

### **Ninth: Decimal to IEEE-754 FP with Rounding (20 points)**

Your task is to write a program to convert a decimal fraction to the IEEE-754 FP representation in a given configuration with the rounding to nearest with ties-to-even rounding mode.

**Input-Output format:** Your program will take one file name as its command-line input. Each line in the input file will have a decimal fraction (use a double type to read it), the number of

the bits (n) in the IEEE-754 FP representation, number of bits for the exponent, and number of fraction bits. These numbers on a given line are separated by a space. For each line in the input, you should the IEEE-754 representation with n-bits followed by a new line.

**Example Execution:**

Let's assume we have the following input file:

```
6.5 8 4 3
.0546875 8 4 3
.013671875 8 4 3
6.375 8 4 3
8.5 8 4 3
9.5 8 4 3
```

Then the result will be:

```
$/ninth input.text
01001101
00010110
00000111
01001101
01010000
01010010
```

We will not give you improperly formatted files. You can assume all your input files will be in proper format, as stated above. You can assume that input will not have NaNs and any value will not round up or down to infinities.