Python Basics

*\*Whitespace matters, your code will not run correctly unless you use proper indentation - 4 spaces.*

# this is an individual comment

“”” This is how you make

a comment block with multiples lines. “””

Variables and Strings: variables and strings are used to store values. A string is a series of characters, surrounded by ‘ ‘, or “ “

# assign variables

>>> my\_string = “Hello, world!”

>>> my\_int = 10

>>> my\_float = 10.99

>>> my\_boolean = True

User Input: your programs can prompt the user for input. All input is stored as a string.

>>> name = input(“Enter your name? ”)

# prompting for numerical input

>>> age = input(“Enter your age: ” )

>>> age = int(age)

>>> tax = input(“How much is the tax? “)

>>> tax = float(tax)

Lists: a list stores series of items in a particular order. You access items using an index, or within a loop.

# make list

>>> animals = [ “cat”, “dog”, “horse”]

# get the first item in a list -- notice the index

>>> first\_animal = animals[0]

>>> first\_animal

cat

# get the last item in a list

>>> last\_animal = animals[-1]

>>> last\_animal

horse

# add item to list

>>> animals.append(‘goat’)

>>> animals

[ “cat”, “dog”, “horse”, “goat”]

# slicing a list

>>> first\_two\_animals = animals[:2]

>>> first\_two\_animals

[“cat”, “dog”]

If statements: if statements are used to test for particular conditions respond appropriately.

# conditional tests

Equals x == 42

Not equal x != 42

Greater than x > 42

or equal to x >= 42

Less than x < 42

or equal to x <= 42

# simple if test

if age >= 21:

print(“You can drink!”)

# conditional test with a list

>>> ‘dog’ in animals

TRUE

# if-else

if pass == True:

print(“You have access”)

else:

print(“You have been denied access”)

# if-elif-else

if color == “Green”:

print(“GO”)

elif color == “Red”

print(“STOP”)

else:

print(“SLOW”)

Dictionaries: dictionaries store connections between pieces of information. Each item in a dictionary is a key-value pair.

# assign a simple dictionary

>>> my\_dict = { ‘Species’: ‘cat’, ‘Age’: 7, ‘Name’: ‘Marilyn’}

# access a value

>>> my\_dict[‘Species’]

cat

# adding a new key-value pairs

>>> my\_dict[‘Age’] = 8

# looping through all key-value pairs

for key, value in my\_dict.items():

print(str(key) + “ : “ + str(value))

# looping through all the values

for value in my\_dict.values():

print(str(value))

While loops: a while loop repeats a block of code as long as a certain condition is true.

# a simple while loop

current\_value = 1

while current\_value <= 5:

print(current\_value)

current\_value += 1

# let user decide when to quit

activate = True

while activate != False:

activate = input(“Continue? ”)

print(activate)

Functions: functions are named for blocks of code, designed to do a specific job. The information passed to a function is called an argument, and information received by a function is call a parameter.

# a simple function

def write\_message():

msg = input(“Write your message: “)

print(msg)

write\_message()

# passing an argument

def welcome\_user(username):

print(“Hello “ + username)

welcome\_user(“Ashley”)

# default values for parameters

def make\_pizza(topping=’mushroom’):

print(“ Ordering a “ + topping + “ pizza!”)

>>>make\_pizza()

Ordering a mushroom pizza!

>>>make\_pizza(‘pepperoni’)

Ordering a pepperoni pizza!

# returning a value

def add\_tip(bill,tip):

return bill + tip

>>> bill\_sum = add\_tip(20.00, 10)

>>> print(bill\_sum)

30.00