1 Compile and Run

1.1 How to Compile

To compile the code:

```
g++ main.cpp steiner_tree_onstruction.cpp -Wall -O3 -std=c++17 -o st
```

1.2 How to Execute

To execute the code:

```
# run
./st [input file path] [output file path]
# Example
./st ./input_pa3/case1 ./input_pa3/output_case1
```

2 Results

```
================================
running test data input_pa3/case1
duration = 1.4878e-05s
================================
running test data input_pa3/case2
duration = 1.8906e-05s
================================
running test data input_pa3/case3
duration = 2.8168e-05s
================================
running test data input_pa3/case5
duration = 0.00022523s
================================
running test data input_pa3/case6
duration = 0.000406771s
================================
running test data input_pa3/case8
duration = 0.00197547s
================================
running test data input_pa3/case100000
duration = 0.0200595s
================================
running test data input_pa3/case200000
duration = 0.0407133s
================================
running test data input_pa3/case4
duration = 0.000122852s
================================
running test data input_pa3/case500000
duration = 0.0916475s
================================
running test data input_pa3/case7
duration = 0.00101378s
```

Listing 1: Experiment Results - Time record

3 Encountered Challenges

1. In this homework, I connect all pins according to the input order. Therefore, the program can run extremely fast, but the solution quality may need improvement.