

Intro to Creative Computing

Week 7: Lists

List examples

Generation I Master List

Indicating *Raid-Only*, *Regional*, *Unreleased*, and *Shiny* Variants

by Cybergriff (updated March 9, 2018)

#001 Bulbasaur	#002 Ivysaur	#003 Venusaur	#004 Charmander	#005 Charmeleon	#006 Charizard	#007 Squirtle	#008 Wartortle	#009 Blastoise	#010 Caterpie	#011 Metapod	#012 Butterfree	#013 Weedle	#014 Kakuna	#015 Beedrill	#016 Poliwh	#017 Poliwh	#018 Poliwh	#019 Poliwh	#020 Poliwh	#021 Poliwh	#022 Poliwh	#023 Poliwh	#024 Poliwh	#025 Poliwh	#026 Poliwh	#027 Poliwh	#028 Poliwh	#029 Poliwh	#030 Poliwh	#031 Poliwh	#032 Poliwh																																																																																																																																																																																																											
#033 Nidoking	#034 Nidoqueen	#035 Clefairy	#036 Clefable	#037 Vulpix	#038 Ninetales	#039 Jigglypuff	#040 Machop	#041 Machop	#042 Machop	#043 Machop	#044 Machop	#045 Machop	#046 Machop	#047 Machop	#048 Machop	#049 Machop	#050 Machop	#051 Machop	#052 Machop	#053 Machop	#054 Machop	#055 Machop	#056 Machop	#057 Machop	#058 Machop	#059 Machop	#060 Machop	#061 Machop	#062 Machop	#063 Machop	#064 Machop																																																																																																																																																																																																											
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#097 Hyper	#098 Kabuto	#099 Kangaskhan	#100 Tangela	#101 Horsea	#102 Sandslash	#103 Goldfish	#104 Seaking	#105 Staryu	#106 Staryu	#107 Mr. Mime	#108 Scyther	#109 Jynx	#110 Electabuzz	#111 Magmar	#112 Poliwh	#113 Chansey	#114 Tangela	#115 Kangaskhan	#116 Horsea	#117 Sandslash	#118 Goldfish	#119 Seaking	#120 Staryu	#121 Starmie	#122 Mr. Mime	#123 Scyther	#124 Jynx	#125 Electabuzz	#126 Magmar	#127 Poliwh	#128 Tauros																																																																																																																																																																																																											
#129 Magikarp	#130 Gyarados	#131 Lapras	#132 Ditto	#133 Eevee	#134 Vaporeon	#135 Jolteon	#136 Flareon	#137 Porygon	#138 Omastyle	#139 Omastar	#140 Kabuto	#141 Kabutops	#142 Aerodactyl	#143 Snorlax	#144 Articuno	#145 Zapdos	#146 Moltres	#147 Dratini	#148 Dragonair	#149 Dragonite	#150 Mewtwo	#151 Mew	#152 Machop	#153 Machop	#154 Machop	#155 Machop	#156 Machop	#157 Machop	#158 Machop	#159 Machop	#160 Machop																																																																																																																																																																																																											
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List examples

- Lists has **items** in it:

```
boring_empty_list = [] # or it doesn't
```

```
still_boring_not_empty_list = ["a", "b", "c"]
```

```
my_recipe_for_sabdzi = ["onions", "ginger", "turmeric",  
                        "coriander", "cauliflower", "tomatoes",  
                        "peppers", "rice"]
```

```
list_of_numbers = [1991, 1993, 1997, 2001, 2020]
```

List examples

- Lists can contain **mixed data types**:

```
my_list = [3, "onions", "ginger", 50, 199, "rice"]
```

- Lists can be **nested**

```
my_nested_list = [13, [1984, 42], "pine", "apples", 2.6, [],  
["abbey road", "help!", "let it be"]]
```

List indexing

- Index gives us items from the list:

["onions", "ginger", "turmeric", "coriander", "cauliflower"

↑
0

↑
1

↑
2

↑
3

↑
4

- *PS: Computers index from 0*

List indexing

- Index gives us items from the list:

```
my_recipe_for_sabdzi = ["onions", "ginger", "turmeric",  
                        "coriander", "cauliflower", "tomatoes", "peppers", "rice"]  
  
print(my_recipe_for_sabdzi[1])
```

- *PS: Computers index from 0*

Last element

- Using the length of the list (counting from 0!):

```
my_recipe_for_sabdzi = ["onions", "ginger", "turmeric",  
                        "coriander", "cauliflower", "tomatoes", "peppers", "rice"]  
  
print(my_recipe_for_sabdzi[7])    # rice  
print(len(my_recipe_for_sabdzi)) # 8  
  
#counting from 0  
print(my_recipe_for_sabdzi[len(my_recipe_for_sabdzi) - 1]) # rice
```

- Using minus:

```
print(my_recipe_for_sabdzi[-1]) # rice
```

Delete

- Delete item at index:

```
my_recipe_for_sabdzi = ["onions", "ginger", "turmeric",  
"coriander", "cauliflower", "tomatoes", "peppers", "rice"]  
  
del my_recipe_for_sabdzi[1]  
print(my_recipe_for_sabdzi[1])
```


Throwback Thursday



Throwback String indexing

- Index gives us ~~items~~ letter *(well it's still the item)* from the list:

```
my_word = "pine"  
print(my_word[1])  
print(my_word[0])  
print(my_word[-1])
```

- *PS: Computers index from 0*

Slicing lists and strings

- Slicing:

```
my_word = "pineapple"  
print(my_word[4:6]) # ap  
print(my_word[4:])  # apple  
print(my_word[:4])  # pine
```

```
my_list = ["a", "b", "c", "d"]  
print(my_list[1:2]) # ["b"]  
print(my_list[2:])  # ["c", "d"]  
print(my_list[:2])  # ["a", "b"]
```

- *PS: Computers index from 0*

Throwback to iterations



Throwback to iterations

- A very nice way to iterate through a list:

```
list = [1991, 1993, 1997, 2001, 2020]
```

```
for item in list:  
    print(item)
```

```
# will print:
```

```
# 1991
```

```
# 1993
```

```
# 1997
```

```
# 2001
```

```
# 2020
```

Throwback to iterations

- A very nice way to iterate through a list:

```
for i in range(2,6):  
    print(i)
```

will print:

2

3

4

5

that's where it ends

it had numbers from 2 to 6 not including the last one

Throwback to iterations

- A very nice way to iterate through a list:

```
my_nested_list = [13, ["abbey road", "help!"], [], 2.0]

for item in my_nested_list:
    print(item)

# will print:
# 13
# ["abbey road", "help!"],
# []
# 2.0
```

Throwback to iterations

- A more useful example:

```
my_word = "pine"  
for letter in my_word:  
    print(letter)
```

```
my_sentence = "Lorem ipsum dolor sit amet!"  
my_split_sentence = my_sentence.split()  
print(my_split_sentence) # ["Lorem", "ipsum", "dolor", "sit", "amet!"]  
  
for word in my_split_sentence:  
    print(word)
```


Reading

- Go through the chapter on lists at:
<https://runestone.academy/runestone/books/published/thinkcspy/Lists/toctree.html>
- Don't worry too much about 10.10. – 10 13.

Exercise

- Write a function which will find the maximal element in the list
- Write a function which will keep only the odd numbers in the list

```
def my_max(list_input):  
    ... # your magicks  
    return the maximal number
```

```
# so for example  
# i = my_max([1,4,0,-990,2,99])  
# print(i)  
# will print 99
```

```
def filter_odd_numbers(list_input):  
    ... # your magicks  
    return only the odd numbers
```

```
# so for example  
# l = filter_odd_numbers([1,4,0,-  
990,2,99])  
# print(l)  
# will print [1,99]
```

Probably best done with:
`new_list.append(odd_number)`

Next?

- Today's creative project (wait to see it in the class ;))

Creative task

- Find a larger source of text (some suggestions):
 - Gutenberg books <https://www.gutenberg.org/browse/scores/top>
 - News article(s)
 - found using a specific search term
 - found on a specific website (/news agency)
 - your own writing
 - ... *(sky is the limit)*

Creative task

- Analyze the text
 - Start with your previous code -> then think of a meaningful/playful analysis of the text
 - **Visual or statistical** results are welcome
- Groups of 3
- Start with your previous work in class then extend

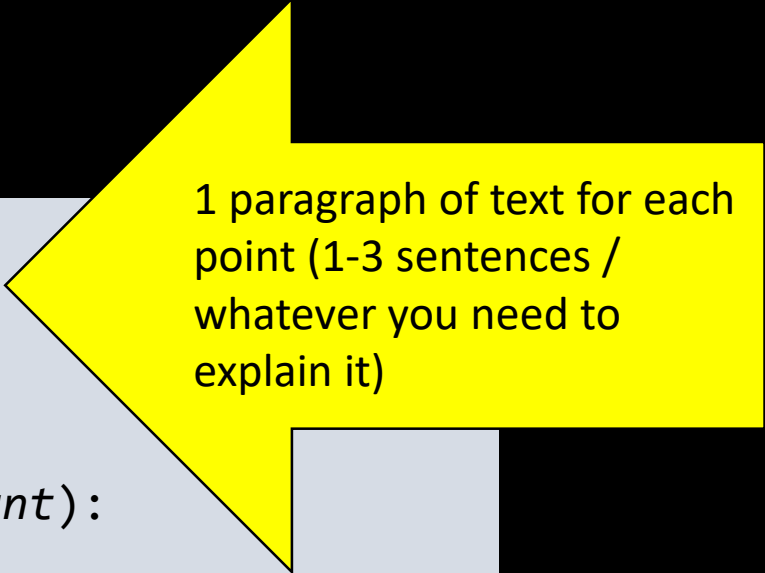
Helper code:

```
w7_creative_task_code_start.py  
w7_creative_task_code_start.ipynb
```

Creative task – until next time:

- Have a think about it as an art project:

- **Idea description:**
- **Source** of the text and why you chose it:
- What is the **resulting** analysis (*sketch if you want*):
- **Possible setbacks:**
 - What would you have to do with the input text? (*strange formatting that might need to be fixed?*)
 - What might not work as a result?
 - Possible problematics of the topic?
- What do you know how to program and what do you not know?



1 paragraph of text for each point (1-3 sentences / whatever you need to explain it)