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#include "type.h"

int read_file(char *path)
{
    int nbytes = atoi(third), flag = 0; // atoi third to get the number of bytes
    we want to read
    int fd = 0;

    char buf[nbytes + 1]; // creates buf of size nbytes+1

    MINODE *mip;
    INODE* ip;

    strcpy(buf, ""); // clears out the buf

    if (!strcmp(path, "")) // checks to see if there was a file descriptor entered
    {
        printf("No file descriptor super_pecified.\n");
        return;
    }

    fd = atoi(path); // converts the path to a file descriptor number

    if (!strcmp(third, "")) // checks to see if there was a byte amount
    super_pecified
    {
        printf("No byte amount super_pecified.\n");
        return;
    }

    flag = read_helper(fd, buf, nbytes); // tries to read from the file descriptor
    into the buf, nbytes
    if (flag == -1) // checks if the read helper was successful
    {
        printf("Error, couldn't read file.\n");
        strcpy(third, "");
        return;
    }

    buf[flag] = '\0'; // goes to the end of the buf and inserts a null terminator
    printf("%s\n", buf); // prints the buf to the screen
    return flag;
}

/*
Find logical data based off of offset (mailman's algorithm) and loads correct block
From there it'll load the data desired into buf
Return number of bytes put into buf
*/

int read_helper(int fd, char *buf, int nbytes)
{
    MINODE *mip;
    OFT *oftp;
    int count = 0;
    int logic_block, blk, startByte, remain, ino;
    int avil;
    int *ip;
    int size;

    int indirect_blk;
    int indirect_off;

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    int buf2[BLKSIZE];

    char *cq, *cp;
    char readbuf[1024];
    char temp[1024];

    oftp = running->fd[fd]; //sets the open file table pointer process file
descriptor array index
    mip = oftp->inodeptr; //sets the memory inode pointer to the open file table
inode pointer

    avil = mip->INODE.i_size - oftp->offset; //sets the available to size - offset
    cq = buf;

    while(nbytes && avil) //loops while there are more bytes to read
    {
        //mailmans
        logic_block = oftp->offset / BLKSIZE;
        startByte = oftp->offset % BLKSIZE;

        if(logic_block < 12) //direct block
            blk = mip->INODE.i_block[logic_block]; //sets the block to the
inode data block

        else if(logic_block >= 12 && logic_block < 256 + 12) //indirect blocks
        {
            get_block(mip->dev, mip->INODE.i_block[12], readbuf);

            ip = (int *)readbuf + logic_block - 12;
            blk = *ip;
        }
        else //double indirect blocks
        {
            get_block(mip->dev, mip->INODE.i_block[13], readbuf); //gets
the indirect block

            //mailmans
            indirect_blk = (logic_block - 256 - 12) / 256;
            indirect_off = (logic_block - 256 - 12) % 256;

            ip = (int *)readbuf + indirect_blk; //get the indirect block
number

            get_block(mip->dev, *ip, readbuf); //gets the block that the
inode pointer points at

            ip = (int *)readbuf + indirect_off;
            blk = *ip; //set the working block to the indirect block number
        }

        get_block(mip->dev, blk, readbuf); //gets the data block that was
previously assigned

        cp = readbuf + startByte; //sets the start point in the file

        remain = BLKSIZE - startByte; //calculates the remaining bytes

        if(avil <= remain && avil <= nbytes)
        {
            size = avil;

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    }
    else if(remain <= avil && remain <= nbytes)
    {
        size = remain;
    }
    else if(nbytes <= remain && nbytes <= avil)
    {
        size = nbytes;
    }

    memcpy(cq, cp, size);
    oftp->offset += size;
    count += size;
    avil -= size;
    nbytes -= size;
    remain -= size;
}
return count;
}
```