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?

I would use an interrupt to trigger a task from an event generated in another peripheral. (Nano_BLE_MCU-nRF52840_PS_v1.1 pg. 101)

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?

I would use the non-volatile memory controller to store a few files in the flash memory. (Nano_BLE_MCU-nRF52840_PS_v1.1 pg. 24)

4. What is the smallest amount of power draw attainable by the Arduino Nano 33 BLE Sense when using Bluetooth? In what condition?

8.1 mA in Bluetooth low energy mode. In a compounded condition. (Nano_BLE_MCU-nRF52840_PS_v1.1 pg. 60)

6. If I wanted to alert the user that their battery was running low, what peripheral would I use? Why?

I would use the Low Power Comparator and compare the input voltage to an appropriate reference voltage. When the battery is running low on power, the input voltage will drop below the reference voltage and an event flag would generate. (Nano_BLE_MCU-nRF52840_PS_v1.1 pg. 183)

8. I want to hook up my chip to a 5V power supply. Is that within spec?

Yes, there is a 5V input pin shown on the schematic. (Pinout-NANOsense_latest)

12. If I wanted to set up a bus that was designed specifically for microcontroller to microcontroller communication, what driver could I use?

CAN (Controller area network) (Drivers - API references and tutorials | Mbed OS 6 Documentation)

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?
PDM (pulse density modulation) (Nano_BLE_MCU-nRF52840_PS_v1.1 pg. 24)

16. If I had a modern touchscreen, what library could I use to detect gestures on it?

20. If I wanted to use my chip as a mouse, what class would I use?
I would use the USBMouse class in conjunction with the USBHID (Human Interface Device) class to allow my chip to act as a mouse. (USBHID - API references and tutorials | Mbed OS 6 Documentation)