CS 220, Fall 2017
Assignment 4 – (100 points)
Due date: 25 Sep 2017, 11:59pm.

Instructions

- Answer the questions individually. Group effort is not allowed.
- Solutions must be committed to your respective repositories on github.
- For this assignment, you are not allowed to use any library functions other than printf.
- Ensure that your code runs on remote.cs.binghamton.edu.
- Prototypes must be provided for all functions within the header file define.h.
- Code must be appropriately commented.
- Useful resources:
    1. Common linux commands: http://www.informit.com/blogs/blog.aspx?uk=The-10-Most-Important-Linux-Commands
    2. http://c-faq.com/
    3. https://cdecl.org/

Questions

1. (40 points) Write a function `int cryptic_calculator(void *payload)` Where:
    - If the first byte in payload is a character '*' representing the multiplication operation, you are to return the product of 3 short ints starting at bytes 3, 5 and 7.
    - If the first byte in the payload is a character '/' representing division, you are to return the quotient when you divide int starting at byte 5 by short int starting at byte 3. If short int starting at byte 3 is 0, you are to return `0xBAD`.

- If the first byte is neither '*' or '/', you are to return 0xBAD.

HINT: Cast payload to an appropriate appropriate structure. Byte 1 is at `&payload`, byte 3 is at `&payload + 2`, byte 5 is at `&payload + 4` and so on.

2. (40 points) Write a function: `void my_memcpy(void *dst, void *src, unsigned int num_bytes)` that copies `num_bytes` from memory pointed to by `src` to memory pointed to by `dst`. HINT: Loop num_bytes times and copy one char at a time from `src` to `dst`.

3. (20 points) Write a function: `void swap_strs(char *s1, char *s2)` that swaps two character strings at `s1` and `s2`. Assume both strings `s1` and `s2` to be of same length.