CS520 FALL 2019

LAB 3

Description

Do an initial implementation of the f2i function described in the Program 2 specification.

Test your function, you will need to supply a main function. **Put the main function in another file!** In this main function you may use **float** types so that you can set up a test rigging to evaluate your function. In addition, you should use a union to change the interpretation of bytes in memory. For example, you might construct a main function like this one:

```
#include <stdio.h>
#include <stdint.h>
#include <inttypes.h>

int32_t f2i(uint32_t);

union {
  uint32_t i;
  float f;
} u;

int main(void)
{
  uint32_t in;
  int32_t i;

  in = 0x4D2AAAAA;
  u.i = in;
  i = u.f;
  printf("%08" PRIx32 " (%e) --> %08" PRIx32 " (my result is %08" PRIx32
")\n",
    in, u.f, i, f2i(in));

  return 0;
}
```

If the main function is in the file **main.c** and your implementation of **f2i** is in the file **prog2.c**, then to compile and run the program:

```
gcc -Wall -std=c99 prog2.c main.c -o lab3
./lab3
```

This lab will be tested using only the following inputs to **f2i**:

- zeroes (16 points)
- infinities (16 points)
- NaNs (16 points)
- denormalized values (16 points)
- values with negative exponents i.e. exponent gets too negative (16 points)
- **0x4D2AAAAA (20 points) – you cannot hard-code the expected value, if you do so you will get no points! This is meant for you to make it easier for you to complete Program 2.**

You should submit all the source code for your lab in one file called **prog2.c**. Be sure this file does **not** include a main function!