Unix-based filesystem practice:

Assume we have a hard disk as below. Each block is 1KB. The block address is 4 Byte. The size of inode is 256 Byte. There is one block dedicated for inodes, one for inode bitmap and one for data bitmap. Use the diagram next page to demonstrate how files are stored in a Unix-based file system.

Instructions:
1) Divide the inode block into individual inode entry, so each inode is a row;
2) Further divide each inode (row) into columns to indicate the following information: file size, 2 direct block pointers, 1 indirect block pointer.
3) For a data block taken by a file, just put the file name into that block.
4) For a data block taken by a directory, draw a table inside to indicate the file name and inode number for each entry (i.e., file or directory). Assume each directory contains data no more than one block.
5) For bitmaps, first put proper number of underlines (i.e., _ ) (according to the number of inodes and data blocks) to be ready to fill. Assume the default value is zero.

Tasks:
1) Create a directory called “root”
1) Create file “root/first_file” with size of 4KB;
2) Create file “root/second_file” with size of 7KB;
3) Delete file “root/first_file”