Jonathan Shabtai Project Proposal, MPCS 51046 (Autumn 2019)

Brain and memory games are ubiquitous on the internet as of late. Although they are fun and entertaining, they all lack in flexibility and are fixed with their pre-built settings. They do not walk the users through the foundations of developing memory techniques such as memory palaces and systems. They assume that the users have done their work, are proficient, and just look to train, and as a result can frustrate beginners. The learning curve for memorizing a string of numbers or a deck of cards is very steep without proper help.

For my project, I will build a robust memory trainer that assists users in improving their memory in a more effective way, one step at a time. The program will help users build strong foundations for digits memorization utilizing the [major system](https://en.wikipedia.org/wiki/Mnemonic_major_system). Finding good mnemonics using the system can be challenging when starting, and the program will offer suggestions for any digit combination. The program will allow each user to build their own [PAO system](https://artofmemory.com/wiki/Person-Action-Object_(PAO)_System) and then when practicing, offer help in recalling the mnemonics when needed. Specific training on each user’s PAO system will be implemented as well. Another core aspect of the program will be [memory palaces](https://en.wikipedia.org/wiki/Method_of_loci). The users will have the opportunity to manually build their palaces, and once the information they wish to memorize is recorded, it will automatically be placed in the palace, i.e. the program will populate the memory palace, so that the user can review the information very easily.

In a similar fashion to string digit memorization, the program will include: deck memorization, cell phone numbers, personal information, or any individual memory endeavor the user wishes to conquer (like grocery list). A stretch goal is to implement names and faces recall as well.

The project will be broken down into the following components (modules and classes):

User specific authentication (User class)

Memory Palaces for each user (Palace class)

Memory Systems for each user (Systems class including number mnemonics and PAO’s)

Personal recall database for each user (Recall class)

Random Number and Word generator (List\_Generator class)

A quiz module to practice recall (Quiz class)

A training module (Training class)

Aside from the itertools and random Built-in modules, the Third-party packages I look to use are:  
Pyspellchecker - to avoid frustrating experience for the user.

Pandas - to easily work with CSV files where information will be stored, and develop recalling statistics for every user.

I am considering using tkinter, PySide2, or PySimpleGUI for building a native application instead of running everything on the terminal window as a stretch goal.