# Project 3: FAT32 File System
# Part 3

# Function: rmdir DIRNAME

- To remove a directory, you need to:
  - Erase all data in the directory’s cluster (data region)
  - Unlink the directory clusters and update FAT
  - Remove the DIR entry in the parent directory

# Function: rmdir DIRNAME

- What this actually looks like:
- First, take care of DIRNAME’s data
  - Iterate through the file system to find DIRNAME’s DIR entry
  - If found, go the the DIRNAME’s first cluster
  - Like in a standard shell, you should not be able to call rmdir on a non-empty directory
    - Only the “.” and “..” DIR entries should exist, make sure the next entry is 0x00
    - If not, return an error
  - If DIRNAME is empty, overwrite the “.” and “..” entries with 0s

# Function: rmdir DIRNAME

- Next, you need to remove the FAT entry for the directory
  - Go to FAT[DIRNAME_cluster_number] and set it to 0 → now this cluster is available for other files/directories to use
  - Since the directory was empty, it should only span one cluster (its first cluster) so there is no need to worry about any other entries in the FAT table for this directory

# Function: rmdir DIRNAME

- Finally, remove the DIRNAME’s DIR entry

# Function: rm FILENAME

- A bit trickier than rmdir
- In rmdir, since DIRNAME was empty, the directory only spanned one cluster
- This is not always the case for rm as a file can span multiple clusters

# Function: rm FILENAME

- Traverse the file system to find the DIR entry for FILENAME
- After finding the first cluster of the file, iterate to the last cluster of the file
- Starting at the end and working to the beginning of the file:
  - Overwrite all data in the current cluster with 0s
  - Set FAT[current_cluster] to zero
  - Set current_cluster to the file's previous cluster
- Once all clusters have been cleared, you can remove the FILENAME's DIR entry

# Help Session