'radians', 'sin', 'sinh', 'sqrt', 'tan', 'tanh', 'tau', 'trunc']
>>> help(math)
```

Help on module math:

NAME

math

DESCRIPTION

This module is always available. It provides access to the mathematical functions defined by the C standard.

FUNCTIONS

acos(...)
acos(x)

Return the arc cosine (measured in radians) of x.

acosh(...)
acosh(x)

Return the inverse hyperbolic cosine of x.

Calculate the following

- Average of (5,15,12)
- 4!
- $12+2*5$
- $12+2/5$
- $\log_2(\text{average}(5,15,12))$
- Circumference and area of a circle with a radius of 15

Print the following

```
>>> print(myStr)
*
**
***
****
*****
```

```
>>> print(myStr2)
*****
****
***
**
*
```

What is the length of each of these strings?

```
>>> print(myStr3)
*
**
***
****
*****
*****
****
***
**
*
```

String functions

- Using the strings you created explore the following string functions:
 - `rstrip()`
 - `count()`
 - `find()`
 - `replace()`
 - `index()`
 - `rindex()`
 - `splitlines()`