

CS2318 Summer 2018	Assignment 5 Due 07-08-2018 @ 1200 pm	07-04-2018
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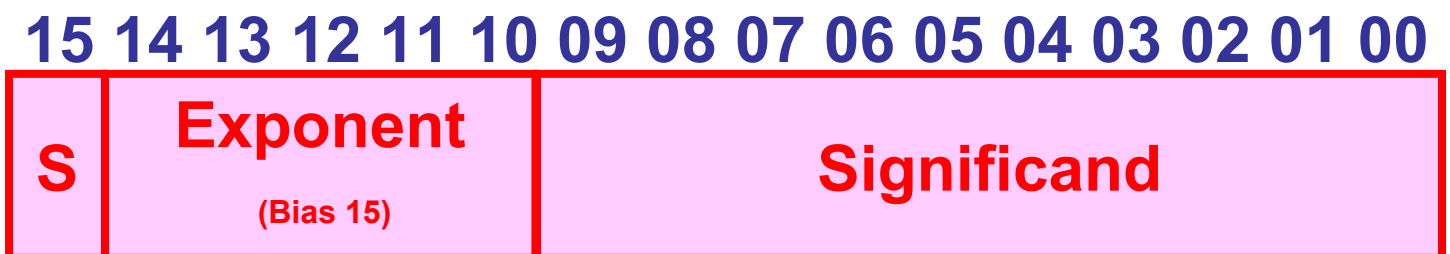
**Submission Instructions:**

1. This is an extra credit assignment
2. Please submit your work directly in TRACS (using the TRACS editor) or as a text/MS-word/PDF attachment by the due date/time.
3. Please use only zip for compression.
4. Please write your name in the assignment header and as a part of the file name of any file attached
5. It must be your own work – a penalty of at least one grade in your final grade and a report to the Dean of Students will result from sharing work or using other people work.
6. Please do not submit your assignment via email. If you miss the deadline, then please submit it on TRACS and send me an email notification.

**Answer the following questions:**

- 1) Use the 16-bit format depicted below (referred to as fpx) to perform the following:
  - a) Convert ED80 from fpx to decimal – **Use answer from assignment 5.**
  - b) Convert  $1.745 \times 10^{-3}$  from decimal to fpx - **Use answer from assignment 5.**
  - c) Add two fpx numbers (7780 + 6F00): You have to convert the mantissas to 2's complement, add and then convert back to sign and magnitude.
  - d) Subtract two fpx numbers (7300 – 78F0): You have to convert the mantissas to 2's complement, subtract and then convert back to sign and magnitude.
  - e) Multiply two fpx numbers (7500 \* A70A);

In addition, assume that the exponent of +16 is not reserved for exceptions



- 2) Assume that a device that generates random numbers is connected to the MIPS I/O space located at offset of 0x40 from the I/O base address. When the device is ready it can supply a random 32-bit integer.

Write a MIPS polling routine that checks if the device is ready and once it is ready it reads the current random number.