Discussion 12: More Python

Planning Your Phase II

(a) In the table below, write out Python code to execute the following commands on my_dict.

my_dict = {‘Math’:‘1A’, ‘English’:‘R1A’}

<table>
<thead>
<tr>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add the key ‘CS’ with the value ‘10’</td>
</tr>
<tr>
<td>Access the value of ‘Math’</td>
</tr>
<tr>
<td>Change the value of ‘Math’ to ‘1B’</td>
</tr>
<tr>
<td>Check if ‘UGBA’ is a key in my_dict</td>
</tr>
<tr>
<td>Check if ‘10’ is a value in my_dict</td>
</tr>
<tr>
<td>Get a list of the keys in my_dict</td>
</tr>
</tbody>
</table>

(b) Can you access a key, value pair by its index in a dictionary?

(c) Are keys or values in a dictionary returned in any particular order?

Iterating over Dictionaries


(a) Increment each person’s favorite number by the length of their name.

(b) Use a list comprehension to return the names of individuals whose favorite numbers are in nums.
Find the Index

(a) The following function takes in an item and a list and returns the index of the item in the list, but it’s buggy. Mark the fixes it needs.

```python
1 def find_index(item, lst):
2     i = 1
3     while i <= len(lst):
4         if item = lst[i]:
5             return i
6     i += 1
```

(b) Now, write the same function recursively.

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______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

(c) Now, write the same function with a list comprehension (hint: it may help to first think of what the function would look like with a for loop, then condense it into a list comprehension)

______________________________________________________________________

Lambdas/Higher Order Functions

(a) Write a lambda function called f that takes in a number and outputs that number squared.

```
f = ______________________________________________________________________
```

(b) Now, use a list comprehension and your lambda function f to return a list the squares of all numbers between 1-5.

______________________________________________________________________
(c) What would the interpreter display for the following lines of code?

```python
>>> S = "Berkeley"
>>> S[1:3]

>>> [x * 2 for x in range(4) if x % 2 == 1]

>>> ''.join([word[0] for word in "Univ of Calif at Berkeley".split(" ") if not(len(word) == 2)])

>>> f1 = lambda x: x + x
>>> f2 = lambda x: x > 9
>>> [f(10) for f in [f1, f2]]
```