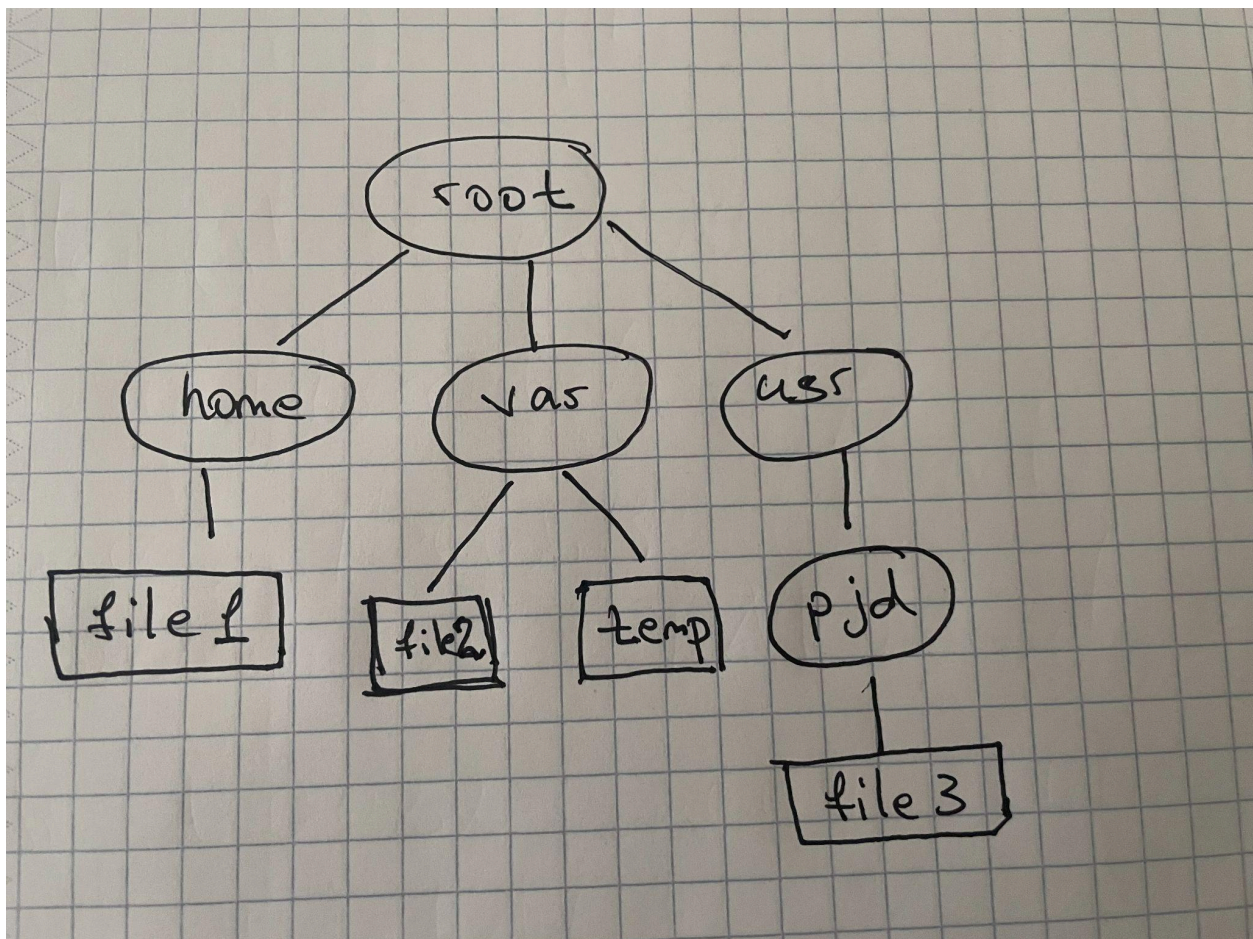**Week 12: Assignment / Explore File System Organization**

CS5600 Spring, April 2025
Shorena K. Anzhilov

Question 1 : MSDOS-like file system

```
(root)
├── home
│     └── file1      (blocks 3 → 5)
├── var
│     ├── file2      (block 10)
│     └── tmp         (empty)
└── usr
      └── pjd
            └── file3     (block 8)
```

Question 2 :

Block 3

➢ **File**: `file1`
➢ **Reasoning**: `file1` starts at block 3 and has a total length of 2000 bytes.
➢ **FAT Info**: Block 3 points to block 5, so this is the first chunk of the file.
➢ **Bytes in this block**: `0 — 1023`

Block 5

➢ **File**: `file1`
➢ **Reasoning**: This is the second block of `file1`, following block 3.
➢ **FAT Info**: Block 5 is marked as EOF.
➢ **Remaining file size**: `2000 - 1024 = 976 bytes`
➢ **Bytes in this block**: `1024 — 1999`

Block 8

➢ **File**: `file3`
➢ **Reasoning**: Directory entry for `file3` in block 9 shows that it starts at block 8 with a total length of 800 bytes.
➢ **FAT Info**: Block 8 is EOF.
➢ **Bytes in this block**: `0 — 799`

Block 10

➢ **File**: `file2`
➢ **Reasoning**: From directory entry in block 4. File starts at block 10 and is 1000 bytes long.
➢ **FAT Info**: Block 10 is EOF.
➢ **Bytes in this block**: `0 — 999`

Block 12

➢ **File**: *none (orphaned or unused block)*
➢ **Reasoning**: No directory entry points to block 12. It contains the string `"fff."`, but there is no metadata associating it with any file.
➢ **Bytes in this block**: *Not applicable*

Assumptions:

- ☐ Each block holds exactly **1024 bytes** of data.

- ☐ File byte ranges are calculated based on the total file size shown in the directory entries.

- ☐ Block numbers and FAT info were used to follow file continuation.

- ☐ Block 12 is not linked to any directory entry, so it's considered **unused or orphaned**.