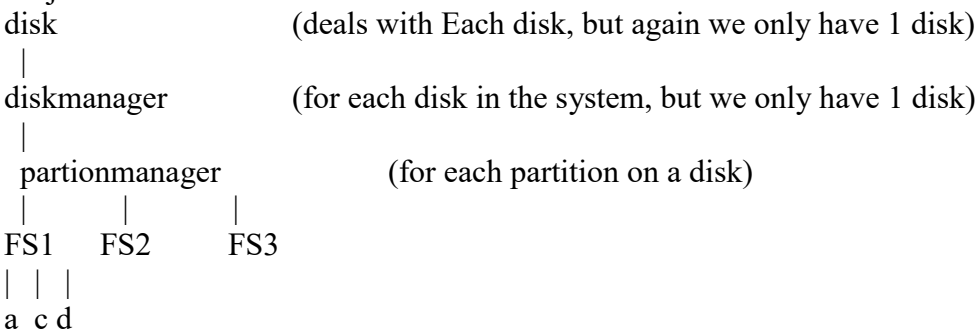
Project information



As a note, a block on the disk is hard coded to be 64 bytes.

Disk class

- Simulated disk using UNIX file system, normally there would be more than 1 disk possible, but we are only going to implement 1 disk.
- Creates file, divides it into blocks, read disk block (block#, buffer)

Diskmanager

- read/write block functions
- Also deals in partition tables (stored in Block #0 of each disk)
  - When the disk is initially created, the superblock is created (Disk block #0) with the partition information. If the disk already exists, then the information is read from the superblock.
- There will never be more than 4 partitions.
- Security as well, so that a file can't be written into the wrong partition.

Partition manager

- manages the allocation & deallocation of blocks for the partition
- partition goes through the disk manager
- uses bitmap (Bit vector) to keep track of blocks
- store bitmap in one block (block 0 of each partition) update the stored copy after each change in the bitmap Use 0 free/ 1 not avail
  - In order to do this, it will need to use the Diskmanager to read and write the bitmap.
- When a partition is first initialized, you will need to think about the root directory, which is always stored in block 1 of each partition. This can be setup in the partition manager or in the filesystem manager. Don't forgot to set block 1 of the partition as not free.

Filesystem

- The filesystem is where you will write most of the code and spend most of your time debugging.

- A file can be opened multiple times and it will need to have an entry in the open file table (with a read write pointer and mode as well) for each time it is opened. The rw pointer and mode for each open file will likely have a different value.

-- File inode implementation

- name 1 byte
- type 1 byte: file/directory
- filesize 4 bytes:
- 3 direct address at 4bytes each = 12 bytes
- 1 indirect address (pointers to indirect inode) 4 bytes
- The rest of the space for your attributes.

-- Indirect inode

- 16 direct address pointers at 4 bytes each = total of 64 bytes.

-- Directory inode

- Filename 1byte
- Pointer to sub directory block or file inode 4bytes
- Type file/directory 1byte
- Repeated 9 more times
- Pointer to next directory inode to continue the information on this directory 4 bytes

Lastly, remember you can use a hex editor to read the DISK1 that is created. You should be able to see and read the information directly off the disk to verify everything is working correctly.