Mini_Project[1]: It's All About the Docs
BIEN 4280 – Fall 2021
Due September 20th at midnight.

The objectives of this mini-project are to:

1. Get some practice deep diving into documentation

Part 0: Finding What You Need (10 pts):

Search for the items in the list that were assigned to you by Dr. Cooper.

After obtaining which numbers you will be searching for, find the things in the Reference Materials provided on D2L. Provide the reference material you used, page number if relevant, **and** any reasoning behind your choice.

Read each one carefully!

1. If I wanted to automatically trigger a task/thread in a peripheral using an event from another, what would I use?
2. If I wanted to store a few files in the non-volatile flash memory of our chip, what would be the simplest and safest way to do so? Why?
3. What is the smallest amount of power draw attainable by the Arduino Nano 33 BLE Sense? When?
4. What is the smallest amount of power draw attainable by the Arduino Nano 33 BLE Sense when using Bluetooth? In what condition?
5. What function call would I use if I wanted to get a random number?
6. If I wanted to alert the user that their battery was running low, what peripheral would I use? Why?
7. Secure connections are often required for BME development, as we work with sensitive patient data. Where would I find the ability to securely connect and download secure data using TLS?
8. I want to hook up my chip to a 5V power supply. Is that within spec?
9. After receiving essential file, it is common to obtain a "hash" of its binary data to validate the integrity of the data. What **low-level** API and series of functions (no args necessary) would I use if I wanted to obtain a "hash" of my data using the SHA512 algorithm without involving the RTOS?
10. If I wanted to use my Arduino as a Near Field Communication device (for example, to read my MU ID), what peripheral would I use?
11. If I hooked up a button to a pin, what could I use to detect the button (and handle switch bouncing?)
12. If I wanted to set up a bus that was designed specifically for microcontroller to microcontroller communication, what driver could I use?
13. What's the simplest object I could use for TCP/IP communication? Why?
14. What would I use if I wanted to obtain input from a microphone?
15. What class would I use if I wanted to run a thread every 50 microseconds as accurately as possible?
16. If I had a modern touchscreen, what library could I use to detect gestures on it?
17. What's the recommended usage of P0.22?
18. Flash is typically divided into chunks that are written/erased as one. What are the nRF52840's flash chunk size?
19. If I wanted to hook up an external source for the CPU clock, what frequency should it be?
20. If I wanted to use my chip as a mouse, what class would I use?