CSE 461 Lab 2

File I/O

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Source code of sdisk.h:

```
#ifndef SDISK_H_
#define SDISK_H_

#include <string>

using namespace std;

class Sdisk
{
public :
Sdisk(string diskname, int numberofblocks, int blocksize);
int getblock(int blocknumber, string& buffer);
int putblock(int blocknumber, string buffer);
int getnumberofblocks(); // accessor function
int getblocksize(); // accessor function
private :
string diskname;        // file name of software-disk
int numberofblocks;     // number of blocks on disk
int blocksize;          // block size in bytes
};

#endif
```

Source code of sdisk.cpp:

```
#include "sdisk.h"
#include <iostream>
#include <string>
#include <vector>
#include <fstream>

using namespace std;

/*
Class Sdisk
{
public :
Sdisk(string diskname, int numberofblocks, int blocksize);
```

```
int getblock(int blocknumber, string& buffer);
int putblock(int blocknumber, string buffer);
int getnumberofblocks(); // accessor function
int getblocksize(); // accessor function
private :
string diskname;        // file name of software-disk
int numberofblocks;     // number of blocks on disk
int blocksize;          // block size in bytes
};
*/


Sdisk::Sdisk(string diskname, int numberofblocks, int blocksize){
        this->diskname = diskname;
        this->numberofblocks = numberofblocks;
        this->blocksize = blocksize;
        ifstream ifs;
        ifs.open(diskname.c_str(), ios::in);
        char x = ifs.get();
        if(ifs.good()){
                cout << diskname << " disk exists." << endl;
                ifs.close();
        }else{
                ifs.close();
                ofstream ofs;
                ofs.open(diskname.c_str(), ios::out);
                for(int i = 1; i <= (blocksize * numberofblocks); ++i){
                        ofs << "#";
                }
                ofs.close();
        }
}

int Sdisk::getblock(int blocknumber, string& buffer){
        if(blocknumber > this->numberofblocks) return 0;
        ifstream ifs;
        ifs.open(this->diskname, ios::in);
        ifs.seekg(blocknumber * getblocksize());
        char c;
        for(int i = 0; i < getblocksize(); ++i){
                ifs.get(c);
                buffer += c;
        }
        ifs.close();
        return 1;
}

int Sdisk::putblock(int blocknumber, string buffer){
        if(blocknumber > this->numberofblocks) return 0;
```

```
        ofstream ofs;
        ofs.open(this->diskname.c_str(), ios::out | ios::in);
        ofs.seekp((blocknumber * blocksize));
        for(int i = 0; i < blocksize && i < buffer.length(); ++i){
                ofs.put(buffer[i]);
        }
        ofs.close();
        return 1;
}

int Sdisk::getnumberofblocks(){ // accessor function
        return this->numberofblocks;
}

int Sdisk::getblocksize(){ // accessor function
        return this->blocksize;
}
```

Source code of lab2.cpp:

```
//lab2.cpp
//for lab 2 of CSE660
//by Huanqing Nong
//on April 24 2018

#include "sdisk.h"
//#include "sdisk.cpp"
#include <string>
#include <iostream>

using namespace std;

// You can use this to test your Sdisk class

int main()
{
  Sdisk disk1("test1",16,32);
  string block1, block2, block3, block4;
  for (int i=1; i<=32; i++) block1=block1+"1";
  for (int i=1; i<=32; i++) block2=block2+"2";
  disk1.putblock(4,block1);
  disk1.getblock(4,block3);
  cout << "Should be 32 1s : ";
  cout << block3 << endl;
  disk1.putblock(8,block2);
  disk1.getblock(8,block4);
  cout << "Should be 32 2s : ";
  cout << block4 << endl;;
}
```

Test output:

```
[005814662@csusb.edu@jb359-27 lab2]$ g++ -o lab2exe sdisk.cpp sdisk.h lab2.cpp
[005814662@csusb.edu@jb359-27 lab2]$ ./lab2exe
Should be 32 1s : 11111111111111111111111111111111
Should be 32 2s : 22222222222222222222222222222222
[005814662@csusb.edu@jb359-27 lab2]$ cat test1
################################################################################################################
#####################11111111111111111111111111111111#########################################################
##########################################22222222222222222222222222222222########################################
################################################################################################################
#########################################################################################[005814662@cs
usb.edu@jb359-27 lab2]$
```