# Assignment 4 - AKICS Python Classes

**Q1.** Complete the program below

```
numbers = [2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048]
squares = []
for number in numbers:
   ?.append(?)
print(squares)
```

The above program should print "**squares**" of numbers. You must fill question marks (?) with **expressions**, **keywords**, or **variables** to get the desired results.

**Q2.** Do question 1 using **range, len** functions, and **indexing**.
Hint: Use **for loop, range** function until the length exhausts like this `range(len(numbers))` you can replace the number in the first question loop with **i** and access each element using index **i** like this `numbers[i]` inside your loop
**Q3.** Solve **Q1** using a **while loop**
**Q4.** Find the slope of a line whose coordinates are **p1 = [2, 9]** and **p2 = [4,1]**
**Q5.** Give an array of prime numbers **prime_nums = [2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97]** do the following:

I. Reverse it using **my_list.reverse()** function
II. Reverse it using a **for loop** and print the final list
(Hint: ***Method 1*** - Using range, len, indexing
1. Create an empty list outside for loop
2. Use len function to get indices somehow from the end like Muslim answered last time
3. Every time minus i times to that index
4. Access the element using the index and append it to an empty list created at the top
***Method 2*** - Using an only range, indexing
1. Create an empty list outside for loop
2. Use range(start, end, step) notice you could use len(prime_nums) as the start argument, -1 as the end argument, and -1 as the step this way loop will decrement every time by one)
3. Access the element using the index and append it to an empty list created at the top
Should be something like this

```
n = len(prime_nums) - 1
for i in range(n, -1, -1):
...  #your code
)
```

III. Reverse it using a **while loop** and print the final list

Submission:

1. Submit a **repl** link of your code (https://replit.com/)
2. **PDF** of screenshots showing the output of your program

Resources:

1. Slope Formula
2. Python Datastructures