First Principles: Data Hiding, Modularity, Abstraction

1. Time: Afternoon
2. Lecture:
    a. No Lecture; hands on programming in Python
3. Activities
    a. Activity: Basic programming in Python [1.5 hours]
        i. Hello World
            1. See hello.py
        ii. Hello <user>
            1. Raw input
            2. From command line using sys library
            3. See hello_name.py
                a. Adapt this to use sys.argv[1]
        iii. Control structures
            1. If statements
                a. See if.py
            2. Loops
                a. For loops
                    i. See for.py
        iv. Functions
            1. User defined functions; modularity
            2. See function.py
        v. Sockets
            1. Client-side sockets
            2. Server side sockets
            3. Writing an HTTP client and server
                a. See server_socket.py
                b. See client_socket.py

    b. Activity: Writing a transposition cipher program to encrypt and decrypt automatically [1.5 hour]
        i. Inspect this with Wireshark to observe the data being encrypted in transit
        ii. See cipher_client.py and cipher_server.py