Semaphores In-Class Assignment

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In this in-class assignment you will work through understanding the permissions involved in creating a semaphore. Similar to the lab, you will create shared memory for two processes to access. Each process will call wait on the semaphore any time they want to access the shared data. Using the following building blocks, (re)create a program that accesses shared data using semaphores.

```
struct sembuf p = { 0, -1, SEM_UNDO};
struct sembuf v = { 0, +1, SEM_UNDO};


if ((semId = semget(IPC_PRIVATE, 1, S_IRUSR | S_IWUSR)) == -1) {
                perror("semget: semget failed");
                exit(1);
}
```

Experiment programmatically and answer the following questions:

1. What values do each of the following hold (create print statements to output each of the following)?
    a. IRUSR
    b. IWUSR
    c. IXUSR
    d. IRGRP
    e. IWGRP
    f. IXGRP
    g. IROTH
    h. IWOTH
    i. IXOTH
2. What permissions does 0600 represent?
3. What base (binary, octal, decimal, hex) are the above numbers?
4. Create a semaphore with Read only permissions for the user, does your program still run correctly?
5. Create a semaphore with Write only permissions for the user, does your program still run correctly?