**GEBZE TECHNICAL UNIVERSITY**

**CSE222 OPERATING SYSTEMS**

**HOMEWORK 3 REPORT**

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**Part 1 && Part 2:**

struct superBlock

{

char diskName[20];

uint32\_t diskSize;

float blockSize;

uint32\_t numberOfEntry;

uint32\_t numberOfBlock;

uint32\_t totalByte;

uint32\_t bootSectorPosition;

uint32\_t fatTablePosition;

uint32\_t rootDirPosition;

uint32\_t dataStartPosition;

};

struct entryDir

{

char fileName[8]; //8 byte

char extension[3]; // 3 byte

uint8\_t attributes; // 1 byte

char reserved[10]; //10 byte

uint16\_t time; // 2 byte

uint16\_t date; // 2 byte

uint16\_t firstBlockNumber; // 2 byte

uint32\_t fileSize; // 4 byte

};

In this part superblock represents my boot sector. This structure contains information about the file system such as Bytes per sector, Sectors per cluster, Number of reserved sectors. I will keep it simple. I will put information(superblock) according to block size as in figure.

A picture containing text, screenshot, font, number

Description automatically generated

‘entryDir’ structure provides a structure to store information about a file or directory in a file system directory entry. The specific implementation and interpretation of the fields may vary depending on the file system used.

File Allocation Table (FAT):

I implemented FAT using array and it is like as figure below:

A picture containing text, number, screenshot, diagram

Description automatically generated

In the code:

int\* fat[] = nullptr;

define like this.

Creta for file System. I write class for this purpose. You can see implementation in the below:

class fileSystem

{

public:

void createFile();

int openFile();

void initSystem();

void printInfo();

fileSystem(int blockSize, char \*fileName);

private:

int blockSize;

char \*fileName;

superBlock disk;

};

The ‘fileSystem’ class encapsulates the functionalities and data needed to create, open, and manage files within a file system. It also provides methods to initialize the file system and retrieve information about it.

How we can run the code:



Example:

A screen shot of a computer

Description automatically generated with medium confidence