Lab Assignment 4: Print Metadata of a File in xv6 System

Name:- Syed Abrar
Roll Number:- CS22BTECH11058

Description of Code:

This code is used to create a file, write a given roll number into it repeatedly until the specified file size is reached, and then read and display the contents of each block in the file along with their block numbers and the inode number of the file.

Solution Methodology:

A constant size_of_block is defined with a value of 512 bytes, representing the size of each block.

Function to Print Block Contents:
A function blockprint is defined to print the contents of a block. It iterates through each character in the buffer until encountering a null character ('\0') and prints it.

Main Function:

It checks if exactly four arguments are provided through the command line.

```
    if (argc != 4) {

fprintf(1, "Usage: create <fileName> <fileSize> <rollNo>\n");
      exit(0);
  }
```

Then it Extracts the filename, filesize, and roll number from the command-line arguments.

Opens the specified file for reading and writing (O_CREATE | O_RDWR flags) and checks if the file was opened successfully.

Then it allocates disk blocks and writes the roll number repeatedly into the file until the specified file size is reached. Each block is filled with the roll number, and the write system call is used for writing ant then closes the file after writing is completed.

Then it reopens the file to retrieve its inode number and print block numbers and contents and It

then retrieves the inode number of the file using the fstat system call and prints it.

It reads each block of the file and prints its block number and contents using the blockprint function and then it closes the file and exits the program.

Output:-