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| Layer | Files involved | Description | What we do |
| File descriptor | file.c file.h xv6\_stat.h | Describe file by pipe or inode | 1. Comment pipe related codes |
| Pathname | fs.c fs.h fsvar.h | 1.An inode describes file, directory and special device by TYPE.  2.Each inode contains a series of addresses describes the positions of data on disk.  3. Use “/a/b/c” to describe the paths.  4. Use bitmap to describe the usage of data blocks, the ratio of bitmap blocks to data blocks is 1:8. | 1. Modify the formulas for calculating like which sector is a given inode on, or which bitmap block contains the information of a given data sector. |
| Directory |
| inode |
| Logging |  | 1. Journal logging, described in doc, but not implemented. | 1. Not implement  2. Leave logging blocks in the disk structure for future use. |
| Buffer Cache | bio.c buf.h | 1. A cache to disk  2. size of 10  3. LRU | 1. We use virtual disk instead of physical, so we modified the interface between cache and disk to R/W buf. |
| Disk | disk.c ide.c | Not included in xv6 | 1. Create a 64MB virtual disk.  2. Provide interfaces for R/W with disk blocks. |