**Assignment 2: 8 bits floating point addition and subtraction functions**

**Due Date : May 19, 2024**

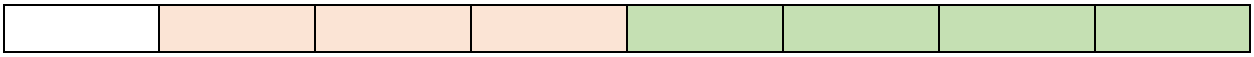
Write floating point addition and subtraction functions in C or python.

Submit three files: main.c, input.txt, output.txt

Structure

SWU-FP8 : consists of 1 sign bit, 3 exponent bits, and 4 bits of mantissa.

sign exponent mantissa



main.c

```
unsigned char SWUFP8Add(unsinged char swnum1, unsigned char swnum2) {
   /* Add two SWUFP8 numbers */
   return swresult;
}
unsigned char SWUFP8Sub(unsinged char swnum1, unsigned char swnum2) {
   /* Subtract two SWUFP8s numbers   */
   return swresult;
}
```

```
int main(void) {

    char fop;
    float fnum1, fnum2;
    unsigned char swufnum1, swufnum2, swuresult;
    /* read operator float number1 float number2 */
    scanf("%c %f %f₩n", &fop, &fnum1, &fnum2);

    /* translate floating number to SWUFP8 */



    /* if fop is '+' */
    if (fop == '+') {
       swuresult = SWUFP8Add(swufnum1, swufnum2);
    }
    /* else if fop is '-' */
    else if (fop == '-') {
       swuresult = SWUFP8Sub(swufnum1, swufnum2);
    }
    /* else terminate */
    else {
       exit(0);
    }

    /* Conversion SWU-FP8 type to float */



    /* print operator float number1 float number2 object-code */
    /*     object code = {Zero, DeN, InF, NaN}   */

}
```

Execution examples

$ a.out < input.txt > output.txt

input.txt (Example)

```
+ -1.2   1.2
+   1.2   1.2
....
E
```

output.txt (Example)

```
+ -1.2   1.2   0.0   Zero
+   1.2   1.2   2.4
....
```

Your own test cases (= input.txt and output.txt)

If your test cases could find other homework's bugs, you will get additional points.