**CS381-37: Project 1.3 (CPP)**

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Algorithm Steps:

step 0: inFile <-- argv[1]

step 1: numRows, numCols, minVal, maxVal <-- read from inFile

step 2: thrValue <-- ask user from console

step 3: outFileName <-- generateOutFileName (thrValue)

step 4: outFile <-- open the output file, named outFileName

step 5: write numRows, numCols, 0, 1 to outFile

step 6: process the inFile from left to right and top to bottom

// For easier reading use two loops: i for rows and j for column

pixel\_val <- read from input

if pixel\_val >= threshold value

write 1 to outFile follows by a blank

else

write 0 to outFile follows by a blank

step 7: repeat step 6 until the inFile is empty

step 8: close input file and output file

**Source Code**

#include <iostream>

#include <fstream>

#include <string>

#include <sstream>

using namespace std;

int main(int argc, char \*argv[]){

//input check

if(argv[1]==NULL) {

cout<<"no parameter"<<endl;

return 0;

}

//step 0

ifstream inFile;

inFile.open(argv[1]);

if(!inFile.is\_open()){

cout<<"cant find file"<<endl;

return 0;

}

//step 1

int numRows = 0;

int numCols = 0;

int minVal = 0;

int maxVal = 0;

inFile >> numRows;

inFile >> numCols;

inFile >> minVal;

inFile >> maxVal;

//step 2

int thrValue = 0;

cout<<"Give me a threshold value:"<<endl;

cin>>thrValue;

//check input is vaild value

while(cin.fail()){

cout<<"Threshold value must be integer type, Give me a threshold value:"<<endl;

cin.clear();

cin.ignore(256,'\n');

cin>>thrValue;

}

//step 3. generate output file name

//remove extension

string fileName = argv[1];

string fileNameWithoutExtension = fileName.substr(0, fileName.rfind("."));

string outfile = fileNameWithoutExtension + "\_thr\_";

stringstream ss;

ss<<outfile<<thrValue;

outfile = ss.str();

outfile = outfile + ".txt";

//step 4

streambuf \*console = cout.rdbuf();

ofstream out1;

out1.open(outfile);

//set output to outfile 1

cout.rdbuf(out1.rdbuf());

//step 5

cout << numRows << " " << numCols << " " << minVal << " " << maxVal <<endl;

//step 6 & step 7

int pVal = 0;

int counter = 0;

while(inFile >> pVal){

if(pVal >= thrValue){

cout << 1 << " ";

}

else{

cout << 0 << " ";

}

counter++;

if(counter%numCols == 0){

cout<<endl;

}

}

//step 8

inFile.close();

cout.rdbuf(console);

cout<<"done"<<endl;

out1.close();

return 0;

}

**Input: proj1Data**

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**Output1: proj1Data\_thr\_4.txt**

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