Forward School

Program Code: J620-002-4:2020

Program Name: FRONT-END SOFTWARE DEVELOPMENT

Title : Exercise 3 - List Comprehension & Lambda

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Introduction : basics of python list comprehension and lambda

Conclusion : learned syntax of python list comprehension and lambda

EXERCISE 3

List Comprehension & Lambda Exercise

In [31]:
```
# write list comprehension to determine the length of each word
# except 'the' and store as 'word_lengths'
sentence = "the quick brown fox jumps over the lazy dog"
res = [len(i) for i in sentence.split(" ") if i!="the"]
print(res)
```

```
[5, 5, 3, 5, 4, 4, 3]
```

In [24]:
```
# write a list comprehension to extract the
# negative numbers from the list as integers and store as newlist
numbers = [34.6, -203.4, 44.9, -68.3, -12.2, 44.6, 12.7]
newList=[i for i in numbers if i<0]
print(newList)
```

```
[-203.4, -68.3, -12.2]
```

In [38]:
```
# Convert the following code to list comprehension

coords = [ (x,y) for x in range(3) for y in range(3)]
# for x in range(4):
#     for y in range(2):
#         coordinate = (x, y)
#         coords.append(coordinate)
print(coords)
```

```
[(0, 0), (0, 1), (0, 2), (1, 0), (1, 1), (1, 2), (2, 0), (2, 1), (2, 2)]
```

In [7]:
```
# write a list comprehension to list all the combinations
# for the two sets of words

set1 = ['ball','cheese','round']
set2 = ['cake','rice','ham']
word = [ (x,y) for x in set1 for y in set2]
print(word)
```

```
[('ball', 'cake'), ('ball', 'rice'), ('ball', 'ham'), ('cheese', 'cake'), ('c
heese', 'rice'), ('cheese', 'ham'), ('round', 'cake'), ('round', 'rice'), ('r
ound', 'ham')]
```

In [50]:
```
# write a lambda function that squares the number
# for all odd numbers from 1 to 100
x = range(1,101)
newX=list((map(lambda x : x**2 , filter(lambda y : y%2!=0 , x))))
print(newX)
```

```
[1, 9, 25, 49, 81, 121, 169, 225, 289, 361, 441, 529, 625, 729, 841, 961, 108
9, 1225, 1369, 1521, 1681, 1849, 2025, 2209, 2401, 2601, 2809, 3025, 3249, 34
81, 3721, 3969, 4225, 4489, 4761, 5041, 5329, 5625, 5929, 6241, 6561, 6889, 7
225, 7569, 7921, 8281, 8649, 9025, 9409, 9801]
```

In [46]:
```
# write a list comprehension that squares number
# for all odd numbers from 1 to 100
x = range(1,101)
b = [i**2 for i in x if i%2==0]
print(b)
```

```
[4, 16, 36, 64, 100, 144, 196, 256, 324, 400, 484, 576, 676, 784, 900, 1024,
1156, 1296, 1444, 1600, 1764, 1936, 2116, 2304, 2500, 2704, 2916, 3136, 3364,
3600, 3844, 4096, 4356, 4624, 4900, 5184, 5476, 5776, 6084, 6400, 6724, 7056,
7396, 7744, 8100, 8464, 8836, 9216, 9604, 10000]
```

In [49]:
```
# write a lambda function to extract names that begin with 'A'
names = ['Anne', 'Amy', 'Bob', 'David', 'Carrie', 'Barbara', 'Zach']
newNames=list(filter(lambda x:x[0]=="A",names))
print(newNames)
```

```
['Anne', 'Amy']
```

In [53]:
```
# write a list comprehension to extract names that begin with 'B'
names = ['Anne', 'Amy', 'Bob', 'David', 'Carrie', 'Barbara', 'Zach']
newNames=[i for i in names if i[0]=="A"]
print(newNames)
```

```
['Anne', 'Amy']
```