

Course: ENSF 614 - Fall 2023

Lab B01: Lab 4

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Exercise A

Definition

```
String_Vector transpose (const String_Vector& sv) {

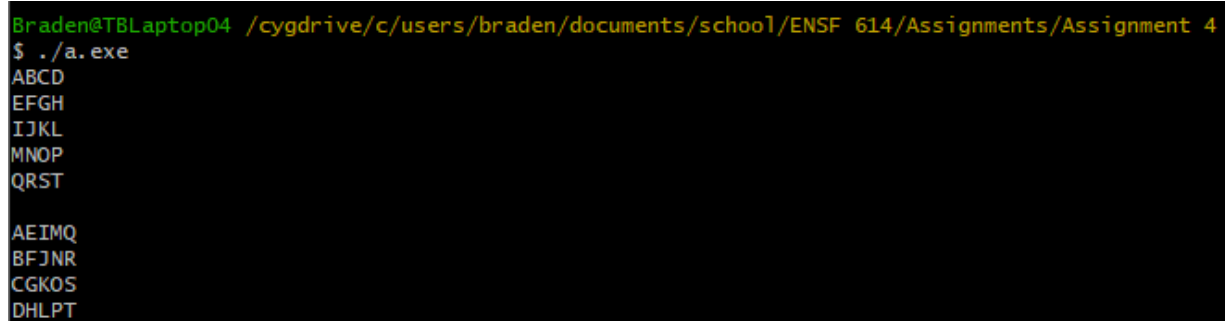
    // STUDENTS MUST COMPLETE THE DEFINITION OF THIS FUNCTION.
    String_Vector temp;
    String_Vector vs;
    temp = sv;

    int row = temp.size();
    int col = temp[0].size();
    cout << "\n";

    temp.resize(row);
    vs.resize(row);
    for(int i = 0; i < col; i++){
        for(int j = 0; j < row; j++){
            vs.at(i).push_back(temp.at(j).at(i));
        }
    }

    return vs;
}
```

Output

A terminal window with a black background and green text. The prompt is 'Braden@TBLaptop04 /cygdrive/c/users/braden/documents/school/ENSF 614/Assignments/Assignment 4'. The command '\$./a.exe' has been executed, resulting in two columns of four-letter strings. The first column contains 'ABCD', 'EFGH', 'IJKL', 'MNOP', and 'QRST'. The second column contains 'AEIMQ', 'BFJNR', 'CGKOS', and 'DHLPT'.

```
Braden@TBLaptop04 /cygdrive/c/users/braden/documents/school/ENSF 614/Assignments/Assignment 4
$ ./a.exe
ABCD
EFGH
IJKL
MNOP
QRST

AEIMQ
BFJNR
CGKOS
DHLPT
```

Exercise B

Definition:

```
void print_from_binary(char* filename) {

    std::ifstream is(filename, std::ios::binary);
    if (!is) {
        std::cerr << "Failed to open the file." << std::endl;
    }

    City cities[size1]; // Assuming there are 5 cities in the file

    for (int i = 0; i < size1; i++) {
        is.read(reinterpret_cast<char*>(&cities[i]), sizeof(City));

        if (!is) {
            std::cerr << "Failed to read the file." << std::endl;
            // return 1;
        }
    }

    is.close();

    // Print the parsed data
    for (int i = 0; i < size1; i++) {
        std::cout << "Name: " << cities[i].name << ", x coordinate: " << std::fixed <<
std::setprecision(2) << cities[i].x << ", y coordinate: " << std::fixed << std::setprecision(2) <<
cities[i].y << std::endl;
    }

    std::ofstream os("filename_argument.txt");
    if (!os) {
        std::cerr << "Failed to open the file for writing." << std::endl;
        return;
    }

    for (int i = 0; i < size1; i++) {
        os << "Name: " << cities[i].name << ", x coordinate: " << std::fixed << std::setprecision(2)
<< cities[i].x << ", y coordinate: " << std::fixed << std::setprecision(2) << cities[i].y << std::endl;
    }
    os.close();
}
```

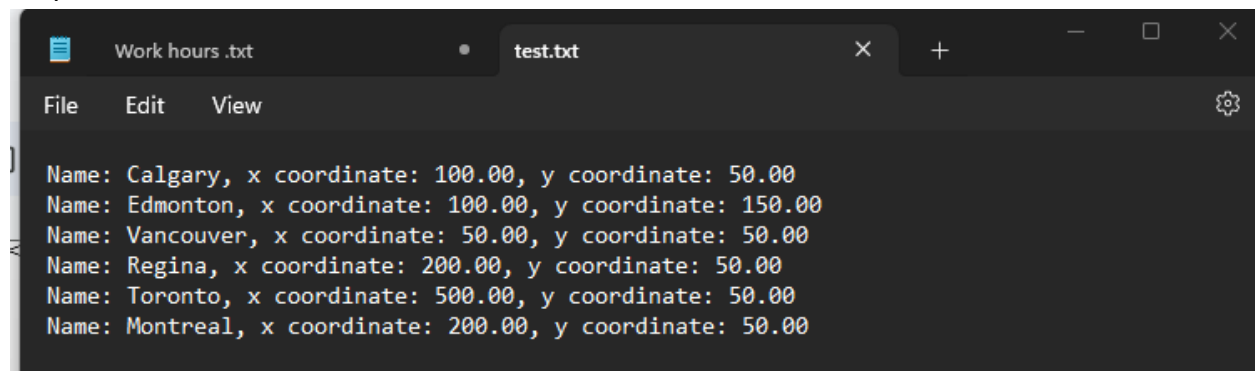
Output:

Command line

```
Braden@TBLaptop04 /cygdrive/c/users/braden/documents/school/ENSF 614/Assignments/Assignment 4
$ ./a.exe

The content of the binary file is:
Name: Calgary, x coordinate: 100.00, y coordinate: 50.00
Name: Edmonton, x coordinate: 100.00, y coordinate: 150.00
Name: Vancouver, x coordinate: 50.00, y coordinate: 50.00
Name: Regina, x coordinate: 200.00, y coordinate: 50.00
Name: Toronto, x coordinate: 500.00, y coordinate: 50.00
Name: Montreal, x coordinate: 200.00, y coordinate: 50.00
```

Output File



The screenshot shows a text editor window with two tabs: 'Work hours .txt' and 'test.txt'. The 'test.txt' tab is active, displaying the same output as the command line. The window has a menu bar with 'File', 'Edit', and 'View' options, and a settings icon in the top right corner.

```
Name: Calgary, x coordinate: 100.00, y coordinate: 50.00
Name: Edmonton, x coordinate: 100.00, y coordinate: 150.00
Name: Vancouver, x coordinate: 50.00, y coordinate: 50.00
Name: Regina, x coordinate: 200.00, y coordinate: 50.00
Name: Toronto, x coordinate: 500.00, y coordinate: 50.00
Name: Montreal, x coordinate: 200.00, y coordinate: 50.00
```