

Northern Michigan University (Marquette Co, MI)

CS426-01-26F: Operating Systems (Andrew A. Poe)
Quiz 5

Name: _____
Friday 2 October 2026 3:00 P.M. EDT

Time: 15 minutes.

On a Linux file system, a file (or directory) has twelve permission bits (read, write, execute for user, group, and world, and three bits for special permissions). Describe two major limitations to such a system and describe a system that would correct these limitations. How would you implement your system?

1. user, group, and world permissions only allows one group to have special permissions. Basically, it restricts you to three sets of permissions, and everyone is one of these classifications.

2. read, write, and execute may be crude a system to describe all the access someone might want to grant or restrict. This is especially true with folder permissions, where adding, removing, listing, editing might be easily fit into three bits. (The special permission bits help with this somewhat, though.)

A better system might involve independent lists of users or groups with different permissions for each. Perhaps each individual user with access should have a tailor-made permission list. Or maybe you could have more than one group. These might be stored in a linked list which the OS can access when it needs to.