CENG 113 – Programming Basics

Lab 9

Functions & Lists

Random Square Root

Implement a function **get_random_sqrt** that takes a matrix as an argument and returns a random element and its square root. Run it from **main** function passing matrix **M** as the argument and print the return value.

Hint: Use **random** and **math** modules.

```
M = [[9, 16, 25], [36, 49, 64]]
```

Unique Sorted List

Implement **get_unique_list**, **get_sorted_list**, and **swap** functions. **get_unique_list** takes a list, removes duplicates (without using built-in **set** function), and returns a list with unique elements. **get_sorted_list** takes a list, sorts its elements (using the **swap** function, **NOT** using the built-in **sort** function), and returns a sorted list. Call both functions in order from **main** using:

```
L = [5,2,1,1,2,4,3,5]
```

Random Password Generator

Implement a function **generate_random_pwd** that takes **security level** as an argument and **prints** a random password for that level. Repeatedly run it from **main** function for the security levels taken from user and print the passwords generated.

Hint: Use **string** and **random** modules.

Level 1: 4 characters (all numeric)
Level 2: 8 characters (numeric + lowercase)
Level 3: 16 characters (numeric + lowercase + uppercase + symbol)
Level 0: Exit

(Bonus) Time Counter

Implement a function **get_elapsed_time** that takes **generate_random_pwd** function and its arguments as arguments and returns elapsed time to run that function. Run it from **main** function.

Hint: Use **time** module.

Example Run Command:

get_elapsed_time(generate_random_pwd, 3)