**Course: ENSF 614–Fall2021**

**Lab #: Lab 4**

**Student Names: Graydon Hall, Jared Kraus**

**Submission Date: 2021-10-19**

# Exercise A

Our code output was this:

Text

Description automatically generated

# Exercise B

Function definition

|  |
| --- |
| */\* File Name: Lab4ExB.cpp*  *\* Lab # and Assignment #: Lab #4 Exercise B*  *\* Lab section: 1*  *\* Completed by: Graydon Hall and Jared Kraus*  *\* Submission Date: 2021-10-19*  *\*/*  String\_Vector transpose (const String\_Vector& sv) {      int sv\_rows = sv.size();      int sv\_cols = sv.at(0).size();      int vs\_rows = sv\_cols;      int vs\_cols = sv\_rows;        String\_Vector vs;      vs.resize(vs\_rows);      for(int i=0; i<vs\_rows; i++){          for(int j=0; j<vs\_cols; j++){              vs.at(i).push\_back(sv.at(j).at(i));          }      }        return vs;    } |

Program Output

Text

Description automatically generated with low confidence

# Exercise C

Function definition

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| --- |
| */\* File Name: Lab4ExC.cpp*  *\* Lab # and Assignment #: Lab #4 Exercise C*  *\* Lab section: 1*  *\* Completed by: Graydon Hall and Jared Kraus*  *\* Submission Date: 2021-10-19*  *\*/*  void print\_from\_binary(char\* filename) {  *// open input file stream we get cities from*      ifstream is(filename, ios::binary);      if(is.fail()){          cerr << "failed to open file: " << filename << endl;          exit(1);      }  *// output file we will write to*      ofstream ofs("output.txt", std::ofstream::trunc);      if(ofs.fail()){          cerr << "failed to open file: " << filename << endl;          exit(1);      }      vector<City> cityVector;      City tempCity;      while(is.read((char\*)(&tempCity), sizeof(City))){          cityVector.push\_back(tempCity);      }  *// write to ouptput file*      for(int i=0; i<cityVector.size(); i++){          cout << "Name: " << cityVector[i].name << ", x coordinate: "          << cityVector[i].x << ", y coordinate: " << cityVector[i].y << endl;          ofs << "Name: " << cityVector[i].name << ", x coordinate: "          << cityVector[i].x << ", y coordinate: " << cityVector[i].y << endl;        }  *// close our files*      is.close();      ofs.close();  } |

The content of our generated text file (called output.txt)

Text, letter

Description automatically generated