

Key Concepts:

Warning: this list is not comprehensive!

- **A note on objects**
- **For Loops:** `range()`
- **While Loops:** infinite loops
- **More Keywords:** `break`, `continue`, `pass`, `else` (loop context)
- **Functions:** `def`, `return`, `None`, parameter, docstrings, sentinel values
- **Scope:** global vs local
- **Random Module:** `randint()`

```
function stayAtHome () {  
    eat();  
    sleep();  
    code();  
    repeat();  
}  
  
while (corona.isAlive()) {  
    stayAtHome();  
}
```

Discussion Questions:

1. What will the following code output?

```
x = 2
while (x % 3):
    print(x)
    x += 6
```

2. Rewrite the following code using for-each loops.

```
i = 0
j = 0
while(i < len(concoction)):
    while(j < len(concoction[i])):
        print(concoction[i][j])
        j += 1
    j = 0
    i += 1
```

3. The intended functionality of the following program is to print all the elements in a list. Is the code doing what it is intended to?

```
def printList(lyst):
    for num in range(len(lyst)):
        print("Element {}: {}".format(num, lyst[num]))
lyst = ["into", "the", "unknown"]
print(printList(lyst))
```

4. What does the following code output?

```
professor = "diba mirza"

def mysteryFunction():
    professor = "richert wang"
    print(professor)

print(professor)
```

5. Explain the significance of the difference between the following two implementations:

```
#Implementation 1 -
for element in lyst:
    #Code Block that does something
```

```
#Implementation 2 -
for num in range(len(lyst)):
    #Code Block that does something
```

6. Transpose is a matrix operation which swaps the rows and columns of an element. Write a function, transpose(), which takes a two-dimensional list (which represents a matrix), and returns the transpose of that two-dimensional list.

#Example:

Original Matrix:

```
[ [1, 2, 3],
  [4, 5, 6] ]
```

Transposed Matrix:

```
[ [1, 4],
  [2, 5],
  [3, 6] ]
```

Challenge: Rewrite the transpose() function without making a new 2D list.