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CMPE 311
Section MN 4:515
Project part2 report

This project is about making music player using the buzzer of atmega169p. The hardware accessories for this project includes the atmega169p, avr butterfly and serial cable. This project is made in C using avr-gcc.

The libraries being used includes AVR/io.h, AVR/pgmspace.h, util/delays.h and some of C standard library string.h. The main tasks include using serial terminal to communicate with user, getting input from the user, handling conversion, storing a song note, retrieving a song note and convert song note and playing them.

The First part of the project is to get song note from the user, store in the appropriate format. Song notes ,A-G and R to beak, are read as string and then converted to a uint8_t either by using a left shifting by 5-bit or AND gate with 0x1F..

The second part playing the note which involve unpacking the ascii character. Each ascii character corresponds with a frequency value from table on project link, which is used to calculate the number of iteration and half period . However, for this part of the project, we are using the given half period value.

in the second part of the project, I run into huge issues as I was debugging to best match functions. I kept on adding printf for debugging and then all of the sudden, I got a memory error. So I just try to remove all debugging print and hoped that the things will work normally, I kept on

changing things. The input of my display functions stop taking input from the user. The problem is that there is no error to look up.

I try the exact same functions on linux terminal and works just fine. This block work on linux terminal and fail in the avr-gcc.

```
if (fgets(user_line, MAX_PASS_LENGTH ,stdin) != NULL) {  
    //printf("%s \n", user_line);  
    // try both sscanf+ atoi --> user_num =0;  
    //sscanf(user_line,"%d", user_num)  
    user_num = atoi(user_line);  
}
```

After this incident, I try to post code on piazza, and the professor said you can't post code. so I just continue to test my other functions on linux terminal. Most of my functions they work fine separately. Most of the function I have submitted works fine. I try to reduce user_line[64]. Did not change anything.

I attempted to actually just returned some value from displayMenu to just see the other functions. Printing in the play_menu, keep just running without stopping. The main issue there is no error to sort of see what the problem. it just weird behavior and top it all, the printf does not work consistently. So I literally have to test every weird behavior on linux-gcc, it work just there.

My code at one point was ready to be submitted but for the sake of couple functions, nothing is working. If you can grade based on each functions performance. I think I will do really well.