

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'}
```

Add the key 'CS' with the value '10'	
Access the value of 'Math'	
Change the value of 'Math' to '1B'	
Check if 'UGBA' is a key in <code>my_dict</code>	
Check if '10' is a value in <code>my_dict</code>	
Get a list of the keys in <code>my_dict</code>	

(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

```
fav_numbers = {'Yifat': 20, 'Mansi': 7, 'Jobel': 120, 'Schuyler': 10, 'Jessica': 16}
```

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

```
nums = [10, 20]
```

(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.

```
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.

(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?

```
>>> 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]]
```
