Task 5 report

In this task we gather size information about all files in a certain directory which we access and if there is a directory in a directory then we recursively call the files in that directory and print them all as the histogram data frame. We complete all this by using function from the library dirent.h and stats.

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#include <iostream>

#include <map>

#include <dirent.h>

#include <sys/stat.h>

#include <string>

using namespace std;

void FileSizes(const string &directory, map<int, int> &Histogram, int Binwidth)

{

    DIR \*dir = opendir(directory.c\_str());

    if (!dir)

    {

        cout << "Failed to access Directory" << endl;

        return;

    }

    struct dirent \*input;

    struct stat FileSize;

    while ((input = readdir(dir)) != nullptr)

    {

        string FilePath = directory + "/" + input->d\_name;

        if (string(input->d\_name) == "." || string(input->d\_name) == "..")

            continue;

        if (stat(FilePath.c\_str(), &FileSize) == 0)

        {

            if (S\_ISREG(FileSize.st\_mode))

            {

                int BinIndex = FileSize.st\_size / Binwidth;

                Histogram[BinIndex]++;

            }

            else if (S\_ISDIR(FileSize.st\_mode))

            {

                FileSizes(FilePath, Histogram, Binwidth);

            }

        }

    }

    closedir(dir);

}

void PrintHisto(map<int, int> Histogram, int BinWidth)

{

    cout << "BinWidth: " << BinWidth << " bytes" << endl;

    cout << "------------------------------------" << endl;

    for (const auto &bin : Histogram)

    {

        cout << "[" << bin.first \* BinWidth << " - " << (bin.first + 1) \* BinWidth - 1 << "]: ";

        cout << "(" << bin.second << " files)" << endl;

    }

}

int main()

{

    int BinWidth;

    string Directory;

    cout << "Enter a directory: ";

    getline(cin, Directory);

    cout << "Enter a binwidth (bytes): ";

    cin >> BinWidth;

    if (BinWidth <= 0)

    {

        cout << "BinWidth cannot be less than 1" << endl;

        return 1;

    }

    map<int, int> Histogram;

    FileSizes(Directory, Histogram, BinWidth);

    PrintHisto(Histogram, BinWidth);

}

Task 6 report

In this task we simply just get all the files and folders in a directory by using function from dirent.h to get the content inside those directories. We argc and argv to get them in the command line as well. A screen shot of a computer

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A screenshot of a computer

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#include <iostream>

#include <dirent.h>

#include <string>

using namespace std;

void ListFiles(string Directory)

{

    DIR \*dir = opendir(Directory.c\_str());

    if (!dir)

    {

        cout << "Failed to access Directory" << endl;

        return;

    }

    struct dirent \*Input;

    cout << "Directory: " << Directory << endl;

    while ((Input = readdir(dir)) != nullptr)

    {

        if (string(Input->d\_name) == "." || string(Input->d\_name) == "..")

            continue;

        cout << Input->d\_name << endl;

    }

    cout << endl;

    closedir(dir);

}

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

{

    for (int i = 0; i < argc; i++)

    {

        ListFiles(argv[i]);

    }

}