

Design

For this assignment, the project requirements state that the project should create a program for simulating a system of elevators in a building, carrying passengers from floor to floor with specific durations for time required to travel between floors and to stop. The time between floors has to be setable, so that the simulation can be run twice, comparing results for different elevator speeds.

Elevator Requirements:

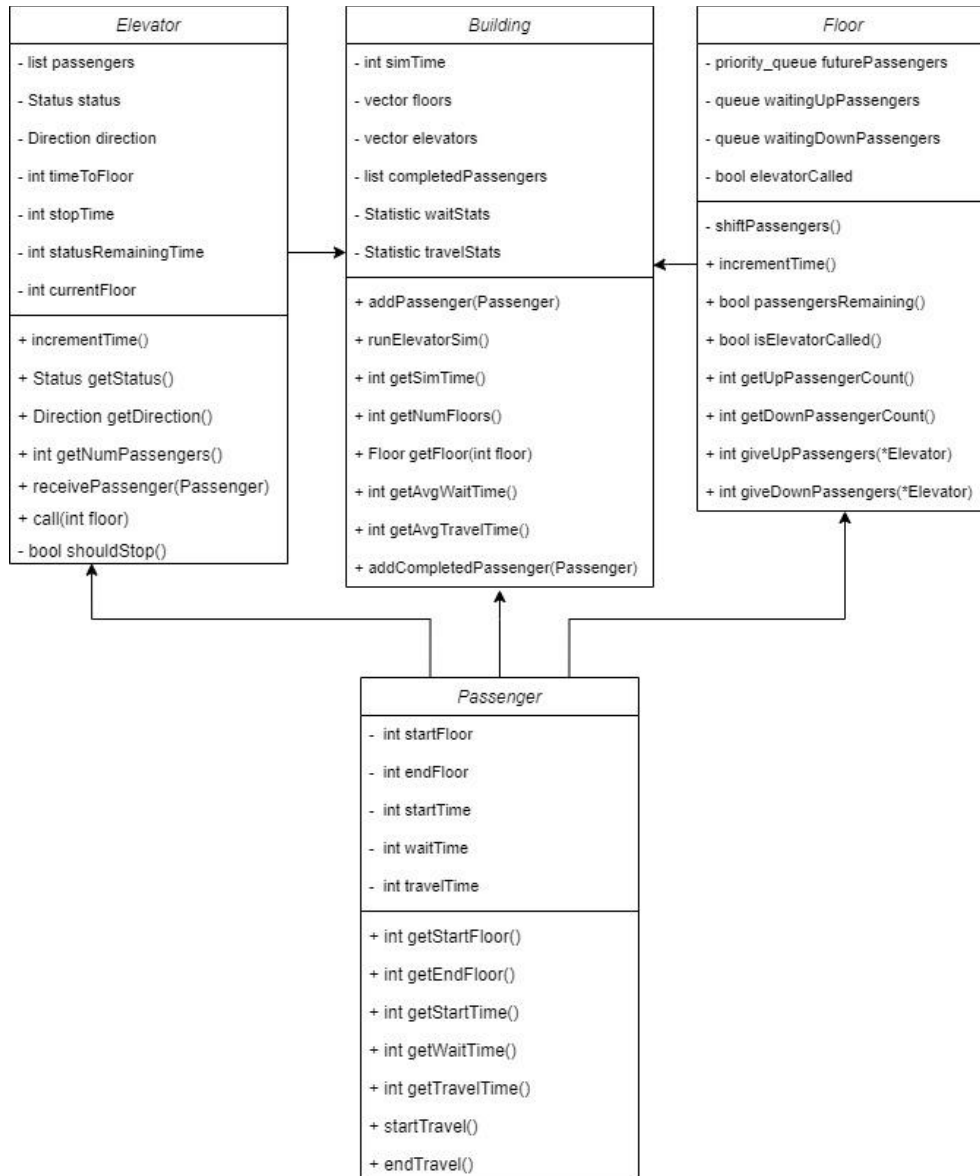
- A set of 4 states: STOPPED, STOPPING, MOVING_UP, or MOVING_DOWN
- Controllable elevator speed (10 or 5 seconds between floors)
- 2 seconds between STOPPED and STOPPING
- Carry a max of 8 passengers per elevator

The program must also read in passengers from a CSV file with three columns to describe a set of passengers for the simulation. The column order is "Start Time, Start Floor, End Floor", which describes which floor the passenger starts at, what time the passenger arrives at that floor, and the destination floor.

Additionally, average Travel and Wait times must be calculated for all passengers for each simulation run so that they can be compared. For this, I will use the Statistics object that I created for the Module 2 assignment.

For this, I will create a set of four objects:

- Elevator - handles moving between floor and tracking elevator states
- Floor - handles future passengers and waiting passengers
- Passenger - handles start/end floors, start time, and durations for waiting and traveling
- Building - handles simulation timing, passing information between different objects, and overall stats for travel/wait times of passengers who completed their travels



Results

An output file from the simulation including cout statements is included at the end of the file. The final results from the simulation run using the provided Elevators.csv are:

```

Sim Complete

For Elevator Speed 10:
    Avg Wait Time: 6836.4 seconds
    Avg Travel Time: 7241.63 seconds

For Elevator Speed 5:
    Avg Wait Time: 5789.53 seconds
    Avg Travel Time: 6029.9 seconds

Wait Time Reduction: 15.3131%
Travel Time Reduction: 16.7328%
  
```

```
1  /// @file
2  /// @author Nathan Roe
3  /// Elevator Simulation
4  ///
5  /// Runs an elevator simulation for a 100 floor building
6  /// and 4 elevators, carrying passengers described in input
7  /// file. Simulation is run twice with elevators of differing
8  /// speeds, and the sim run times are compared for each.
9  #include "Passenger.h"
10 #include "Building.h"
11 #include <iostream>
12 #include <fstream>
13 #include <string>
14
15 using namespace std;
16
17 /// Read passenger input file (Elevators.csv)
18 ///
19 /// Reads a CSV describing required passenger info.
20 /// Either:
21 ///     passengerNumber, startTime, startFloor, endFloor
22 /// Or:
23 ///     startTime, startFloor, endFloor
24 /// @param inputFile - String of filepath to Elevators.csv
25 /// Returns a vector of pointers to created Passengers
26 vector<Passenger*> readElevatorInput(string inputFile = "../Input/Elevators.csv")
27 {
28     vector<Passenger*> passengers;
29     ifstream file(inputFile);
30
31     // Verify file exists
32     if (file)
33     {
34         cout << "Reading Passengers from File " << inputFile << endl;
35         string line;
36         char delimiter = ',';
37         int passengerNum;
38         int startTime;
39         int startFloor;
40         int endFloor;
41
42         // Iterate through lines in the file
43         while (file >> line)
44         {
45             cout << "Line: " << line << endl;
46             vector<int> result;
47             int splitLoc = 0;
48             // Split line at each ',' for CSV
49             while (!(splitLoc == string::npos))
50             {
51                 splitLoc = line.find(delimiter);
52                 // Attempt to read integers preceeding a ','
```

```
53         if (!(splitLoc == string::npos))
54         {
55             string nextValue = line.substr(0, splitLoc);
56             // Attempt to parse integer from line
57             try
58             {
59                 result.push_back(stoi(nextValue));
60             }
61             catch (invalid_argument e)
62             {
63                 cout << e.what() << endl;
64                 break;
65             }
66             line = line.substr(splitLoc + 1);
67         }
68         // Attempt to read final integer in line
69         else
70         {
71             // Attempt to parse integer from line
72             try
73             {
74                 result.push_back(stoi(line));
75             }
76             catch (invalid_argument e)
77             {
78                 cout << e.what() << endl;
79                 break;
80             }
81         }
82     }
83
84     // Create passenger for format with PassengerNumber
85     // as column 1
86     if (result.size() == 4)
87     {
88         passengerNum = result.at(0);
89         startTime = result.at(1);
90         startFloor = result.at(2);
91         endFloor = result.at(3);
92         Passenger *passenger = new Passenger(startFloor, endFloor,      ↗
93             startTime);
94         cout << "Read Passenger:\n" << *passenger << endl;
95         passengers.push_back(passenger);
96     }
97     // Create passenger for format with StartTime as
98     // column 1
99     if (result.size() == 3)
100     {
101         startTime = result.at(0);
102         startFloor = result.at(1);
103         endFloor = result.at(2);
104         Passenger* passenger = new Passenger(startFloor, endFloor,      ↗
```

```
        startTime);
104         cout << "Read Passenger:\n" << *passenger << endl;
105         passengers.push_back(passenger);
106     }
107 }
108 }
109
110     return passengers;
111 } // End function readElevatorInput
112
113 /// Primary Simulation Loop
114 ///
115 /// Runs two Elevator sims: one with 10s between floors, and
116 /// one with 5s between floors, then compares runtimes.
117 /// Returns exit status
118 int main()
119 {
120     const int NUM_FLOORS = 100;
121     const int NUM_ELEVATORS = 4;
122     const int START_SPEED = 10;
123     const int NEW_SPEED = 5;
124
125     // Create Building with 10s Elevator TimeToFloor
126     Building *origBuilding = new Building(NUM_FLOORS,
127                                           NUM_ELEVATORS,
128                                           START_SPEED);
129     // Create Building with 5s Elevator TimeToFloor
130     Building *newBuilding = new Building(NUM_FLOORS,
131                                           NUM_ELEVATORS,
132                                           NEW_SPEED);
133
134     // Read Input File
135     vector<Passenger*> passengers = readElevatorInput();
136     vector<Passenger*> passengersCopy;
137
138     // Add Passengers to Original Building
139     for (Passenger* p : passengers)
140     {
141         // Create Passengers copy for use in new building
142         Passenger* newP = new Passenger(0, 0, 0);
143         *newP = *p;
144         passengersCopy.push_back(newP);
145
146         origBuilding->addPassenger(p);
147     }
148
149     // Add Passengers to New Building
150     for (Passenger* p : passengersCopy)
151     {
152         newBuilding->addPassenger(p);
153     }
154 }
```

```
155 // Run 10s TimeToFloor Simulation
156 cout << "Running Sim with Elevator TimeToFloor " << START_SPEED << endl;
157 origBuilding->runElevatorSim();
158 double waitTime1 = origBuilding->getAvgWaitTime();
159 double travelTime1 = origBuilding->getAvgTravelTime();
160 cout << "Sim Complete" << endl;
161
162 cout << "Running Sim with Elevator TimeToFloor " << NEW_SPEED << endl;
163 // Run 5s TimeToFloor Simulation
164 newBuilding->runElevatorSim();
165 double waitTime2 = newBuilding->getAvgWaitTime();
166 double travelTime2 = newBuilding->getAvgTravelTime();
167 cout << "Sim Complete" << endl;
168
169 // Calculate runtime reductions
170 double waitReduction = (waitTime1 - waitTime2) / waitTime1 * 100;
171 double travelReduction = (travelTime1 - travelTime2) / travelTime1 * 100;
172
173 // Print results
174 cout << "\nFor Elevator Speed " << START_SPEED << ":" << endl;
175 cout << "\tAvg Wait Time: " << waitTime1 << " seconds" << endl;
176 cout << "\tAvg Travel Time: " << travelTime1 << " seconds" << endl << endl;
177
178 cout << "For Elevator Speed " << NEW_SPEED << ":" << endl;
179 cout << "\tAvg Wait Time: " << waitTime2 << " seconds" << endl;
180 cout << "\tAvg Travel Time: " << travelTime2 << " seconds" << endl << endl;
181
182 cout << "Wait Time Reduction: " << waitReduction << "%" << endl;
183 cout << "Travel Time Reduction: " << travelReduction << "%" << endl;
184
185 delete origBuilding;
186 delete newBuilding;
187
188 return EXIT_SUCCESS;
189 } // End function main
190
```

```
1  /// @file
2  /// @author Nathan Roe
3  #pragma once
4  #include <iostream>
5
6  using namespace std;
7
8  /// Object to represent a Passenger in an Elevator Sim
9  ///
10 /// Tracks Passenger start floor, destination floor,
11 /// arrival time, and durations of Waiting and Traveling
12 class Passenger
13 {
14 public:
15     /// Passenger Constructor
16     ///
17     /// @param startFloor - Passengers starting floor number
18     /// @param endFloor - Floor number of destination
19     /// @param startTime - Time at which passenger arrives at floor (seconds)
20     Passenger(int startFloor, int endFloor, int startTime);
21
22     /// Getter for Passenger's starting floor
23     /// Returns int of startFloor
24     const int getStartFloor() { return this->startFloor; };
25
26     /// Getter for Passenger's destination floor
27     /// Returns int of endFloor
28     const int getEndFloor() { return this->endFloor; };
29
30     /// Getter for Passenger's arrival time (seconds)
31     /// Returns int of startTime
32     const int getStartTime() { return this->startTime; };
33
34     /// Getter for Passenger's total Wait Time (seconds)
35     /// Returns int of waitTime
36     const int getWaitTime() { return this->waitTime; };
37
38     /// Getter for Passengers total Travel Time (seconds)
39     /// Returns int of travelTime
40     const int getTravelTime() { return this->travelTime; };
41
42     /// Starts Travel timer, and ends Wait timer
43     void startTravel(int time) { this->waitTime = time - this->startTime; };
44     /// Ends Travel timer
45     void endTravel(int time) { this->travelTime = time - (this->startTime + this- ➤
        >travelTime); };
46
47     /// Override comparator operators to compare Passengers
48     /// Used for sorting Passengers by arrival time
49     bool operator<(const Passenger &passenger);
50     bool operator>(const Passenger &passenger);
51     bool operator==(const Passenger &passenger);
```

```
52
53 private:
54     int startFloor;
55     int endFloor;
56     int startTime;
57     int waitTime = 0;
58     int travelTime = 0;
59 };
60
61 /// Stream insertion override for printing tree info
62 ostream &operator<<(ostream &os, Passenger &passenger);
63
```



```
1  #include "Passenger.h"
2  #include <iostream>
3
4  using namespace std;
5
6  Passenger::Passenger(int startFloor, int endFloor, int startTime)
7  {
8      this->startFloor = startFloor;
9      this->endFloor = endFloor;
10     this->startTime = startTime;
11 }
12
13 // Less-than operator for comparing Passengers
14 bool Passenger::operator<(const Passenger &passenger)
15 {
16     return this->startTime < passenger.startTime;
17 } // End < operator override
18
19 // Greater-than operator for comparing Passengers
20 bool Passenger::operator>(const Passenger &passenger)
21 {
22     return this->startTime > passenger.startTime;
23 } // End > operator override
24
25 // Equality operator for comparing Passengers
26 bool Passenger::operator==(const Passenger &passenger)
27 {
28     return this->startTime == passenger.startTime;
29 } // End == operator override
30
31 /// Stream insertion override for printing tree info
32 ostream &operator<<(ostream &os, Passenger &passenger)
33 {
34     // Print out tree nodes
35     os << "Passenger " << &passenger << ":\n";
36     os << "\tStart Time: " << passenger.getStartTime() << "\n";
37     os << "\tStart Floor: " << passenger.getStartFloor() << "\n";
38     os << "\tEnd Floor: " << passenger.getEndFloor() << "\n";
39     return os;
40 } // End << operator override
41
```

```
1  /// @file
2  /// @author Nathan Roe
3  #pragma once
4  #include "Statistic.hpp"
5  #include <vector>
6  #include <list>
7
8  class Floor;
9  class Elevator;
10 class Passenger;
11
12 using namespace std;
13
14 /// Object to represent a Building for an Elevator Simulation
15 ///
16 /// Creates and tracks specified numbers of Elevators and Floors,
17 /// handles simulation control, and tracks completed passengers
18 class Building
19 {
20 public:
21     /// Default Building construction, uses values as shown below
22     Building();
23     /// Building constructor providing additional simulation control params
24     Building(const int numFloors = 100, const int numElevators = 4,
25             const int timeToFloor = 10, const int stopTime = 2,
26             const int maxPassengersInElevator = 8);
27     /// Building destructor
28     ~Building();
29
30     /// Get pointer to Floor with given index
31     /// @param floorIdx - Integer value for floor number
32     /// Returns a pointer to the specified floor if one exists,
33     /// nullptr otherwise
34     Floor *getFloor(int floorIdx) { return this->floors.at(floorIdx); };
35
36     /// Adds a new passenger to the elevator simulation
37     ///
38     /// Used to add future Passenger to simulation before running, places
39     /// them at the appropriate starting floor to arrive at their
40     /// associated starting time
41     void addPassenger(Passenger *passenger);
42
43     /// Begins simulation of carrying passengers around building
44     ///
45     /// Runs elevator sim, with passengers arriving at floor, elevators
46     /// carrying passengers, and then exiting at their floors. Completes
47     /// when all floors/elevators are empty, and no future passengers
48     /// are yet to arrive.
49     void runElevatorSim();
50
51     /// Getter for current simulation time (seconds)
52     /// Returns int of current simulation time in seconds
```

```
53     int getSimTime() { return this->simTime; };
54
55     /// Tracks given Passenger as having arrived at destination
56     ///
57     /// Adds Passenger to container of arrived Passengers, and
58     /// tracks their Wait time and Travel time for simulation stats
59     /// @param *passenger - pointer to Passenger that has completed travel
60     void completePassenger(Passenger *passenger);
61
62     /// Get Average Wait Time of Passengers who have completed travels
63     /// Returns average wait time in seconds
64     double getAvgWaitTime() { return this->waitStats->average(); };
65
66     /// Get Travel Wait Time of Passengers who have completed travels
67     /// Returns average travel time in seconds
68     double getAvgTravelTime() { return this->travelStats->average(); };
69
70 private:
71     int numFloors;
72     vector<Floor*> floors;
73     int numElevators;
74     vector<Elevator*> elevators;
75
76     int simTime = 0;
77
78     list<Passenger*> completedPassengers;
79     Statistic* waitStats = new Statistic();
80     Statistic* travelStats = new Statistic();
81
82     /// Check all floors and elevators to see if there are remaining passengers
83     /// Returns TRUE if any passengers have not completed travels
84     bool passengersRemaining();
85
86     const int NOCALL = -1;
87     /// Checks for lowest Floor index that has passengers waiting for elevator
88     ///
89     /// Returns index of lowest floor needing elevator, or NOCALL otherwise
90     int elevatorCalled();
91
92     /// Find non-busy elevator and send to commanded floor
93     ///
94     /// Attempt to find elevator without a job, and alert them that given
95     /// floor has waiting passengers
96     void commandElevator(int floor);
97 };
98
```

```
1  #include "Building.h"
2  #include "Floor.h"
3  #include "Elevator.h"
4  #include "Passenger.h"
5
6  using namespace std;
7
8  /// Default Building Constructor with 100 Floors and 4 Elevators
9  Building::Building()
10 {
11     const int FLOORS = 100;
12     const int ELEVATORS = 4;
13
14     this->numFloors = FLOORS;
15     this->numElevators = ELEVATORS;
16
17     for (int floor = 0; floor < FLOORS; ++floor)
18     {
19         this->floors.push_back(new Floor(this));
20     }
21     for (int elev = 0; elev < ELEVATORS; ++elev)
22     {
23         this->elevators.push_back(new Elevator(this, numFloors));
24     }
25 } // End default building constructor
26
27 /// Building constructor providing additional simulation control params
28 Building::Building(const int numFloors, const int numElevators,
29                   const int timeToFloor, const int stopTime,
30                   const int maxPassengers)
31 {
32     this->numFloors = numFloors;
33     this->numElevators = numElevators;
34     for (int floor = 0; floor < numFloors; ++floor)
35     {
36         this->floors.push_back(new Floor(this));
37     }
38     for (int elev = 0; elev < numElevators; ++elev)
39     {
40         this->elevators.push_back(new Elevator(this,
41                                                numFloors,
42                                                timeToFloor,
43                                                stopTime,
44                                                maxPassengers));
45     }
46 } // End building constructor
47
48 /// Building destructor
49 Building::~Building()
50 {
51     // Call destructor for all completed passengers
52     while (!this->completedPassengers.empty())
```

```
53     {
54         delete this->completedPassengers.front();
55         this->completedPassengers.pop_front();
56     }
57     // Call floor destructors
58     for (Floor *floor : this->floors)
59     {
60         delete floor;
61     }
62     // Call elevator destructors
63     for (Elevator *elevator : this->elevators)
64     {
65         delete elevator;
66     }
67     delete this->waitStats;
68     delete this->travelStats;
69 } // End building destructor
70
71 /// Adds a new passenger to the elevator simulation
72 void Building::addPassenger(Passenger *passenger)
73 {
74     int floorIdx = passenger->getStartFloor();
75     Floor *floor = this->floors.at(floorIdx);
76     if (floor)
77     {
78         floor->addPassenger(passenger);
79     }
80 } // End function addPassenger
81
82 /// Begins simulation of carrying passengers around building
83 void Building::runElevatorSim()
84 {
85     // Verify simulation has remaining passengers
86     while (passengersRemaining())
87     {
88         // Increment sim time
89         ++this->simTime;
90         cout << "Sim Time: " << this->simTime << endl;
91
92         // Update current status of each floor
93         for (Floor *floor : this->floors)
94         {
95             floor->incrementTime();
96         }
97         // Update current status of each elevator
98         for (Elevator *elevator : this->elevators)
99         {
100             elevator->incrementTime();
101         }
102
103         // Check to see if any floors need elevators
104         int callingFloor = elevatorCalled();
```

```
105     if (!(callingFloor == NOCALL))
106     {
107         // Call elevator to first floor with passengers
108         cout << "\tFloor " << callingFloor << " calling Elevator" << endl;
109         commandElevator(callingFloor);
110     }
111 }
112 } // End function runElevatorSim
113
114 /// Check all floors and elevators to see if there are remaining passengers
115 bool Building::passengersRemaining()
116 {
117     // Check floors for passengers
118     for (Floor *floor : this->floors)
119     {
120         if (floor->getNumFuturePassengers() > 0 ||
121             floor->getUpPassengerCount() > 0 ||
122             floor->getDownPassengerCount() > 0)
123         {
124             return true;
125         }
126     }
127     // Check elevators for passengers
128     for (Elevator *elevator : this->elevators)
129     {
130         if (elevator->getNumPassengers() > 0)
131         {
132             return true;
133         }
134     }
135     return false;
136 } // End function passengersRemaining
137
138 /// Checks for lowest Floor index that has passengers waiting for elevator
139 int Building::elevatorCalled()
140 {
141     for (unsigned int floorIdx = 0; floorIdx < this->floors.size(); ++floorIdx)
142     {
143         Floor *floor = this->floors.at(floorIdx);
144         if (floor->isElevatorCalled())
145         {
146             return floorIdx;
147         }
148     }
149     return NOCALL;
150 } // End function elevatorCalled
151
152 /// Find non-busy elevator and send to commanded floor
153 void Building::commandElevator(int floor)
154 {
155     for (Elevator *elevator : this->elevators)
156     {
```

```
157         if (elevator->call(floor))
158         {
159             break;
160         }
161     }
162 } // End function commandElevator
163
164 /// Tracks given Passenger as having arrived at destination
165 void Building::completePassenger(Passenger *passenger)
166 {
167     passenger->endTravel(this->simTime);
168     this->completedPassengers.push_back(passenger);
169     this->waitStats->add(passenger->getWaitTime());
170     this->travelStats->add(passenger->getTravelTime());
171 } // End function completePassenger
172
```

```
1  /// @file
2  /// @author Nathan Roe
3  #pragma once
4  #include <queue>
5  #include <utility>
6
7  class Building;
8  class Elevator;
9  class Passenger;
10
11 using namespace std;
12
13 /// Object to represent a Floor in a building
14 ///
15 /// Tracks future and currently waiting passengers,
16 /// and provides status on need for an elevator
17 class Floor
18 {
19 public:
20     /// Floor constructor
21     Floor(Building *building) { this->building = building; };
22     /// Floor destructor
23     ~Floor();
24
25     /// Adds provided passenger to the floor
26     ///
27     /// Adds future passenger, to be shifted to waiting
28     /// at the passenger's StartTime
29     void addPassenger(Passenger *passenger);
30
31     /// Notify Floor that sim time has upticked 1 second
32     ///
33     /// Checks to see if any future passengers arrive to
34     /// wait for elevators
35     void incrementTime();
36
37     /// Get number of future passengers
38     /// Returns int of future passenger count
39     int getNumFuturePassengers() { return this->futurePassengers.size(); };
40
41     /// Get number of passengers waiting to go up
42     /// Returns int of waitingUpPassenger count
43     int getUpPassengerCount() { return this->waitingUpPassengers.size(); };
44
45     /// Get number of passengers waiting to go up
46     /// Returns int of waitingUpPassenger count
47     int getDownPassengerCount() { return this->waitingDownPassengers.size(); };
48
49     /// Checks whether elevator is needed at this floor
50     /// Returns TRUE if elevator is needed, FALSE otherwise
51     bool isElevatorCalled() { return this->elevatorCalled; };
52
```



```
53     /// Adds up to the provided number of passengers to the elevator
54     ///
55     /// Shifts passengers waiting to go UP onto the elevator. Number
56     /// of passengers shifted will be the maxPassengers asked for,
57     /// or all up-waiting passengers if less than the cap
58     /// @param *elevator - pointer to the Elevator picking up passengers
59     /// @param maxPassengers - maximum allowed passengers to get on Elevator
60     void giveUpPassengers(Elevator *elevator, int maxPassengers);
61
62     /// Adds up to the provided number of passengers to the elevator
63     ///
64     /// Shifts passengers waiting to go DOWN onto the elevator. Number
65     /// of passengers shifted will be the maxPassengers asked for,
66     /// or all down-waiting passengers if less than the cap
67     /// @param *elevator - pointer to the Elevator picking up passengers
68     /// @param maxPassengers - maximum allowed passengers to get on Elevator
69     void giveDownPassengers(Elevator *elevator, int maxPassengers);
70
71     /// Get the total number of passengers waiting at the floor
72     /// Returns an pair - Passengers Waiting to go up,
73     ///                      Passengers Waiting to go down
74     pair<int, int> getNumPassengersAtFloor();
75
76 private:
77     Building *building;
78
79     bool elevatorCalled = false;
80
81     priority_queue<Passenger*> futurePassengers;
82     queue<Passenger*> waitingUpPassengers;
83     queue<Passenger*> waitingDownPassengers;
84
85     /// Moves future passengers to either Up queue or Down queue
86     /// if it is their arrival time
87     void shiftPassengers();
88 };
89
```

```
1  #include "Floor.h"
2  #include "Building.h"
3  #include "Elevator.h"
4  #include "Passenger.h"
5
6  /// Floor destructor
7  Floor::~Floor()
8  {
9      // Delete future passengers
10     while (!this->futurePassengers.empty())
11     {
12         delete this->futurePassengers.top();
13         this->futurePassengers.pop();
14     }
15     // Delete waiting up passengers
16     while (!this->waitingUpPassengers.empty())
17     {
18         delete this->waitingUpPassengers.front();
19         this->waitingUpPassengers.pop();
20     }
21     // Delete waiting down passengers
22     while (!this->waitingDownPassengers.empty())
23     {
24         delete this->waitingDownPassengers.front();
25         this->waitingDownPassengers.pop();
26     }
27 } // End floor destructor
28
29 /// Adds provided passenger to the floor
30 void Floor::addPassenger(Passenger *passenger)
31 {
32     this->futurePassengers.push(passenger);
33 } // End function addPassenger
34
35 /// Notify Floor that sim time has upticked 1 second
36 void Floor::incrementTime()
37 {
38     shiftPassengers();
39 } // End function incrementTime
40
41 /// Moves future passengers to either Up queue or Down queue
42 void Floor::shiftPassengers()
43 {
44     while (!this->futurePassengers.empty())
45     {
46         // Check to see whether any passengers arrive at this second
47         if (this->futurePassengers.top()->getStartTime() > this->building-
48             >getSimTime())
49         {
50             break;
51         }
52         // If Passenger arrives, move to appropriate queue (up/down)
```

```
52     else
53     {
54         Passenger *p = this->futurePassengers.top();
55         if (p->getStartFloor() > p->getEndFloor())
56         {
57             cout << "\tPassenger " << p << " now waiting to go UP" << endl;
58             this->waitingDownPassengers.push(p);
59             this->elevatorCalled = true;
60         }
61         else if (p->getStartFloor() < p->getEndFloor())
62         {
63             cout << "\tPassenger " << p << " now waiting to go DOWN" << endl;
64             this->waitingUpPassengers.push(p);
65             this->elevatorCalled = true;
66         }
67         else
68         {
69             cout << "\tPassenger " << p << " started at destination" << endl;
70             this->building->completePassenger(p);
71         }
72         this->futurePassengers.pop();
73     }
74 }
75 } // End function shiftPassengers
76
77 /// Get the total number of passengers waiting at the floor
78 /// Returns an pair - Passengers Waiting to go up,
79 ///                      Passengers Waiting to go down
80 pair<int, int> Floor::getNumPassengersAtFloor()
81 {
82     return make_pair(this->getUpPassengerCount(),
83                     this->getDownPassengerCount());
84 } // End function getNumPassengersAtFloor
85
86 /// Adds up to the provided number of UP passengers to the elevator
87 void Floor::giveUpPassengers(Elevator *elevator, int maxPassengers)
88 {
89     int passCount = 0;
90     while (passCount < maxPassengers && !this->waitingUpPassengers.empty())
91     {
92         Passenger *p = this->waitingUpPassengers.front();
93         p->startTravel(this->building->getSimTime());
94         elevator->receivePassenger(p);
95         this->waitingUpPassengers.pop();
96         ++passCount;
97     }
98     if (this->waitingUpPassengers.empty() && this->waitingDownPassengers.empty())
99     {
100         this->elevatorCalled = false;
101     }
102 } // End function giveUpPassengers
103
```

```
104 /// Adds up to the provided number of DOWN passengers to the elevator
105 void Floor::giveDownPassengers(Elevator *elevator, int maxPassengers)
106 {
107     int passCount = 0;
108     while (passCount < maxPassengers && !this->waitingDownPassengers.empty())
109     {
110         Passenger *p = this->waitingDownPassengers.front();
111         p->startTravel(this->building->getSimTime());
112         elevator->receivePassenger(p);
113         this->waitingDownPassengers.pop();
114         ++passCount;
115     }
116     if (this->waitingUpPassengers.empty() && this->waitingDownPassengers.empty())
117     {
118         this->elevatorCalled = false;
119     }
120 } // End function giveDownPassengers
121
```

```
1  /// @file
2  /// @author Nathan Roe
3  #pragma once
4  #include <list>
5
6  class Building;
7  class Passenger;
8
9  using namespace std;
10
11  /// Object to represent an Elevator in a building
12  ///
13  /// Tracks current passengers and elevator logic for moving
14  /// passengers between floors, stopping, and waiting for calls
15  class Elevator
16  {
17  public:
18      /// Current Elevator Operating Status
19      enum class Status
20      {
21          STOPPED,
22          STOPPING,
23          MOVING_UP,
24          MOVING_DOWN
25      };
26
27      // Current Elevator Goal Direction
28      enum class Direction
29      {
30          NONE,
31          UP,
32          DOWN
33      };
34
35      /// Elevator Constructor
36      ///
37      /// @param *building - pointer to building containing elevator
38      /// @param numFloors - number of floors in building
39      /// @param timeToFloor - number of seconds required for elevator
40      ///     to travel between floors
41      /// @param stopTime - number of seconds required for elevator
42      ///     to come to a stop
43      /// @param maxPassengers - maximum passenger count allowed
44      ///     on elevator
45      Elevator(Building *building, int numFloors, int timeToFloor = 10,
46              int stopTime = 2, int maxPassengers = 8);
47
48      /// Elevator destructor
49      ~Elevator();
50
51      /// Notify elevator that sim time has upticked 1 second
52      ///
```

```
53     /// Updates remaining time in current elevator status,
54     /// or seeks new status if previous operation complete
55     void incrementTime();
56
57     /// Call Elevator to given floor number
58     ///
59     /// Attempts to call on elevator to given floor number,
60     /// returns boolean of whether elevator is free to respond
61     /// @param floor - floor number requiring elevator
62     /// Return TRUE if elevator is now moving towards floor,
63     /// FALSE otherwise
64     bool call(int floor);
65
66     /// Getter for Elevator's current floor
67     /// Return int of current floor number
68     int getFloor() { return this->floor; };
69
70     /// Getter for Elevator's current Status
71     /// Returns an Elevator::Status
72     Status getStatus() { return this->status; };
73
74     /// Getter for Elevator's current direction
75     /// Returns an Elevator::Direction
76     Direction getDirection() { return this->direction; };
77
78     /// Get the number of passengers on the Elevator
79     /// Returns an int of the number of passengers onboard
80     int getNumPassengers() { return this->passengers.size(); };
81
82     /// Add given Passenger to Elevator
83     /// @param *passenger - Pointer to boarding Passenger
84     void receivePassenger(Passenger *p);
85
86 private:
87     Building *building;
88     int maxPassengers;
89     int numFloors = 0;
90
91     int floor = 0;
92
93     int speed;
94     int stopTime;
95     int remainingTime = 0;
96
97     Status status = Status::STOPPED;
98     Direction direction = Direction::NONE;
99
100     list<Passenger*> passengers;
101
102     /// Determine whether Elevator should stop at current floor
103     ///
104     /// Checks whether elevator is full and whether there are
```

```
105     /// passengers waiting in the correct direction
106     /// Returns TRUE if Elevator should stop, FALSE otherwise
107     bool shouldStop();
108
109     /// Move Passengers between Elevator<->Current Floor
110     void movePassengers();
111 };
112
```

```
1  #include "Elevator.h"
2  #include "Building.h"
3  #include "Floor.h"
4  #include "Passenger.h"
5  #include <utility>
6
7  /// Elevator Constructor
8  Elevator::Elevator(Building *building, int numFloors,
9                    int timeToFloor, int stopTime,
10                   int maxPassengers)
11  {
12      this->building = building;
13      this->numFloors = numFloors;
14      this->speed = timeToFloor;
15      this->stopTime = stopTime;
16      this->maxPassengers = maxPassengers;
17  } // End elevator Constructor
18
19  /// Elevator destructor
20  Elevator::~Elevator()
21  {
22      while (!this->passengers.empty())
23      {
24          delete this->passengers.front();
25          this->passengers.pop_front();
26      }
27  } // End elevator destructor
28
29  /// Notify elevator that sim time has upticked 1 second
30  void Elevator::incrementTime()
31  {
32      // If current operation ongoing, decrement time
33      if (this->remainingTime > 0)
34      {
35          --this->remainingTime;
36      }
37      // If Elevator completed STOPPING, change to STOPPED
38      else if (this->status == Status::STOPPING)
39      {
40          this->status = Status::STOPPED;
41          cout << "\tElevator " << this << " stopped at floor " << this->floor <<  ↵
42              endl;
43          // Move passengers between elevator/floor
44          movePassengers();
45          // Reset elevator direction if there are no
46          // onboard passengers
47          if (this->passengers.empty())
48          {
49              this->direction = Direction::NONE;
50          }
51      }
52      // If Elevator completed MOVING_UP, see whether
```



```
52 // stop is required
53 else if (this->status == Status::MOVING_UP)
54 {
55     // Arrive at new floor
56     ++this->floor;
57     // If at bottom of building, come to a stop
58     if (this->floor == this->numFloors - 1)
59     {
60         cout << "\tElevator " << this << " stopping at floor " << this->floor << endl;
61         this->status = Status::STOPPING;
62         this->remainingTime = stopTime;
63     }
64     // Check to see if stop is needed
65     else if (shouldStop())
66     {
67         cout << "\tElevator " << this << " stopping at floor " << this->floor << endl;
68         this->status = Status::STOPPING;
69         this->remainingTime = stopTime;
70     }
71     // Otherwise, continue moving up
72     else
73     {
74         cout << "\tElevator " << this << " continuing Up" << endl;
75         this->remainingTime = this->speed;
76     }
77 }
78 // If Elevator completed MOVING_DOWN, see whether
79 // stop is required
80 else if (this->status == Status::MOVING_DOWN)
81 {
82     // Arrive at new floor
83     --this->floor;
84     // If at top of building, come to a stop
85     if (this->floor == 0)
86     {
87         cout << "\tElevator " << this << " stopping at floor " << this->floor << endl;
88         this->status = Status::STOPPING;
89         this->remainingTime = stopTime;
90     }
91     // Check to see if stop is needed
92     else if (shouldStop())
93     {
94         cout << "\tElevator " << this << " stopping at floor " << this->floor << endl;
95         this->status = Status::STOPPING;
96         this->remainingTime = stopTime;
97     }
98     // Otherwise, continue moving down
99     else
```

```
100     {
101         cout << "\tElevator " << this << " continuing Up" << endl;
102         this->remainingTime = this->speed;
103     }
104 }
105 // Update status if elevator is stopped
106 else if (this->status == Status::STOPPED)
107 {
108     // Return to moving up
109     if (this->direction == Direction::UP)
110     {
111         cout << "\tElevator " << this << " starting Up" << endl;
112         this->status = Status::MOVING_UP;
113         this->remainingTime = speed;
114     }
115     // Return to moving down
116     else if (this->direction == Direction::DOWN)
117     {
118         cout << "\tElevator " << this << " starting Down" << endl;
119         this->status = Status::MOVING_DOWN;
120         this->remainingTime = speed;
121     }
122     // Check to see if passengers just arrived
123     else if (shouldStop())
124     {
125         movePassengers();
126     }
127 }
128 } // End function incrementTime
129
130 /// Call Elevator to given floor number
131 bool Elevator::call(int floor)
132 {
133     // If Elevator has no current destination,
134     // begin moving towards called floor
135     if (this->direction == Direction::NONE &&
136         this->status == Status::STOPPED)
137     {
138         // Move UP
139         if (floor > this->floor)
140         {
141             this->status = Status::MOVING_UP;
142             this->remainingTime = this->speed;
143             return true;
144         }
145         // Move Down
146         else if (floor < this->floor)
147         {
148             this->status = Status::MOVING_DOWN;
149             this->remainingTime = this->speed;
150             return true;
151         }
152     }
```

```
152     // Passengers at current floor
153     else
154     {
155         return true;
156     }
157 }
158 // Elevator is busy
159 return false;
160 } // End function call
161
162
163 /// Determine whether Elevator should stop at current floor
164 bool Elevator::shouldStop()
165 {
166     // Check if Passenger needs off
167     for (Passenger* passenger : this->passengers)
168     {
169         if (passenger->getEndFloor() == this->floor)
170         {
171             return true;
172         }
173     }
174
175     // Check if elevator is full
176     if (static_cast<int>(this->passengers.size()) >= this->maxPassengers)
177     {
178         return false;
179     }
180
181     // Check for waiting passengers
182     Floor *floor = this->building->getFloor(this->floor);
183     if (floor)
184     {
185         pair<int, int> passengerCounts = floor->getNumPassengersAtFloor();
186         int waitingUp = passengerCounts.first;
187         int waitingDown = passengerCounts.second;
188         // If continuing up, see if there are up passengers
189         if (this->direction == Direction::UP)
190         {
191             if (waitingUp > 0)
192             {
193                 return true;
194             }
195         }
196         // If continuing down, see if there are down passengers
197         else if (this->direction == Direction::DOWN)
198         {
199             if (waitingDown > 0)
200             {
201                 return true;
202             }
203         }
204     }
```

```
204     // If no destination, see if there are any waiting passengers
205     else
206     {
207         if (waitingUp > 0 || waitingDown > 0)
208         {
209             return true;
210         }
211     }
212 }
213 return false;
214 } // End function shouldStop
215
216 /// Move Passengers between Elevator<->Current Floor
217 void Elevator::movePassengers()
218 {
219     // Let Passengers Off
220     list<Passenger*>::iterator iter = this->passengers.begin();
221     while (iter != this->passengers.end())
222     {
223         Passenger *p = *iter;
224         if (p->getEndFloor() == this->floor)
225         {
226             cout << "\tPassenger " << p << " exiting elevator " << this << " at ↗
                floor " << this->floor << endl;
227             this->building->completePassenger(p);
228             this->passengers.erase(iter++);
229         }
230         else
231         {
232             ++iter;
233         }
234     }
235
236     // Let Passengers On
237     int passengerSpace = this->maxPassengers - static_cast<int>(this- ↗
        >passengers.size());
238     if (passengerSpace > 0)
239     {
240         Floor* floor = this->building->getFloor(this->floor);
241         if (floor)
242         {
243             // If continuing UP, request up passengers
244             if (this->direction == Direction::UP)
245             {
246                 floor->giveUpPassengers(this, passengerSpace);
247             }
248             // If continuing DOWN, request down passengers
249             else if (this->direction == Direction::DOWN)
250             {
251                 floor->giveDownPassengers(this, passengerSpace);
252             }
253             // If no destination, request max of up/down passengers
```

```
254         else
255         {
256             pair<int, int> passCounts = floor->getNumPassengersAtFloor();
257             if (passCounts.first >= passCounts.second)
258             {
259                 floor->giveUpPassengers(this, passengerSpace);
260                 this->direction = Direction::UP;
261             }
262             else
263             {
264                 floor->giveDownPassengers(this, passengerSpace);
265                 this->direction = Direction::DOWN;
266             }
267         }
268     }
269 }
270 } // End function movePassengers
271
272 /// Add given Passenger to Elevator
273 void Elevator::receivePassenger(Passenger *p)
274 {
275     cout << "\tPassenger " << &p << " entering elevator " << this << " at floor " <<
        << this->floor << endl;
276     this->passengers.push_back(p);
277 }
278
```

```
1 Reading Passengers from File ../Input/Elevators.csv
2 Line: Start
3 invalid stoi argument
4 Line: Time(s),Start
5 invalid stoi argument
6 Line: Floor,End
7 invalid stoi argument
8 Line: Floor
9 invalid stoi argument
10 Line: 41,54,55
11 Read Passenger:
12 Passenger 00A7D178:
13     Start Time: 41
14     Start Floor: 54
15     End Floor: 55
16
17 Line: 43,30,74
18 Read Passenger:
19 Passenger 00A7D218:
20     Start Time: 43
21     Start Floor: 30
22     End Floor: 74
23
24 Line: 88,87,32
25 Read Passenger:
26 Passenger 00A91188:
27     Start Time: 88
28     Start Floor: 87
29     End Floor: 32
30
31 Line: 93,35,55
32 Read Passenger:
33 Passenger 00A911C8:
34     Start Time: 93
35     Start Floor: 35
36     End Floor: 55
37
38 Line: 121,35,4
39 Read Passenger:
40 Passenger 00A914A0:
41     Start Time: 121
42     Start Floor: 35
43     End Floor: 4
44
45 Line: 168,63,22
46 Read Passenger:
47 Passenger 00A91A48:
48     Start Time: 168
49     Start Floor: 63
50     End Floor: 22
51
52 Line: 205,20,92
```

```
53 Read Passenger:
54 Passenger 00A91A88:
55     Start Time: 205
56     Start Floor: 20
57     End Floor: 92
58
59 Line: 211,23,32
60 Read Passenger:
61 Passenger 00A91788:
62     Start Time: 211
63     Start Floor: 23
64     End Floor: 32
65
66 Line: 268,48,72
67 Read Passenger:
68 Passenger 00A916C8:
69     Start Time: 268
70     Start Floor: 48
71     End Floor: 72
72
73 Line: 325,70,69
74 Read Passenger:
75 Passenger 00A919C8:
76     Start Time: 325
77     Start Floor: 70
78     End Floor: 69
79
80 Line: 380,57,48
81 Read Passenger:
82 Passenger 00A917C8:
83     Start Time: 380
84     Start Floor: 57
85     End Floor: 48
86
87 Line: 434,40,22
88 Read Passenger:
89 Passenger 00A91908:
90     Start Time: 434
91     Start Floor: 40
92     End Floor: 22
93
94 Line: 447,7,98
95 Read Passenger:
96 Passenger 00A91BC8:
97     Start Time: 447
98     Start Floor: 7
99     End Floor: 98
100
101 Line: 454,35,49
102 Read Passenger:
103 Passenger 00A91648:
104     Start Time: 454
```

```
105     Start Floor: 35
106     End Floor: 49
107
108 Line: 495,55,68
109 Read Passenger:
110 Passenger 00A91948:
111     Start Time: 495
112     Start Floor: 55
113     End Floor: 68
114
115 Line: 550,27,58
116 Read Passenger:
117 Passenger 00A91588:
118     Start Time: 550
119     Start Floor: 27
120     End Floor: 58
121
122 Line: 557,19,96
123 Read Passenger:
124 Passenger 00A91C88:
125     Start Time: 557
126     Start Floor: 19
127     End Floor: 96
128
129 Line: 590,87,54
130 Read Passenger:
131 Passenger 00A918C8:
132     Start Time: 590
133     Start Floor: 87
134     End Floor: 54
135
136 Line: 616,96,74
137 Read Passenger:
138 Passenger 00A91808:
139     Start Time: 616
140     Start Floor: 96
141     End Floor: 74
142
143 Line: 645,95,35
144 Read Passenger:
145 Passenger 00A91AC8:
146     Start Time: 645
147     Start Floor: 95
148     End Floor: 35
149
150 Line: 649,40,5
151 Read Passenger:
152 Passenger 00A915C8:
153     Start Time: 649
154     Start Floor: 40
155     End Floor: 5
156
```

```
157 Line: 707,32,13
158 Read Passenger:
159 Passenger 00A91548:
160     Start Time: 707
161     Start Floor: 32
162     End Floor: 13
163
164 Line: 729,11,44
165 Read Passenger:
166 Passenger 00A91688:
167     Start Time: 729
168     Start Floor: 11
169     End Floor: 44
170
171 Line: 749,63,79
172 Read Passenger:
173 Passenger 00A91508:
174     Start Time: 749
175     Start Floor: 63
176     End Floor: 79
177
178 Line: 804,62,5
179 Read Passenger:
180 Passenger 00A91B48:
181     Start Time: 804
182     Start Floor: 62
183     End Floor: 5
184
185 Line: 813,3,91
186 Read Passenger:
187 Passenger 00A91608:
188     Start Time: 813
189     Start Floor: 3
190     End Floor: 91
191
192 Line: 836,16,43
193 Read Passenger:
194 Passenger 00A91C08:
195     Start Time: 836
196     Start Floor: 16
197     End Floor: 43
198
199 Line: 849,85,27
200 Read Passenger:
201 Passenger 00A91988:
202     Start Time: 849
203     Start Floor: 85
204     End Floor: 27
205
206 Line: 860,95,38
207 Read Passenger:
208 Passenger 00A91A08:
```

```
209     Start Time: 860
210     Start Floor: 95
211     End Floor: 38
212
213 Line: 885,92,15
214 Read Passenger:
215 Passenger 00A91848:
216     Start Time: 885
217     Start Floor: 92
218     End Floor: 15
219
220 Line: 944,42,36
221 Read Passenger:
222 Passenger 00A91C48:
223     Start Time: 944
224     Start Floor: 42
225     End Floor: 36
226
227 Line: 990,13,72
228 Read Passenger:
229 Passenger 00A91888:
230     Start Time: 990
231     Start Floor: 13
232     End Floor: 72
233
234 Line: 1012,51,67
235 Read Passenger:
236 Passenger 00A91B08:
237     Start Time: 1012
238     Start Floor: 51
239     End Floor: 67
240
241 Line: 1027,92,26
242 Read Passenger:
243 Passenger 00A91B88:
244     Start Time: 1027
245     Start Floor: 92
246     End Floor: 26
247
248 Line: 1049,25,52
249 Read Passenger:
250 Passenger 00A91708:
251     Start Time: 1049
252     Start Floor: 25
253     End Floor: 52
254
255 Line: 1053,18,65
256 Read Passenger:
257 Passenger 00A91748:
258     Start Time: 1053
259     Start Floor: 18
260     End Floor: 65
```

```
261
262 Line: 1086,17,38
263 Read Passenger:
264 Passenger 00A92A70:
265     Start Time: 1086
266     Start Floor: 17
267     End Floor: 38
268
269 Line: 1113,3,68
270 Read Passenger:
271 Passenger 00A92A30:
272     Start Time: 1113
273     Start Floor: 3
274     End Floor: 68
275
276 Line: 1124,10,84
277 Read Passenger:
278 Passenger 00A92AF0:
279     Start Time: 1124
280     Start Floor: 10
281     End Floor: 84
282
283 Line: 1160,46,4
284 Read Passenger:
285 Passenger 00A926F0:
286     Start Time: 1160
287     Start Floor: 46
288     End Floor: 4
289
290 Line: 1200,71,65
291 Read Passenger:
292 Passenger 00A92870:
293     Start Time: 1200
294     Start Floor: 71
295     End Floor: 65
296
297 Line: 1235,98,32
298 Read Passenger:
299 Passenger 00A927F0:
300     Start Time: 1235
301     Start Floor: 98
302     End Floor: 32
303
304 Line: 1286,13,22
305 Read Passenger:
306 Passenger 00A92670:
307     Start Time: 1286
308     Start Floor: 13
309     End Floor: 22
310
311 Line: 1344,35,29
312 Read Passenger:
```

```
313 Passenger 00A928B0:
314     Start Time: 1344
315     Start Floor: 35
316     End Floor: 29
317
318 Line: 1400,64,1
319 Read Passenger:
320 Passenger 00A925F0:
321     Start Time: 1400
322     Start Floor: 64
323     End Floor: 1
324
325 Line: 1437,65,87
326 Read Passenger:
327 Passenger 00A92C70:
328     Start Time: 1437
329     Start Floor: 65
330     End Floor: 87
331
332 Line: 1466,11,13
333 Read Passenger:
334 Passenger 00A92CB0:
335     Start Time: 1466
336     Start Floor: 11
337     End Floor: 13
338
339 Line: 1468,36,14
340 Read Passenger:
341 Passenger 00A928F0:
342     Start Time: 1468
343     Start Floor: 36
344     End Floor: 14
345
346 Line: 1492,5,55
347 Read Passenger:
348 Passenger 00A92AB0:
349     Start Time: 1492
350     Start Floor: 5
351     End Floor: 55
352
353 Line: 1495,96,68
354 Read Passenger:
355 Passenger 00A92930:
356     Start Time: 1495
357     Start Floor: 96
358     End Floor: 68
359
360 Line: 1507,78,22
361 Read Passenger:
362 Passenger 00A92970:
363     Start Time: 1507
364     Start Floor: 78
```

```
365     End Floor: 22
366
367 Line: 1527,32,28
368 Read Passenger:
369 Passenger 00A92B30:
370     Start Time: 1527
371     Start Floor: 32
372     End Floor: 28
373
374 Line: 1545,88,22
375 Read Passenger:
376 Passenger 00A929B0:
377     Start Time: 1545
378     Start Floor: 88
379     End Floor: 22
380
381 Line: 1581,89,58
382 Read Passenger:
383 Passenger 00A926B0:
384     Start Time: 1581
385     Start Floor: 89
386     End Floor: 58
387
388 Line: 1627,1,67
389 Read Passenger:
390 Passenger 00A92830:
391     Start Time: 1627
392     Start Floor: 1
393     End Floor: 67
394
395 Line: 1656,92,49
396 Read Passenger:
397 Passenger 00A92B70:
398     Start Time: 1656
399     Start Floor: 92
400     End Floor: 49
401
402 Line: 1694,85,26
403 Read Passenger:
404 Passenger 00A92BB0:
405     Start Time: 1694
406     Start Floor: 85
407     End Floor: 26
408
409 Line: 1749,28,31
410 Read Passenger:
411 Passenger 00A92730:
412     Start Time: 1749
413     Start Floor: 28
414     End Floor: 31
415
416 Line: 1755,69,95
```

```
417 Read Passenger:
418 Passenger 00A92BF0:
419     Start Time: 1755
420     Start Floor: 69
421     End Floor: 95
422
423 Line: 1812,59,8
424 Read Passenger:
425 Passenger 00A92CF0:
426     Start Time: 1812
427     Start Floor: 59
428     End Floor: 8
429
430 Line: 1823,65,62
431 Read Passenger:
432 Passenger 00A92D30:
433     Start Time: 1823
434     Start Floor: 65
435     End Floor: 62
436
437 Line: 1862,55,34
438 Read Passenger:
439 Passenger 00A92D70:
440     Start Time: 1862
441     Start Floor: 55
442     End Floor: 34
443
444 Line: 1890,74,72
445 Read Passenger:
446 Passenger 00A929F0:
447     Start Time: 1890
448     Start Floor: 74
449     End Floor: 72
450
451 Line: 1921,55,41
452 Read Passenger:
453 Passenger 00A92770:
454     Start Time: 1921
455     Start Floor: 55
456     End Floor: 41
457
458 Line: 1952,36,84
459 Read Passenger:
460 Passenger 00A92C30:
461     Start Time: 1952
462     Start Floor: 36
463     End Floor: 84
464
465 Line: 1994,93,2
466 Read Passenger:
467 Passenger 00A92630:
468     Start Time: 1994
```

```
469     Start Floor: 93
470     End Floor: 2
471
472 Line: 2003,86,82
473 Read Passenger:
474 Passenger 00A927B0:
475     Start Time: 2003
476     Start Floor: 86
477     End Floor: 82
478
479 Line: 2032,45,84
480 Read Passenger:
481 Passenger 00A92530:
482     Start Time: 2032
483     Start Floor: 45
484     End Floor: 84
485
486 Line: 2073,98,52
487 Read Passenger:
488 Passenger 00A922B0:
489     Start Time: 2073
490     Start Floor: 98
491     End Floor: 52
492
493 Line: 2122,50,38
494 Read Passenger:
495 Passenger 00A92270:
496     Start Time: 2122
497     Start Floor: 50
498     End Floor: 38
499
500 Line: 2131,54,73
501 Read Passenger:
502 Passenger 00A923B0:
503     Start Time: 2131
504     Start Floor: 54
505     End Floor: 73
506
507 Line: 2175,33,76
508 Read Passenger:
509 Passenger 00A91E70:
510     Start Time: 2175
511     Start Floor: 33
512     End Floor: 76
513
514 Line: 2214,30,40
515 Read Passenger:
516 Passenger 00A922F0:
517     Start Time: 2214
518     Start Floor: 30
519     End Floor: 40
520
```

```
521 Line: 2241,81,97
522 Read Passenger:
523 Passenger 00A920F0:
524     Start Time: 2241
525     Start Floor: 81
526     End Floor: 97
527
528 Line: 2250,48,95
529 Read Passenger:
530 Passenger 00A92170:
531     Start Time: 2250
532     Start Floor: 48
533     End Floor: 95
534
535 Line: 2296,60,67
536 Read Passenger:
537 Passenger 00A921B0:
538     Start Time: 2296
539     Start Floor: 60
540     End Floor: 67
541
542 Line: 2344,26,93
543 Read Passenger:
544 Passenger 00A92130:
545     Start Time: 2344
546     Start Floor: 26
547     End Floor: 93
548
549 Line: 2365,92,79
550 Read Passenger:
551 Passenger 00A92470:
552     Start Time: 2365
553     Start Floor: 92
554     End Floor: 79
555
556 Line: 2375,36,60
557 Read Passenger:
558 Passenger 00A923F0:
559     Start Time: 2375
560     Start Floor: 36
561     End Floor: 60
562
563 Line: 2403,24,61
564 Read Passenger:
565 Passenger 00A924F0:
566     Start Time: 2403
567     Start Floor: 24
568     End Floor: 61
569
570 Line: 2422,87,56
571 Read Passenger:
572 Passenger 00A91EB0:
```

```
573     Start Time: 2422
574     Start Floor: 87
575     End Floor: 56
576
577 Line: 2465,45,46
578 Read Passenger:
579 Passenger 00A92330:
580     Start Time: 2465
581     Start Floor: 45
582     End Floor: 46
583
584 Line: 2498,30,93
585 Read Passenger:
586 Passenger 00A92370:
587     Start Time: 2498
588     Start Floor: 30
589     End Floor: 93
590
591 Line: 2553,57,51
592 Read Passenger:
593 Passenger 00A921F0:
594     Start Time: 2553
595     Start Floor: 57
596     End Floor: 51
597
598 Line: 2576,38,63
599 Read Passenger:
600 Passenger 00A92230:
601     Start Time: 2576
602     Start Floor: 38
603     End Floor: 63
604
605 Line: 2582,32,23
606 Read Passenger:
607 Passenger 00A92430:
608     Start Time: 2582
609     Start Floor: 32
610     End Floor: 23
611
612 Line: 2626,93,89
613 Read Passenger:
614 Passenger 00A924B0:
615     Start Time: 2626
616     Start Floor: 93
617     End Floor: 89
618
619 Line: 2674,49,46
620 Read Passenger:
621 Passenger 00A92570:
622     Start Time: 2674
623     Start Floor: 49
624     End Floor: 46
```

```
625
626 Line: 2721,43,91
627 Read Passenger:
628 Passenger 00A925B0:
629     Start Time: 2721
630     Start Floor: 43
631     End Floor: 91
632
633 Line: 2769,7,67
634 Read Passenger:
635 Passenger 00A91DF0:
636     Start Time: 2769
637     Start Floor: 7
638     End Floor: 67
639
640 Line: 2816,81,60
641 Read Passenger:
642 Passenger 00A91EF0:
643     Start Time: 2816
644     Start Floor: 81
645     End Floor: 60
646
647 Line: 2838,41,84
648 Read Passenger:
649 Passenger 00A91E30:
650     Start Time: 2838
651     Start Floor: 41
652     End Floor: 84
653
654 Line: 2865,94,94
655 Read Passenger:
656 Passenger 00A920B0:
657     Start Time: 2865
658     Start Floor: 94
659     End Floor: 94
660
661 Line: 2917,93,5
662 Read Passenger:
663 Passenger 00A91F30:
664     Start Time: 2917
665     Start Floor: 93
666     End Floor: 5
667
668 Line: 2941,39,54
669 Read Passenger:
670 Passenger 00A91F70:
671     Start Time: 2941
672     Start Floor: 39
673     End Floor: 54
674
675 Line: 2963,79,99
676 Read Passenger:
```

```
677 Passenger 00A91FB0:
678     Start Time: 2963
679     Start Floor: 79
680     End Floor: 99
681
682 Line: 2994,27,21
683 Read Passenger:
684 Passenger 00A91FF0:
685     Start Time: 2994
686     Start Floor: 27
687     End Floor: 21
688
689 Line: 3001,36,75
690 Read Passenger:
691 Passenger 00A92030:
692     Start Time: 3001
693     Start Floor: 36
694     End Floor: 75
695
696 Line: 3014,97,32
697 Read Passenger:
698 Passenger 00A92070:
699     Start Time: 3014
700     Start Floor: 97
701     End Floor: 32
702
703 Line: 3027,36,56
704 Read Passenger:
705 Passenger 00A942A8:
706     Start Time: 3027
707     Start Floor: 36
708     End Floor: 56
709
710 Line: 3032,18,86
711 Read Passenger:
712 Passenger 00A93CE8:
713     Start Time: 3032
714     Start Floor: 18
715     End Floor: 86
716
717 Line: 3067,29,91
718 Read Passenger:
719 Passenger 00A93D28:
720     Start Time: 3067
721     Start Floor: 29
722     End Floor: 91
723
724 Line: 3068,82,43
725 Read Passenger:
726 Passenger 00A93FA8:
727     Start Time: 3068
728     Start Floor: 82
```

```
729     End Floor: 43
730
731 Line: 3114,87,7
732 Read Passenger:
733 Passenger 00A93FE8:
734     Start Time: 3114
735     Start Floor: 87
736     End Floor: 7
737
738 Line: 3125,74,75
739 Read Passenger:
740 Passenger 00A93B28:
741     Start Time: 3125
742     Start Floor: 74
743     End Floor: 75
744
745 Line: 3161,42,33
746 Read Passenger:
747 Passenger 00A940A8:
748     Start Time: 3161
749     Start Floor: 42
750     End Floor: 33
751
752 Line: 3207,19,44
753 Read Passenger:
754 Passenger 00A94028:
755     Start Time: 3207
756     Start Floor: 19
757     End Floor: 44
758
759 Line: 3245,63,66
760 Read Passenger:
761 Passenger 00A93D68:
762     Start Time: 3245
763     Start Floor: 63
764     End Floor: 66
765
766 Line: 3271,91,29
767 Read Passenger:
768 Passenger 00A93E28:
769     Start Time: 3271
770     Start Floor: 91
771     End Floor: 29
772
773 Line: 3287,20,58
774 Read Passenger:
775 Passenger 00A93B68:
776     Start Time: 3287
777     Start Floor: 20
778     End Floor: 58
779
780 Line: 3342,53,38
```

```
781 Read Passenger:
782 Passenger 00A93E68:
783     Start Time: 3342
784     Start Floor: 53
785     End Floor: 38
786
787 Line: 3358,12,5
788 Read Passenger:
789 Passenger 00A94128:
790     Start Time: 3358
791     Start Floor: 12
792     End Floor: 5
793
794 Line: 3375,93,20
795 Read Passenger:
796 Passenger 00A94168:
797     Start Time: 3375
798     Start Floor: 93
799     End Floor: 20
800
801 Line: 3412,45,72
802 Read Passenger:
803 Passenger 00A93EA8:
804     Start Time: 3412
805     Start Floor: 45
806     End Floor: 72
807
808 Line: 3434,33,21
809 Read Passenger:
810 Passenger 00A93BA8:
811     Start Time: 3434
812     Start Floor: 33
813     End Floor: 21
814
815 Line: 3493,12,85
816 Read Passenger:
817 Passenger 00A94068:
818     Start Time: 3493
819     Start Floor: 12
820     End Floor: 85
821
822 Line: 3551,56,5
823 Read Passenger:
824 Passenger 00A93BE8:
825     Start Time: 3551
826     Start Floor: 56
827     End Floor: 5
828
829 Line: 3560,72,56
830 Read Passenger:
831 Passenger 00A941A8:
832     Start Time: 3560
```

833 Start Floor: 72
834 End Floor: 56
835
836 Line: 3605,44,90
837 Read Passenger:
838 Passenger 00A93EE8:
839 Start Time: 3605
840 Start Floor: 44
841 End Floor: 90
842
843 Line: 3611,8,14
844 Read Passenger:
845 Passenger 00A941E8:
846 Start Time: 3611
847 Start Floor: 8
848 End Floor: 14
849
850 Line: 3646,63,62
851 Read Passenger:
852 Passenger 00A94228:
853 Start Time: 3646
854 Start Floor: 63
855 End Floor: 62
856
857 Line: 3688,37,95
858 Read Passenger:
859 Passenger 00A93F28:
860 Start Time: 3688
861 Start Floor: 37
862 End Floor: 95
863
864 Line: 3707,88,21
865 Read Passenger:
866 Passenger 00A93DE8:
867 Start Time: 3707
868 Start Floor: 88
869 End Floor: 21
870
871 Line: 3717,90,40
872 Read Passenger:
873 Passenger 00A93F68:
874 Start Time: 3717
875 Start Floor: 90
876 End Floor: 40
877
878 Line: 3721,17,1
879 Read Passenger:
880 Passenger 00A940E8:
881 Start Time: 3721
882 Start Floor: 17
883 End Floor: 1
884

```
885 Line: 3724,17,34
886 Read Passenger:
887 Passenger 00A94268:
888     Start Time: 3724
889     Start Floor: 17
890     End Floor: 34
891
892 Line: 3733,89,44
893 Read Passenger:
894 Passenger 00A93C28:
895     Start Time: 3733
896     Start Floor: 89
897     End Floor: 44
898
899 Line: 3776,98,70
900 Read Passenger:
901 Passenger 00A93DA8:
902     Start Time: 3776
903     Start Floor: 98
904     End Floor: 70
905
906 Line: 3835,25,33
907 Read Passenger:
908 Passenger 00A93C68:
909     Start Time: 3835
910     Start Floor: 25
911     End Floor: 33
912
913 Line: 3866,5,40
914 Read Passenger:
915 Passenger 00A93CA8:
916     Start Time: 3866
917     Start Floor: 5
918     End Floor: 40
919
920 Line: 3888,9,34
921 Read Passenger:
922 Passenger 00A939E8:
923     Start Time: 3888
924     Start Floor: 9
925     End Floor: 34
926
927 Line: 3913,57,38
928 Read Passenger:
929 Passenger 00A93868:
930     Start Time: 3913
931     Start Floor: 57
932     End Floor: 38
933
934 Line: 3973,78,68
935 Read Passenger:
936 Passenger 00A935E8:
```

```
937     Start Time: 3973
938     Start Floor: 78
939     End Floor: 68
940
941 Line: 4004,75,84
942 Read Passenger:
943 Passenger 00A935A8:
944     Start Time: 4004
945     Start Floor: 75
946     End Floor: 84
947
948 Line: 4045,91,3
949 Read Passenger:
950 Passenger 00A934A8:
951     Start Time: 4045
952     Start Floor: 91
953     End Floor: 3
954
955 Line: 4084,53,15
956 Read Passenger:
957 Passenger 00A938A8:
958     Start Time: 4084
959     Start Floor: 53
960     End Floor: 15
961
962 Line: 4097,44,92
963 Read Passenger:
964 Passenger 00A93428:
965     Start Time: 4097
966     Start Floor: 44
967     End Floor: 92
968
969 Line: 4156,37,15
970 Read Passenger:
971 Passenger 00A934E8:
972     Start Time: 4156
973     Start Floor: 37
974     End Floor: 15
975
976 Line: 4197,36,38
977 Read Passenger:
978 Passenger 00A93668:
979     Start Time: 4197
980     Start Floor: 36
981     End Floor: 38
982
983 Line: 4213,7,92
984 Read Passenger:
985 Passenger 00A93628:
986     Start Time: 4213
987     Start Floor: 7
988     End Floor: 92
```



```
989
990 Line: 4264,89,52
991 Read Passenger:
992 Passenger 00A938E8:
993     Start Time: 4264
994     Start Floor: 89
995     End Floor: 52
996
997 Line: 4307,75,25
998 Read Passenger:
999 Passenger 00A933E8:
1000     Start Time: 4307
1001     Start Floor: 75
1002     End Floor: 25
1003
1004 Line: 4311,64,62
1005 Read Passenger:
1006 Passenger 00A93368:
1007     Start Time: 4311
1008     Start Floor: 64
1009     End Floor: 62
1010
1011 Line: 4351,18,35
1012 Read Passenger:
1013 Passenger 00A93468:
1014     Start Time: 4351
1015     Start Floor: 18
1016     End Floor: 35
1017
1018 Line: 4362,74,13
1019 Read Passenger:
1020 Passenger 00A93AE8:
1021     Start Time: 4362
1022     Start Floor: 74
1023     End Floor: 13
1024
1025 Line: 4386,90,79
1026 Read Passenger:
1027 Passenger 00A93928:
1028     Start Time: 4386
1029     Start Floor: 90
1030     End Floor: 79
1031
1032 Line: 4394,24,83
1033 Read Passenger:
1034 Passenger 00A937A8:
1035     Start Time: 4394
1036     Start Floor: 24
1037     End Floor: 83
1038
1039 Line: 4451,34,10
1040 Read Passenger:
```

1041 Passenger 00A93A28:
1042 Start Time: 4451
1043 Start Floor: 34
1044 End Floor: 10
1045
1046 Line: 4496,41,79
1047 Read Passenger:
1048 Passenger 00A93A68:
1049 Start Time: 4496
1050 Start Floor: 41
1051 End Floor: 79
1052
1053 Line: 4526,7,56
1054 Read Passenger:
1055 Passenger 00A93AA8:
1056 Start Time: 4526
1057 Start Floor: 7
1058 End Floor: 56
1059
1060 Line: 4566,20,52
1061 Read Passenger:
1062 Passenger 00A933A8:
1063 Start Time: 4566
1064 Start Floor: 20
1065 End Floor: 52
1066
1067 Line: 4603,86,6
1068 Read Passenger:
1069 Passenger 00A93528:
1070 Start Time: 4603
1071 Start Floor: 86
1072 End Floor: 6
1073
1074 Line: 4618,59,35
1075 Read Passenger:
1076 Passenger 00A93568:
1077 Start Time: 4618
1078 Start Floor: 59
1079 End Floor: 35
1080
1081 Line: 4652,28,93
1082 Read Passenger:
1083 Passenger 00A93768:
1084 Start Time: 4652
1085 Start Floor: 28
1086 End Floor: 93
1087
1088 Line: 4659,62,78
1089 Read Passenger:
1090 Passenger 00A93968:
1091 Start Time: 4659
1092 Start Floor: 62

1093 End Floor: 78
1094
1095 Line: 4675,84,69
1096 Read Passenger:
1097 Passenger 00A93728:
1098 Start Time: 4675
1099 Start Floor: 84
1100 End Floor: 69
1101
1102 Line: 4689,71,61
1103 Read Passenger:
1104 Passenger 00A93328:
1105 Start Time: 4689
1106 Start Floor: 71
1107 End Floor: 61
1108
1109 Line: 4730,66,7
1110 Read Passenger:
1111 Passenger 00A93828:
1112 Start Time: 4730
1113 Start Floor: 66
1114 End Floor: 7
1115
1116 Line: 4732,9,98
1117 Read Passenger:
1118 Passenger 00A936A8:
1119 Start Time: 4732
1120 Start Floor: 9
1121 End Floor: 98
1122
1123 Line: 4783,81,25
1124 Read Passenger:
1125 Passenger 00A936E8:
1126 Start Time: 4783
1127 Start Floor: 81
1128 End Floor: 25
1129
1130 Line: 4785,57,31
1131 Read Passenger:
1132 Passenger 00A937E8:
1133 Start Time: 4785
1134 Start Floor: 57
1135 End Floor: 31
1136
1137 Line: 4818,77,50
1138 Read Passenger:
1139 Passenger 00A939A8:
1140 Start Time: 4818
1141 Start Floor: 77
1142 End Floor: 50
1143
1144 Line: 4863,49,42

```
1145 Read Passenger:
1146 Passenger 00A956E8:
1147     Start Time: 4863
1148     Start Floor: 49
1149     End Floor: 42
1150
1151 Line: 4909,27,41
1152 Read Passenger:
1153 Passenger 00A95828:
1154     Start Time: 4909
1155     Start Floor: 27
1156     End Floor: 41
1157
1158 Line: 4948,27,89
1159 Read Passenger:
1160 Passenger 00A95868:
1161     Start Time: 4948
1162     Start Floor: 27
1163     End Floor: 89
1164
1165 Line: 4988,88,31
1166 Read Passenger:
1167 Passenger 00A955A8:
1168     Start Time: 4988
1169     Start Floor: 88
1170     End Floor: 31
1171
1172 Line: 4993,11,16
1173 Read Passenger:
1174 Passenger 00A958A8:
1175     Start Time: 4993
1176     Start Floor: 11
1177     End Floor: 16
1178
1179 Line: 5032,44,20
1180 Read Passenger:
1181 Passenger 00A95A28:
1182     Start Time: 5032
1183     Start Floor: 44
1184     End Floor: 20
1185
1186 Line: 5075,89,92
1187 Read Passenger:
1188 Passenger 00A95468:
1189     Start Time: 5075
1190     Start Floor: 89
1191     End Floor: 92
1192
1193 Line: 5098,45,84
1194 Read Passenger:
1195 Passenger 00A954A8:
1196     Start Time: 5098
```

1197 Start Floor: 45
1198 End Floor: 84
1199
1200 Line: 5124,28,42
1201 Read Passenger:
1202 Passenger 00A95728:
1203 Start Time: 5124
1204 Start Floor: 28
1205 End Floor: 42
1206
1207 Line: 5158,41,45
1208 Read Passenger:
1209 Passenger 00A95768:
1210 Start Time: 5158
1211 Start Floor: 41
1212 End Floor: 45
1213
1214 Line: 5168,78,88
1215 Read Passenger:
1216 Passenger 00A952A8:
1217 Start Time: 5168
1218 Start Floor: 78
1219 End Floor: 88
1220
1221 Line: 5174,72,7
1222 Read Passenger:
1223 Passenger 00A958E8:
1224 Start Time: 5174
1225 Start Floor: 72
1226 End Floor: 7
1227
1228 Line: 5175,82,32
1229 Read Passenger:
1230 Passenger 00A957A8:
1231 Start Time: 5175
1232 Start Floor: 82
1233 End Floor: 32
1234
1235 Line: 5194,44,30
1236 Read Passenger:
1237 Passenger 00A954E8:
1238 Start Time: 5194
1239 Start Floor: 44
1240 End Floor: 30
1241
1242 Line: 5238,12,48
1243 Read Passenger:
1244 Passenger 00A955E8:
1245 Start Time: 5238
1246 Start Floor: 12
1247 End Floor: 48
1248

```
1249 Line: 5270,33,16
1250 Read Passenger:
1251 Passenger 00A952E8:
1252     Start Time: 5270
1253     Start Floor: 33
1254     End Floor: 16
1255
1256 Line: 5314,88,55
1257 Read Passenger:
1258 Passenger 00A959E8:
1259     Start Time: 5314
1260     Start Floor: 88
1261     End Floor: 55
1262
1263 Line: 5352,93,86
1264 Read Passenger:
1265 Passenger 00A95628:
1266     Start Time: 5352
1267     Start Floor: 93
1268     End Floor: 86
1269
1270 Line: 5406,57,87
1271 Read Passenger:
1272 Passenger 00A95528:
1273     Start Time: 5406
1274     Start Floor: 57
1275     End Floor: 87
1276
1277 Line: 5463,74,48
1278 Read Passenger:
1279 Passenger 00A95668:
1280     Start Time: 5463
1281     Start Floor: 74
1282     End Floor: 48
1283
1284 Line: 5504,15,74
1285 Read Passenger:
1286 Passenger 00A956A8:
1287     Start Time: 5504
1288     Start Floor: 15
1289     End Floor: 74
1290
1291 Line: 5537,45,2
1292 Read Passenger:
1293 Passenger 00A957E8:
1294     Start Time: 5537
1295     Start Floor: 45
1296     End Floor: 2
1297
1298 Line: 5568,85,9
1299 Read Passenger:
1300 Passenger 00A95328:
```

1301 Start Time: 5568
1302 Start Floor: 85
1303 End Floor: 9
1304
1305 Line: 5571,34,89
1306 Read Passenger:
1307 Passenger 00A95928:
1308 Start Time: 5571
1309 Start Floor: 34
1310 End Floor: 89
1311
1312 Line: 5576,4,57
1313 Read Passenger:
1314 Passenger 00A95568:
1315 Start Time: 5576
1316 Start Floor: 4
1317 End Floor: 57
1318
1319 Line: 5632,87,53
1320 Read Passenger:
1321 Passenger 00A953A8:
1322 Start Time: 5632
1323 Start Floor: 87
1324 End Floor: 53
1325
1326 Line: 5645,52,19
1327 Read Passenger:
1328 Passenger 00A95968:
1329 Start Time: 5645
1330 Start Floor: 52
1331 End Floor: 19
1332
1333 Line: 5658,40,7
1334 Read Passenger:
1335 Passenger 00A953E8:
1336 Start Time: 5658
1337 Start Floor: 40
1338 End Floor: 7
1339
1340 Line: 5683,26,9
1341 Read Passenger:
1342 Passenger 00A95368:
1343 Start Time: 5683
1344 Start Floor: 26
1345 End Floor: 9
1346
1347 Line: 5696,77,61
1348 Read Passenger:
1349 Passenger 00A959A8:
1350 Start Time: 5696
1351 Start Floor: 77
1352 End Floor: 61

```
1353
1354 Line: 5746,3,10
1355 Read Passenger:
1356 Passenger 00A95428:
1357     Start Time: 5746
1358     Start Floor: 3
1359     End Floor: 10
1360
1361 Line: 5769,34,45
1362 Read Passenger:
1363 Passenger 00A94E68:
1364     Start Time: 5769
1365     Start Floor: 34
1366     End Floor: 45
1367
1368 Line: 5804,83,49
1369 Read Passenger:
1370 Passenger 00A951A8:
1371     Start Time: 5804
1372     Start Floor: 83
1373     End Floor: 49
1374
1375 Line: 5830,24,28
1376 Read Passenger:
1377 Passenger 00A94DA8:
1378     Start Time: 5830
1379     Start Floor: 24
1380     End Floor: 28
1381
1382 Line: 5872,24,84
1383 Read Passenger:
1384 Passenger 00A94C68:
1385     Start Time: 5872
1386     Start Floor: 24
1387     End Floor: 84
1388
1389 Line: 5924,80,52
1390 Read Passenger:
1391 Passenger 00A94D28:
1392     Start Time: 5924
1393     Start Floor: 80
1394     End Floor: 52
1395
1396 Line: 5952,9,37
1397 Read Passenger:
1398 Passenger 00A94D68:
1399     Start Time: 5952
1400     Start Floor: 9
1401     End Floor: 37
1402
1403 Line: 5990,37,53
1404 Read Passenger:
```



```
1405 Passenger 00A94F68:
1406     Start Time: 5990
1407     Start Floor: 37
1408     End Floor: 53
1409
1410 Line: 5994,84,65
1411 Read Passenger:
1412 Passenger 00A95228:
1413     Start Time: 5994
1414     Start Floor: 84
1415     End Floor: 65
1416
1417 Line: 6017,31,24
1418 Read Passenger:
1419 Passenger 00A94DE8:
1420     Start Time: 6017
1421     Start Floor: 31
1422     End Floor: 24
1423
1424 Line: 6055,2,51
1425 Read Passenger:
1426 Passenger 00A94BA8:
1427     Start Time: 6055
1428     Start Floor: 2
1429     End Floor: 51
1430
1431 Line: 6065,2,17
1432 Read Passenger:
1433 Passenger 00A94AE8:
1434     Start Time: 6065
1435     Start Floor: 2
1436     End Floor: 17
1437
1438 Line: 6118,23,86
1439 Read Passenger:
1440 Passenger 00A94CA8:
1441     Start Time: 6118
1442     Start Floor: 23
1443     End Floor: 86
1444
1445 Line: 6120,97,86
1446 Read Passenger:
1447 Passenger 00A94B28:
1448     Start Time: 6120
1449     Start Floor: 97
1450     End Floor: 86
1451
1452 Line: 6166,57,70
1453 Read Passenger:
1454 Passenger 00A95268:
1455     Start Time: 6166
1456     Start Floor: 57
```

1457 End Floor: 70
1458
1459 Line: 6170,17,48
1460 Read Passenger:
1461 Passenger 00A94B68:
1462 Start Time: 6170
1463 Start Floor: 17
1464 End Floor: 48
1465
1466 Line: 6216,50,9
1467 Read Passenger:
1468 Passenger 00A950A8:
1469 Start Time: 6216
1470 Start Floor: 50
1471 End Floor: 9
1472
1473 Line: 6268,9,18
1474 Read Passenger:
1475 Passenger 00A94EA8:
1476 Start Time: 6268
1477 Start Floor: 9
1478 End Floor: 18
1479
1480 Line: 6319,43,95
1481 Read Passenger:
1482 Passenger 00A951E8:
1483 Start Time: 6319
1484 Start Floor: 43
1485 End Floor: 95
1486
1487 Line: 6333,94,63
1488 Read Passenger:
1489 Passenger 00A94BE8:
1490 Start Time: 6333
1491 Start Floor: 94
1492 End Floor: 63
1493
1494 Line: 6388,35,15
1495 Read Passenger:
1496 Passenger 00A94C28:
1497 Start Time: 6388
1498 Start Floor: 35
1499 End Floor: 15
1500
1501 Line: 6392,43,72
1502 Read Passenger:
1503 Passenger 00A94CE8:
1504 Start Time: 6392
1505 Start Floor: 43
1506 End Floor: 72
1507
1508 Line: 6439,5,85

```
1509 Read Passenger:
1510 Passenger 00A94EE8:
1511     Start Time: 6439
1512     Start Floor: 5
1513     End Floor: 85
1514
1515 Line: 6460,47,81
1516 Read Passenger:
1517 Passenger 00A950E8:
1518     Start Time: 6460
1519     Start Floor: 47
1520     End Floor: 81
1521
1522 Line: 6489,66,91
1523 Read Passenger:
1524 Passenger 00A94F28:
1525     Start Time: 6489
1526     Start Floor: 66
1527     End Floor: 91
1528
1529 Line: 6528,25,32
1530 Read Passenger:
1531 Passenger 00A94AA8:
1532     Start Time: 6528
1533     Start Floor: 25
1534     End Floor: 32
1535
1536 Line: 6545,99,18
1537 Read Passenger:
1538 Passenger 00A95128:
1539     Start Time: 6545
1540     Start Floor: 99
1541     End Floor: 18
1542
1543 Line: 6585,79,67
1544 Read Passenger:
1545 Passenger 00A94E28:
1546     Start Time: 6585
1547     Start Floor: 79
1548     End Floor: 67
1549
1550 Line: 6600,83,68
1551 Read Passenger:
1552 Passenger 00A94FA8:
1553     Start Time: 6600
1554     Start Floor: 83
1555     End Floor: 68
1556
1557 Line: 6634,41,71
1558 Read Passenger:
1559 Passenger 00A94FE8:
1560     Start Time: 6634
```

1561 Start Floor: 41
1562 End Floor: 71
1563
1564 Line: 6684,51,79
1565 Read Passenger:
1566 Passenger 00A95028:
1567 Start Time: 6684
1568 Start Floor: 51
1569 End Floor: 79
1570
1571 Line: 6735,49,76
1572 Read Passenger:
1573 Passenger 00A95068:
1574 Start Time: 6735
1575 Start Floor: 49
1576 End Floor: 76
1577
1578 Line: 6770,23,52
1579 Read Passenger:
1580 Passenger 00A95168:
1581 Start Time: 6770
1582 Start Floor: 23
1583 End Floor: 52
1584
1585 Line: 6786,90,32
1586 Read Passenger:
1587 Passenger 00A966B0:
1588 Start Time: 6786
1589 Start Floor: 90
1590 End Floor: 32
1591
1592 Line: 6796,40,39
1593 Read Passenger:
1594 Passenger 00A966F0:
1595 Start Time: 6796
1596 Start Floor: 40
1597 End Floor: 39
1598
1599 Line: 6854,16,58
1600 Read Passenger:
1601 Passenger 00A967B0:
1602 Start Time: 6854
1603 Start Floor: 16
1604 End Floor: 58
1605
1606 Line: 6859,54,28
1607 Read Passenger:
1608 Passenger 00A969B0:
1609 Start Time: 6859
1610 Start Floor: 54
1611 End Floor: 28
1612

```
1613 Line: 6907,82,50
1614 Read Passenger:
1615 Passenger 00A96530:
1616     Start Time: 6907
1617     Start Floor: 82
1618     End Floor: 50
1619
1620 Line: 6939,72,62
1621 Read Passenger:
1622 Passenger 00A96730:
1623     Start Time: 6939
1624     Start Floor: 72
1625     End Floor: 62
1626
1627 Line: 6973,98,11
1628 Read Passenger:
1629 Passenger 00A96870:
1630     Start Time: 6973
1631     Start Floor: 98
1632     End Floor: 11
1633
1634 Line: 6991,55,67
1635 Read Passenger:
1636 Passenger 00A96330:
1637     Start Time: 6991
1638     Start Floor: 55
1639     End Floor: 67
1640
1641 Line: 7050,93,65
1642 Read Passenger:
1643 Passenger 00A96770:
1644     Start Time: 7050
1645     Start Floor: 93
1646     End Floor: 65
1647
1648 Line: 7073,52,47
1649 Read Passenger:
1650 Passenger 00A96570:
1651     Start Time: 7073
1652     Start Floor: 52
1653     End Floor: 47
1654
1655 Line: 7131,24,57
1656 Read Passenger:
1657 Passenger 00A96630:
1658     Start Time: 7131
1659     Start Floor: 24
1660     End Floor: 57
1661
1662 Line: 7153,4,35
1663 Read Passenger:
1664 Passenger 00A96670:
```

1665 Start Time: 7153
1666 Start Floor: 4
1667 End Floor: 35
1668
1669 Line: 7167,41,7
1670 Read Passenger:
1671 Passenger 00A965B0:
1672 Start Time: 7167
1673 Start Floor: 41
1674 End Floor: 7
1675
1676 Line: 7167,61,98
1677 Read Passenger:
1678 Passenger 00A967F0:
1679 Start Time: 7167
1680 Start Floor: 61
1681 End Floor: 98
1682
1683 Line: 7182,54,72
1684 Read Passenger:
1685 Passenger 00A968B0:
1686 Start Time: 7182
1687 Start Floor: 54
1688 End Floor: 72
1689
1690 Line: 7241,99,84
1691 Read Passenger:
1692 Passenger 00A96970:
1693 Start Time: 7241
1694 Start Floor: 99
1695 End Floor: 84
1696
1697 Line: 7244,3,77
1698 Read Passenger:
1699 Passenger 00A962F0:
1700 Start Time: 7244
1701 Start Floor: 3
1702 End Floor: 77
1703
1704 Line: 7285,67,55
1705 Read Passenger:
1706 Passenger 00A962B0:
1707 Start Time: 7285
1708 Start Floor: 67
1709 End Floor: 55
1710
1711 Line: 7328,25,95
1712 Read Passenger:
1713 Passenger 00A96430:
1714 Start Time: 7328
1715 Start Floor: 25
1716 End Floor: 95

```
1717
1718 Line: 7377,67,28
1719 Read Passenger:
1720 Passenger 00A963F0:
1721     Start Time: 7377
1722     Start Floor: 67
1723     End Floor: 28
1724
1725 Line: 7419,8,1
1726 Read Passenger:
1727 Passenger 00A96830:
1728     Start Time: 7419
1729     Start Floor: 8
1730     End Floor: 1
1731
1732 Line: 7420,48,23
1733 Read Passenger:
1734 Passenger 00A96930:
1735     Start Time: 7420
1736     Start Floor: 48
1737     End Floor: 23
1738
1739 Line: 7453,75,2
1740 Read Passenger:
1741 Passenger 00A968F0:
1742     Start Time: 7453
1743     Start Floor: 75
1744     End Floor: 2
1745
1746 Line: 7476,54,34
1747 Read Passenger:
1748 Passenger 00A96370:
1749     Start Time: 7476
1750     Start Floor: 54
1751     End Floor: 34
1752
1753 Line: 7505,30,9
1754 Read Passenger:
1755 Passenger 00A969F0:
1756     Start Time: 7505
1757     Start Floor: 30
1758     End Floor: 9
1759
1760 Line: 7556,53,85
1761 Read Passenger:
1762 Passenger 00A965F0:
1763     Start Time: 7556
1764     Start Floor: 53
1765     End Floor: 85
1766
1767 Line: 7599,36,15
1768 Read Passenger:
```

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1769 Passenger 00A963B0:
1770     Start Time: 7599
1771     Start Floor: 36
1772     End Floor: 15
1773
1774 Line: 7637,92,30
1775 Read Passenger:
1776 Passenger 00A96A30:
1777     Start Time: 7637
1778     Start Floor: 92
1779     End Floor: 30
1780
1781 Line: 7655,50,37
1782 Read Passenger:
1783 Passenger 00A96470:
1784     Start Time: 7655
1785     Start Floor: 50
1786     End Floor: 37
1787
1788 Line: 7704,50,91
1789 Read Passenger:
1790 Passenger 00A964B0:
1791     Start Time: 7704
1792     Start Floor: 50
1793     End Floor: 91
1794
1795 Line: 7712,64,66
1796 Read Passenger:
1797 Passenger 00A964F0:
1798     Start Time: 7712
1799     Start Floor: 64
1800     End Floor: 66
1801
1802 Line: 7767,16,91
1803 Read Passenger:
1804 Passenger 00A95DF0:
1805     Start Time: 7767
1806     Start Floor: 16
1807     End Floor: 91
1808
1809 Line: 7821,94,21
1810 Read Passenger:
1811 Passenger 00A961B0:
1812     Start Time: 7821
1813     Start Floor: 94
1814     End Floor: 21
1815
1816 Line: 7826,99,56
1817 Read Passenger:
1818 Passenger 00A95AF0:
1819     Start Time: 7826
1820     Start Floor: 99
```


1821 End Floor: 56
1822
1823 Line: 7855,98,90
1824 Read Passenger:
1825 Passenger 00A95EF0:
1826 Start Time: 7855
1827 Start Floor: 98
1828 End Floor: 90
1829
1830 Line: 7893,51,28
1831 Read Passenger:
1832 Passenger 00A96070:
1833 Start Time: 7893
1834 Start Floor: 51
1835 End Floor: 28
1836
1837 Line: 7910,85,50
1838 Read Passenger:
1839 Passenger 00A960B0:
1840 Start Time: 7910
1841 Start Floor: 85
1842 End Floor: 50
1843
1844 Line: 7938,39,33
1845 Read Passenger:
1846 Passenger 00A95E30:
1847 Start Time: 7938
1848 Start Floor: 39
1849 End Floor: 33
1850
1851 Line: 7963,15,8
1852 Read Passenger:
1853 Passenger 00A960F0:
1854 Start Time: 7963
1855 Start Floor: 15
1856 End Floor: 8
1857
1858 Line: 7974,92,90
1859 Read Passenger:
1860 Passenger 00A96270:
1861 Start Time: 7974
1862 Start Floor: 92
1863 End Floor: 90
1864
1865 Line: 7996,74,8
1866 Read Passenger:
1867 Passenger 00A95CB0:
1868 Start Time: 7996
1869 Start Floor: 74
1870 End Floor: 8
1871
1872 Line: 8052,36,16

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1873 Read Passenger:
1874 Passenger 00A95F30:
1875     Start Time: 8052
1876     Start Floor: 36
1877     End Floor: 16
1878
1879 Line: 8071,2,56
1880 Read Passenger:
1881 Passenger 00A95F70:
1882     Start Time: 8071
1883     Start Floor: 2
1884     End Floor: 56
1885
1886 Line: 8086,14,31
1887 Read Passenger:
1888 Passenger 00A95FB0:
1889     Start Time: 8086
1890     Start Floor: 14
1891     End Floor: 31
1892
1893 Line: 8086,53,47
1894 Read Passenger:
1895 Passenger 00A95AB0:
1896     Start Time: 8086
1897     Start Floor: 53
1898     End Floor: 47
1899
1900 Line: 8123,36,97
1901 Read Passenger:
1902 Passenger 00A96030:
1903     Start Time: 8123
1904     Start Floor: 36
1905     End Floor: 97
1906
1907 Line: 8167,48,2
1908 Read Passenger:
1909 Passenger 00A95FF0:
1910     Start Time: 8167
1911     Start Floor: 48
1912     End Floor: 2
1913
1914 Line: 8201,60,41
1915 Read Passenger:
1916 Passenger 00A95C70:
1917     Start Time: 8201
1918     Start Floor: 60
1919     End Floor: 41
1920
1921 Line: 8245,37,64
1922 Read Passenger:
1923 Passenger 00A95D70:
1924     Start Time: 8245
```

1925 Start Floor: 37
1926 End Floor: 64
1927
1928 Line: 8282,83,95
1929 Read Passenger:
1930 Passenger 00A95B30:
1931 Start Time: 8282
1932 Start Floor: 83
1933 End Floor: 95
1934
1935 Line: 8296,24,20
1936 Read Passenger:
1937 Passenger 00A96130:
1938 Start Time: 8296
1939 Start Floor: 24
1940 End Floor: 20
1941
1942 Line: 8331,51,37
1943 Read Passenger:
1944 Passenger 00A95DB0:
1945 Start Time: 8331
1946 Start Floor: 51
1947 End Floor: 37
1948
1949 Line: 8372,74,27
1950 Read Passenger:
1951 Passenger 00A96170:
1952 Start Time: 8372
1953 Start Floor: 74
1954 End Floor: 27
1955
1956 Line: 8398,36,91
1957 Read Passenger:
1958 Passenger 00A961F0:
1959 Start Time: 8398
1960 Start Floor: 36
1961 End Floor: 91
1962
1963 Line: 8431,98,19
1964 Read Passenger:
1965 Passenger 00A95E70:
1966 Start Time: 8431
1967 Start Floor: 98
1968 End Floor: 19
1969
1970 Line: 8489,77,73
1971 Read Passenger:
1972 Passenger 00A95CF0:
1973 Start Time: 8489
1974 Start Floor: 77
1975 End Floor: 73
1976

1977 Line: 8537,9,70
1978 Read Passenger:
1979 Passenger 00A95EB0:
1980 Start Time: 8537
1981 Start Floor: 9
1982 End Floor: 70
1983
1984 Line: 8582,89,36
1985 Read Passenger:
1986 Passenger 00A96230:
1987 Start Time: 8582
1988 Start Floor: 89
1989 End Floor: 36
1990
1991 Line: 8630,91,72
1992 Read Passenger:
1993 Passenger 00A95B70:
1994 Start Time: 8630
1995 Start Floor: 91
1996 End Floor: 72
1997
1998 Line: 8677,44,19
1999 Read Passenger:
2000 Passenger 00A95BB0:
2001 Start Time: 8677
2002 Start Floor: 44
2003 End Floor: 19
2004
2005 Line: 8734,15,96
2006 Read Passenger:
2007 Passenger 00A95BF0:
2008 Start Time: 8734
2009 Start Floor: 15
2010 End Floor: 96
2011
2012 Line: 8770,73,77
2013 Read Passenger:
2014 Passenger 00A95C30:
2015 Start Time: 8770
2016 Start Floor: 73
2017 End Floor: 77
2018
2019 Line: 8816,3,95
2020 Read Passenger:
2021 Passenger 00A95D30:
2022 Start Time: 8816
2023 Start Floor: 3
2024 End Floor: 95
2025
2026 Line: 8835,89,58
2027 Read Passenger:
2028 Passenger 00A979F8:

2029 Start Time: 8835
2030 Start Floor: 89
2031 End Floor: 58
2032
2033 Line: 8841,99,63
2034 Read Passenger:
2035 Passenger 00A97A38:
2036 Start Time: 8841
2037 Start Floor: 99
2038 End Floor: 63
2039
2040 Line: 8864,65,23
2041 Read Passenger:
2042 Passenger 00A97978:
2043 Start Time: 8864
2044 Start Floor: 65
2045 End Floor: 23
2046
2047 Line: 8902,92,43
2048 Read Passenger:
2049 Passenger 00A979B8:
2050 Start Time: 8902
2051 Start Floor: 92
2052 End Floor: 43
2053
2054 Line: 8919,31,4
2055 Read Passenger:
2056 Passenger 00A972B8:
2057 Start Time: 8919
2058 Start Floor: 31
2059 End Floor: 4
2060
2061 Line: 8942,87,98
2062 Read Passenger:
2063 Passenger 00A976B8:
2064 Start Time: 8942
2065 Start Floor: 87
2066 End Floor: 98
2067
2068 Line: 8960,20,2
2069 Read Passenger:
2070 Passenger 00A97338:
2071 Start Time: 8960
2072 Start Floor: 20
2073 End Floor: 2
2074
2075 Line: 8990,16,7
2076 Read Passenger:
2077 Passenger 00A977B8:
2078 Start Time: 8990
2079 Start Floor: 16
2080 End Floor: 7

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2081
2082 Line: 9003,7,67
2083 Read Passenger:
2084 Passenger 00A97838:
2085     Start Time: 9003
2086     Start Floor: 7
2087     End Floor: 67
2088
2089 Line: 9047,88,79
2090 Read Passenger:
2091 Passenger 00A97538:
2092     Start Time: 9047
2093     Start Floor: 88
2094     End Floor: 79
2095
2096 Line: 9074,63,88
2097 Read Passenger:
2098 Passenger 00A97738:
2099     Start Time: 9074
2100     Start Floor: 63
2101     End Floor: 88
2102
2103 Line: 9100,63,10
2104 Read Passenger:
2105 Passenger 00A97638:
2106     Start Time: 9100
2107     Start Floor: 63
2108     End Floor: 10
2109
2110 Line: 9105,5,55
2111 Read Passenger:
2112 Passenger 00A97378:
2113     Start Time: 9105
2114     Start Floor: 5
2115     End Floor: 55
2116
2117 Line: 9128,99,29
2118 Read Passenger:
2119 Passenger 00A974F8:
2120     Start Time: 9128
2121     Start Floor: 99
2122     End Floor: 29
2123
2124 Line: 9136,82,61
2125 Read Passenger:
2126 Passenger 00A977F8:
2127     Start Time: 9136
2128     Start Floor: 82
2129     End Floor: 61
2130
2131 Line: 9162,20,95
2132 Read Passenger:
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2133 Passenger 00A976F8:
2134 Start Time: 9162
2135 Start Floor: 20
2136 End Floor: 95
2137
2138 Line: 9163,39,89
2139 Read Passenger:
2140 Passenger 00A973B8:
2141 Start Time: 9163
2142 Start Floor: 39
2143 End Floor: 89
2144
2145 Line: 9203,39,76
2146 Read Passenger:
2147 Passenger 00A97778:
2148 Start Time: 9203
2149 Start Floor: 39
2150 End Floor: 76
2151
2152 Line: 9224,51,16
2153 Read Passenger:
2154 Passenger 00A97878:
2155 Start Time: 9224
2156 Start Floor: 51
2157 End Floor: 16
2158
2159 Line: 9274,6,2
2160 Read Passenger:
2161 Passenger 00A978B8:
2162 Start Time: 9274
2163 Start Floor: 6
2164 End Floor: 2
2165
2166 Line: 9319,32,69
2167 Read Passenger:
2168 Passenger 00A974B8:
2169 Start Time: 9319
2170 Start Floor: 32
2171 End Floor: 69
2172
2173 Line: 9364,63,97
2174 Read Passenger:
2175 Passenger 00A975B8:
2176 Start Time: 9364
2177 Start Floor: 63
2178 End Floor: 97
2179
2180 Line: 9400,45,3
2181 Read Passenger:
2182 Passenger 00A972F8:
2183 Start Time: 9400
2184 Start Floor: 45

2185 End Floor: 3
2186
2187 Line: 9414,51,61
2188 Read Passenger:
2189 Passenger 00A978F8:
2190 Start Time: 9414
2191 Start Floor: 51
2192 End Floor: 61
2193
2194 Line: 9469,57,67
2195 Read Passenger:
2196 Passenger 00A973F8:
2197 Start Time: 9469
2198 Start Floor: 57
2199 End Floor: 67
2200
2201 Line: 9500,91,87
2202 Read Passenger:
2203 Passenger 00A97438:
2204 Start Time: 9500
2205 Start Floor: 91
2206 End Floor: 87
2207
2208 Line: 9517,70,15
2209 Read Passenger:
2210 Passenger 00A97938:
2211 Start Time: 9517
2212 Start Floor: 70
2213 End Floor: 15
2214
2215 Line: 9573,84,31
2216 Read Passenger:
2217 Passenger 00A97478:
2218 Start Time: 9573
2219 Start Floor: 84
2220 End Floor: 31
2221
2222 Line: 9619,5,51
2223 Read Passenger:
2224 Passenger 00A97578:
2225 Start Time: 9619
2226 Start Floor: 5
2227 End Floor: 51
2228
2229 Line: 9665,92,79
2230 Read Passenger:
2231 Passenger 00A975F8:
2232 Start Time: 9665
2233 Start Floor: 92
2234 End Floor: 79
2235
2236 Line: 9704,44,21


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2237 Read Passenger:
2238 Passenger 00A97678:
2239     Start Time: 9704
2240     Start Floor: 44
2241     End Floor: 21
2242
2243 Line: 9705,42,29
2244 Read Passenger:
2245 Passenger 00A96F78:
2246     Start Time: 9705
2247     Start Floor: 42
2248     End Floor: 29
2249
2250 Line: 9764,74,52
2251 Read Passenger:
2252 Passenger 00A96FB8:
2253     Start Time: 9764
2254     Start Floor: 74
2255     End Floor: 52
2256
2257 Line: 9805,30,49
2258 Read Passenger:
2259 Passenger 00A96AB8:
2260     Start Time: 9805
2261     Start Floor: 30
2262     End Floor: 49
2263
2264 Line: 9864,94,52
2265 Read Passenger:
2266 Passenger 00A96E78:
2267     Start Time: 9864
2268     Start Floor: 94
2269     End Floor: 52
2270
2271 Line: 9873,83,84
2272 Read Passenger:
2273 Passenger 00A96B38:
2274     Start Time: 9873
2275     Start Floor: 83
2276     End Floor: 84
2277
2278 Line: 9922,23,65
2279 Read Passenger:
2280 Passenger 00A96FF8:
2281     Start Time: 9922
2282     Start Floor: 23
2283     End Floor: 65
2284
2285 Line: 9970,44,22
2286 Read Passenger:
2287 Passenger 00A97038:
2288     Start Time: 9970
```

2289 Start Floor: 44
2290 End Floor: 22
2291
2292 Line: 10019,38,44
2293 Read Passenger:
2294 Passenger 00A96D38:
2295 Start Time: 10019
2296 Start Floor: 38
2297 End Floor: 44
2298
2299 Line: 10026,16,48
2300 Read Passenger:
2301 Passenger 00A96F38:
2302 Start Time: 10026
2303 Start Floor: 16
2304 End Floor: 48
2305
2306 Line: 10050,40,96
2307 Read Passenger:
2308 Passenger 00A96DF8:
2309 Start Time: 10050
2310 Start Floor: 40
2311 End Floor: 96
2312
2313 Line: 10098,14,40
2314 Read Passenger:
2315 Passenger 00A96AF8:
2316 Start Time: 10098
2317 Start Floor: 14
2318 End Floor: 40
2319
2320 Line: 10138,14,36
2321 Read Passenger:
2322 Passenger 00A96CF8:
2323 Start Time: 10138
2324 Start Floor: 14
2325 End Floor: 36
2326
2327 Line: 10191,68,24
2328 Read Passenger:
2329 Passenger 00A97078:
2330 Start Time: 10191
2331 Start Floor: 68
2332 End Floor: 24
2333
2334 Line: 10239,63,12
2335 Read Passenger:
2336 Passenger 00A96EF8:
2337 Start Time: 10239
2338 Start Floor: 63
2339 End Floor: 12
2340

```
2341 Line: 10255,97,80
2342 Read Passenger:
2343 Passenger 00A96B78:
2344     Start Time: 10255
2345     Start Floor: 97
2346     End Floor: 80
2347
2348 Line: 10288,4,51
2349 Read Passenger:
2350 Passenger 00A970B8:
2351     Start Time: 10288
2352     Start Floor: 4
2353     End Floor: 51
2354
2355 Line: 10331,80,70
2356 Read Passenger:
2357 Passenger 00A971B8:
2358     Start Time: 10331
2359     Start Floor: 80
2360     End Floor: 70
2361
2362 Line: 10390,78,9
2363 Read Passenger:
2364 Passenger 00A971F8:
2365     Start Time: 10390
2366     Start Floor: 78
2367     End Floor: 9
2368
2369 Line: 10394,59,63
2370 Read Passenger:
2371 Passenger 00A97238:
2372     Start Time: 10394
2373     Start Floor: 59
2374     End Floor: 63
2375
2376 Line: 10411,54,6
2377 Read Passenger:
2378 Passenger 00A970F8:
2379     Start Time: 10411
2380     Start Floor: 54
2381     End Floor: 6
2382
2383 Line: 10451,18,15
2384 Read Passenger:
2385 Passenger 00A96E38:
2386     Start Time: 10451
2387     Start Floor: 18
2388     End Floor: 15
2389
2390 Line: 10511,76,65
2391 Read Passenger:
2392 Passenger 00A97138:
```

2393 Start Time: 10511
2394 Start Floor: 76
2395 End Floor: 65
2396
2397 Line: 10533,76,73
2398 Read Passenger:
2399 Passenger 00A97278:
2400 Start Time: 10533
2401 Start Floor: 76
2402 End Floor: 73
2403
2404 Line: 10546,95,62
2405 Read Passenger:
2406 Passenger 00A96CB8:
2407 Start Time: 10546
2408 Start Floor: 95
2409 End Floor: 62
2410
2411 Line: 10604,30,29
2412 Read Passenger:
2413 Passenger 00A97178:
2414 Start Time: 10604
2415 Start Floor: 30
2416 End Floor: 29
2417
2418 Line: 10635,51,33
2419 Read Passenger:
2420 Passenger 00A96BB8:
2421 Start Time: 10635
2422 Start Floor: 51
2423 End Floor: 33
2424
2425 Line: 10695,37,26
2426 Read Passenger:
2427 Passenger 00A96BF8:
2428 Start Time: 10695
2429 Start Floor: 37
2430 End Floor: 26
2431
2432 Line: 10743,23,99
2433 Read Passenger:
2434 Passenger 00A96C38:
2435 Start Time: 10743
2436 Start Floor: 23
2437 End Floor: 99
2438
2439 Line: 10754,68,5
2440 Read Passenger:
2441 Passenger 00A96C78:
2442 Start Time: 10754
2443 Start Floor: 68
2444 End Floor: 5

```
2445
2446 Line: 10790,89,53
2447 Read Passenger:
2448 Passenger 00A96D78:
2449     Start Time: 10790
2450     Start Floor: 89
2451     End Floor: 53
2452
2453 Line: 10838,30,67
2454 Read Passenger:
2455 Passenger 00A96DB8:
2456     Start Time: 10838
2457     Start Floor: 30
2458     End Floor: 67
2459
2460 Line: 10889,21,60
2461 Read Passenger:
2462 Passenger 00A96EB8:
2463     Start Time: 10889
2464     Start Floor: 21
2465     End Floor: 60
2466
2467 Line: 10902,73,43
2468 Read Passenger:
2469 Passenger 00A98758:
2470     Start Time: 10902
2471     Start Floor: 73
2472     End Floor: 43
2473
2474 Line: 10955,13,67
2475 Read Passenger:
2476 Passenger 00A98498:
2477     Start Time: 10955
2478     Start Floor: 13
2479     End Floor: 67
2480
2481 Line: 11014,21,5
2482 Read Passenger:
2483 Passenger 00A98398:
2484     Start Time: 11014
2485     Start Floor: 21
2486     End Floor: 5
2487
2488 Line: 11040,32,53
2489 Read Passenger:
2490 Passenger 00A98558:
2491     Start Time: 11040
2492     Start Floor: 32
2493     End Floor: 53
2494
2495 Line: 11079,18,37
2496 Read Passenger:
```

```
2497 Passenger 00A98918:
2498     Start Time: 11079
2499     Start Floor: 18
2500     End Floor: 37
2501
2502 Line: 11119,53,4
2503 Read Passenger:
2504 Passenger 00A98258:
2505     Start Time: 11119
2506     Start Floor: 53
2507     End Floor: 4
2508
2509 Line: 11119,48,64
2510 Read Passenger:
2511 Passenger 00A983D8:
2512     Start Time: 11119
2513     Start Floor: 48
2514     End Floor: 64
2515
2516 Line: 11134,30,69
2517 Read Passenger:
2518 Passenger 00A985D8:
2519     Start Time: 11134
2520     Start Floor: 30
2521     End Floor: 69
2522
2523 Line: 11155,73,25
2524 Read Passenger:
2525 Passenger 00A98718:
2526     Start Time: 11155
2527     Start Floor: 73
2528     End Floor: 25
2529
2530 Line: 11182,95,7
2531 Read Passenger:
2532 Passenger 00A98898:
2533     Start Time: 11182
2534     Start Floor: 95
2535     End Floor: 7
2536
2537 Line: 11201,57,39
2538 Read Passenger:
2539 Passenger 00A987D8:
2540     Start Time: 11201
2541     Start Floor: 57
2542     End Floor: 39
2543
2544 Line: 11253,57,92
2545 Read Passenger:
2546 Passenger 00A982D8:
2547     Start Time: 11253
2548     Start Floor: 57
```

2549 End Floor: 92
2550
2551 Line: 11258,36,80
2552 Read Passenger:
2553 Passenger 00A988D8:
2554 Start Time: 11258
2555 Start Floor: 36
2556 End Floor: 80
2557
2558 Line: 11300,88,75
2559 Read Passenger:
2560 Passenger 00A98818:
2561 Start Time: 11300
2562 Start Floor: 88
2563 End Floor: 75
2564
2565 Line: 11339,18,42
2566 Read Passenger:
2567 Passenger 00A98698:
2568 Start Time: 11339
2569 Start Floor: 18
2570 End Floor: 42
2571
2572 Line: 11364,76,71
2573 Read Passenger:
2574 Passenger 00A986D8:
2575 Start Time: 11364
2576 Start Floor: 76
2577 End Floor: 71
2578
2579 Line: 11380,28,18
2580 Read Passenger:
2581 Passenger 00A98598:
2582 Start Time: 11380
2583 Start Floor: 28
2584 End Floor: 18
2585
2586 Line: 11423,76,89
2587 Read Passenger:
2588 Passenger 00A98618:
2589 Start Time: 11423
2590 Start Floor: 76
2591 End Floor: 89
2592
2593 Line: 11457,46,10
2594 Read Passenger:
2595 Passenger 00A98658:
2596 Start Time: 11457
2597 Start Floor: 46
2598 End Floor: 10
2599
2600 Line: 11464,79,14

```
2601 Read Passenger:
2602 Passenger 00A984D8:
2603     Start Time: 11464
2604     Start Floor: 79
2605     End Floor: 14
2606
2607 Line: 11472,73,60
2608 Read Passenger:
2609 Passenger 00A98518:
2610     Start Time: 11472
2611     Start Floor: 73
2612     End Floor: 60
2613
2614 Line: 11488,15,96
2615 Read Passenger:
2616 Passenger 00A98318:
2617     Start Time: 11488
2618     Start Floor: 15
2619     End Floor: 96
2620
2621 Line: 11509,68,33
2622 Read Passenger:
2623 Passenger 00A98798:
2624     Start Time: 11509
2625     Start Floor: 68
2626     End Floor: 33
2627
2628 Line: 11520,52,57
2629 Read Passenger:
2630 Passenger 00A98298:
2631     Start Time: 11520
2632     Start Floor: 52
2633     End Floor: 57
2634
2635 Line: 11577,7,75
2636 Read Passenger:
2637 Passenger 00A98958:
2638     Start Time: 11577
2639     Start Floor: 7
2640     End Floor: 75
2641
2642 Line: 11593,53,93
2643 Read Passenger:
2644 Passenger 00A98998:
2645     Start Time: 11593
2646     Start Floor: 53
2647     End Floor: 93
2648
2649 Line: 11616,20,31
2650 Read Passenger:
2651 Passenger 00A98858:
2652     Start Time: 11616
```


2653 Start Floor: 20
2654 End Floor: 31
2655
2656 Line: 11636,66,70
2657 Read Passenger:
2658 Passenger 00A989D8:
2659 Start Time: 11636
2660 Start Floor: 66
2661 End Floor: 70
2662
2663 Line: 11656,82,26
2664 Read Passenger:
2665 Passenger 00A98A18:
2666 Start Time: 11656
2667 Start Floor: 82
2668 End Floor: 26
2669
2670 Line: 11709,28,75
2671 Read Passenger:
2672 Passenger 00A98358:
2673 Start Time: 11709
2674 Start Floor: 28
2675 End Floor: 75
2676
2677 Line: 11732,30,67
2678 Read Passenger:
2679 Passenger 00A98418:
2680 Start Time: 11732
2681 Start Floor: 30
2682 End Floor: 67
2683
2684 Line: 11751,84,75
2685 Read Passenger:
2686 Passenger 00A98458:
2687 Start Time: 11751
2688 Start Floor: 84
2689 End Floor: 75
2690
2691 Line: 11789,49,50
2692 Read Passenger:
2693 Passenger 00A98E98:
2694 Start Time: 11789
2695 Start Floor: 49
2696 End Floor: 50
2697
2698 Line: 11798,40,97
2699 Read Passenger:
2700 Passenger 00A98F58:
2701 Start Time: 11798
2702 Start Floor: 40
2703 End Floor: 97
2704

```
2705 Line: 11831,46,42
2706 Read Passenger:
2707 Passenger 00A98B58:
2708     Start Time: 11831
2709     Start Floor: 46
2710     End Floor: 42
2711
2712 Line: 11876,71,96
2713 Read Passenger:
2714 Passenger 00A98A58:
2715     Start Time: 11876
2716     Start Floor: 71
2717     End Floor: 96
2718
2719 Line: 11906,4,9
2720 Read Passenger:
2721 Passenger 00A98B98:
2722     Start Time: 11906
2723     Start Floor: 4
2724     End Floor: 9
2725
2726 Line: 11929,65,92
2727 Read Passenger:
2728 Passenger 00A98B18:
2729     Start Time: 11929
2730     Start Floor: 65
2731     End Floor: 92
2732
2733 Line: 11975,2,67
2734 Read Passenger:
2735 Passenger 00A98ED8:
2736     Start Time: 11975
2737     Start Floor: 2
2738     End Floor: 67
2739
2740 Line: 12023,2,70
2741 Read Passenger:
2742 Passenger 00A99058:
2743     Start Time: 12023
2744     Start Floor: 2
2745     End Floor: 70
2746
2747 Line: 12058,32,52
2748 Read Passenger:
2749 Passenger 00A98E58:
2750     Start Time: 12058
2751     Start Floor: 32
2752     End Floor: 52
2753
2754 Line: 12062,1,13
2755 Read Passenger:
2756 Passenger 00A98FD8:
```

2757 Start Time: 12062
2758 Start Floor: 1
2759 End Floor: 13
2760
2761 Line: 12118,5,66
2762 Read Passenger:
2763 Passenger 00A990D8:
2764 Start Time: 12118
2765 Start Floor: 5
2766 End Floor: 66
2767
2768 Line: 12153,86,6
2769 Read Passenger:
2770 Passenger 00A98CD8:
2771 Start Time: 12153
2772 Start Floor: 86
2773 End Floor: 6
2774
2775 Line: 12213,10,47
2776 Read Passenger:
2777 Passenger 00A98A98:
2778 Start Time: 12213
2779 Start Floor: 10
2780 End Floor: 47
2781
2782 Line: 12265,74,67
2783 Read Passenger:
2784 Passenger 00A98F18:
2785 Start Time: 12265
2786 Start Floor: 74
2787 End Floor: 67
2788
2789 Line: 12281,71,20
2790 Read Passenger:
2791 Passenger 00A98AD8:
2792 Start Time: 12281
2793 Start Floor: 71
2794 End Floor: 20
2795
2796 Line: 12334,13,15
2797 Read Passenger:
2798 Passenger 00A99018:
2799 Start Time: 12334
2800 Start Floor: 13
2801 End Floor: 15
2802
2803 Line: 12386,22,13
2804 Read Passenger:
2805 Passenger 00A98BD8:
2806 Start Time: 12386
2807 Start Floor: 22
2808 End Floor: 13

```
2809
2810 Line: 12417,54,78
2811 Read Passenger:
2812 Passenger 00A98F98:
2813     Start Time: 12417
2814     Start Floor: 54
2815     End Floor: 78
2816
2817 Line: 12418,81,89
2818 Read Passenger:
2819 Passenger 00A98C18:
2820     Start Time: 12418
2821     Start Floor: 81
2822     End Floor: 89
2823
2824 Line: 12427,9,56
2825 Read Passenger:
2826 Passenger 00A98C98:
2827     Start Time: 12427
2828     Start Floor: 9
2829     End Floor: 56
2830
2831 Line: 12476,70,48
2832 Read Passenger:
2833 Passenger 00A98C58:
2834     Start Time: 12476
2835     Start Floor: 70
2836     End Floor: 48
2837
2838 Line: 12479,32,7
2839 Read Passenger:
2840 Passenger 00A99098:
2841     Start Time: 12479
2842     Start Floor: 32
2843     End Floor: 7
2844
2845 Line: 12516,80,27
2846 Read Passenger:
2847 Passenger 00A98D18:
2848     Start Time: 12516
2849     Start Floor: 80
2850     End Floor: 27
2851
2852 Line: 12526,23,19
2853 Read Passenger:
2854 Passenger 00A99118:
2855     Start Time: 12526
2856     Start Floor: 23
2857     End Floor: 19
2858
2859 Line: 12552,23,25
2860 Read Passenger:
```

2861 Passenger 00A99158:
2862 Start Time: 12552
2863 Start Floor: 23
2864 End Floor: 25
2865
2866 Line: 12592,90,73
2867 Read Passenger:
2868 Passenger 00A99198:
2869 Start Time: 12592
2870 Start Floor: 90
2871 End Floor: 73
2872
2873 Line: 12605,44,9
2874 Read Passenger:
2875 Passenger 00A991D8:
2876 Start Time: 12605
2877 Start Floor: 44
2878 End Floor: 9
2879
2880 Line: 12635,46,56
2881 Read Passenger:
2882 Passenger 00A98D58:
2883 Start Time: 12635
2884 Start Floor: 46
2885 End Floor: 56
2886
2887 Line: 12637,19,69
2888 Read Passenger:
2889 Passenger 00A98D98:
2890 Start Time: 12637
2891 Start Floor: 19
2892 End Floor: 69
2893
2894 Line: 12686,76,25
2895 Read Passenger:
2896 Passenger 00A98DD8:
2897 Start Time: 12686
2898 Start Floor: 76
2899 End Floor: 25
2900
2901 Line: 12720,13,47
2902 Read Passenger:
2903 Passenger 00A98E18:
2904 Start Time: 12720
2905 Start Floor: 13
2906 End Floor: 47
2907
2908 Line: 12740,26,70
2909 Read Passenger:
2910 Passenger 00A998A0:
2911 Start Time: 12740
2912 Start Floor: 26

2913 End Floor: 70
2914
2915 Line: 12777,71,78
2916 Read Passenger:
2917 Passenger 00A99260:
2918 Start Time: 12777
2919 Start Floor: 71
2920 End Floor: 78
2921
2922 Line: 12836,77,9
2923 Read Passenger:
2924 Passenger 00A99960:
2925 Start Time: 12836
2926 Start Floor: 77
2927 End Floor: 9
2928
2929 Line: 12871,4,55
2930 Read Passenger:
2931 Passenger 00A99920:
2932 Start Time: 12871
2933 Start Floor: 4
2934 End Floor: 55
2935
2936 Line: 12878,84,64
2937 Read Passenger:
2938 Passenger 00A995A0:
2939 Start Time: 12878
2940 Start Floor: 84
2941 End Floor: 64
2942
2943 Line: 12898,11,44
2944 Read Passenger:
2945 Passenger 00A999A0:
2946 Start Time: 12898
2947 Start Floor: 11
2948 End Floor: 44
2949
2950 Line: 12935,3,77
2951 Read Passenger:
2952 Passenger 00A992A0:
2953 Start Time: 12935
2954 Start Floor: 3
2955 End Floor: 77
2956
2957 Line: 12979,7,59
2958 Read Passenger:
2959 Passenger 00A99360:
2960 Start Time: 12979
2961 Start Floor: 7
2962 End Floor: 59
2963
2964 Line: 13011,56,24

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2965 Read Passenger:
2966 Passenger 00A992E0:
2967     Start Time: 13011
2968     Start Floor: 56
2969     End Floor: 24
2970
2971 Line: 13046,42,62
2972 Read Passenger:
2973 Passenger 00A996A0:
2974     Start Time: 13046
2975     Start Floor: 42
2976     End Floor: 62
2977
2978 Line: 13078,52,47
2979 Read Passenger:
2980 Passenger 00A99860:
2981     Start Time: 13078
2982     Start Floor: 52
2983     End Floor: 47
2984
2985 Line: 13097,12,20
2986 Read Passenger:
2987 Passenger 00A99660:
2988     Start Time: 13097
2989     Start Floor: 12
2990     End Floor: 20
2991
2992 Line: 13109,60,34
2993 Read Passenger:
2994 Passenger 00A997A0:
2995     Start Time: 13109
2996     Start Floor: 60
2997     End Floor: 34
2998
2999 Line: 13136,80,64
3000 Read Passenger:
3001 Passenger 00A998E0:
3002     Start Time: 13136
3003     Start Floor: 80
3004     End Floor: 64
3005
3006 Line: 13189,93,68
3007 Read Passenger:
3008 Passenger 00A994E0:
3009     Start Time: 13189
3010     Start Floor: 93
3011     End Floor: 68
3012
3013 Line: 13189,53,69
3014 Read Passenger:
3015 Passenger 00A99A20:
3016     Start Time: 13189
```

3017 Start Floor: 53
3018 End Floor: 69
3019
3020 Line: 13246,51,48
3021 Read Passenger:
3022 Passenger 00A995E0:
3023 Start Time: 13246
3024 Start Floor: 51
3025 End Floor: 48
3026
3027 Line: 13259,91,71
3028 Read Passenger:
3029 Passenger 00A99320:
3030 Start Time: 13259
3031 Start Floor: 91
3032 End Floor: 71
3033
3034 Line: 13271,83,83
3035 Read Passenger:
3036 Passenger 00A996E0:
3037 Start Time: 13271
3038 Start Floor: 83
3039 End Floor: 83
3040
3041 Line: 13310,27,81
3042 Read Passenger:
3043 Passenger 00A999E0:
3044 Start Time: 13310
3045 Start Floor: 27
3046 End Floor: 81
3047
3048 Line: 13312,65,34
3049 Read Passenger:
3050 Passenger 00A997E0:
3051 Start Time: 13312
3052 Start Floor: 65
3053 End Floor: 34
3054
3055 Line: 13342,68,44
3056 Read Passenger:
3057 Passenger 00A993A0:
3058 Start Time: 13342
3059 Start Floor: 68
3060 End Floor: 44
3061
3062 Line: 13401,76,1
3063 Read Passenger:
3064 Passenger 00A99820:
3065 Start Time: 13401
3066 Start Floor: 76
3067 End Floor: 1
3068


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3069 Line: 13415,36,79
3070 Read Passenger:
3071 Passenger 00A99520:
3072     Start Time: 13415
3073     Start Floor: 36
3074     End Floor: 79
3075
3076 Line: 13444,68,80
3077 Read Passenger:
3078 Passenger 00A99560:
3079     Start Time: 13444
3080     Start Floor: 68
3081     End Floor: 80
3082
3083 Line: 13470,83,3
3084 Read Passenger:
3085 Passenger 00A993E0:
3086     Start Time: 13470
3087     Start Floor: 83
3088     End Floor: 3
3089
3090 Line: 13490,91,65
3091 Read Passenger:
3092 Passenger 00A99420:
3093     Start Time: 13490
3094     Start Floor: 91
3095     End Floor: 65
3096
3097 Line: 13522,11,77
3098 Read Passenger:
3099 Passenger 00A99460:
3100     Start Time: 13522
3101     Start Floor: 11
3102     End Floor: 77
3103
3104 Line: 13523,26,6
3105 Read Passenger:
3106 Passenger 00A994A0:
3107     Start Time: 13523
3108     Start Floor: 26
3109     End Floor: 6
3110
3111 Line: 13534,15,2
3112 Read Passenger:
3113 Passenger 00A99620:
3114     Start Time: 13534
3115     Start Floor: 15
3116     End Floor: 2
3117
3118 Line: 13553,39,10
3119 Read Passenger:
3120 Passenger 00A99720:
```

3121 Start Time: 13553
3122 Start Floor: 39
3123 End Floor: 10
3124
3125 Line: 13577,75,41
3126 Read Passenger:
3127 Passenger 00A99760:
3128 Start Time: 13577
3129 Start Floor: 75
3130 End Floor: 41
3131
3132 Line: 13611,65,46
3133 Read Passenger:
3134 Passenger 00A99AE0:
3135 Start Time: 13611
3136 Start Floor: 65
3137 End Floor: 46
3138
3139 Line: 13629,37,42
3140 Read Passenger:
3141 Passenger 00A99AA0:
3142 Start Time: 13629
3143 Start Floor: 37
3144 End Floor: 42
3145
3146 Line: 13651,67,93
3147 Read Passenger:
3148 Passenger 00A99BA0:
3149 Start Time: 13651
3150 Start Floor: 67
3151 End Floor: 93
3152
3153 Line: 13688,61,5
3154 Read Passenger:
3155 Passenger 00A9A1E0:
3156 Start Time: 13688
3157 Start Floor: 61
3158 End Floor: 5
3159
3160 Line: 13722,2,44
3161 Read Passenger:
3162 Passenger 00A99CE0:
3163 Start Time: 13722
3164 Start Floor: 2
3165 End Floor: 44
3166
3167 Line: 13754,43,30
3168 Read Passenger:
3169 Passenger 00A99A60:
3170 Start Time: 13754
3171 Start Floor: 43
3172 End Floor: 30

```
3173
3174 Line: 13793,27,60
3175 Read Passenger:
3176 Passenger 00A99E60:
3177     Start Time: 13793
3178     Start Floor: 27
3179     End Floor: 60
3180
3181 Line: 13805,97,20
3182 Read Passenger:
3183 Passenger 00A9A120:
3184     Start Time: 13805
3185     Start Floor: 97
3186     End Floor: 20
3187
3188 Line: 13854,16,88
3189 Read Passenger:
3190 Passenger 00A99B20:
3191     Start Time: 13854
3192     Start Floor: 16
3193     End Floor: 88
3194
3195 Line: 13891,44,51
3196 Read Passenger:
3197 Passenger 00A99B60:
3198     Start Time: 13891
3199     Start Floor: 44
3200     End Floor: 51
3201
3202 Line: 13935,60,53
3203 Read Passenger:
3204 Passenger 00A99BE0:
3205     Start Time: 13935
3206     Start Floor: 60
3207     End Floor: 53
3208
3209 Line: 13991,58,9
3210 Read Passenger:
3211 Passenger 00A9A020:
3212     Start Time: 13991
3213     Start Floor: 58
3214     End Floor: 9
3215
3216 Line: 14045,52,83
3217 Read Passenger:
3218 Passenger 00A99FA0:
3219     Start Time: 14045
3220     Start Floor: 52
3221     End Floor: 83
3222
3223 Line: 14103,33,25
3224 Read Passenger:
```

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3225 Passenger 00A9A060:
3226     Start Time: 14103
3227     Start Floor: 33
3228     End Floor: 25
3229
3230 Line: 14105,60,60
3231 Read Passenger:
3232 Passenger 00A9A0A0:
3233     Start Time: 14105
3234     Start Floor: 60
3235     End Floor: 60
3236
3237 Line: 14115,15,27
3238 Read Passenger:
3239 Passenger 00A99D60:
3240     Start Time: 14115
3241     Start Floor: 15
3242     End Floor: 27
3243
3244 Line: 14121,33,23
3245 Read Passenger:
3246 Passenger 00A99DA0:
3247     Start Time: 14121
3248     Start Floor: 33
3249     End Floor: 23
3250
3251 Line: 14168,94,93
3252 Read Passenger:
3253 Passenger 00A99EA0:
3254     Start Time: 14168
3255     Start Floor: 94
3256     End Floor: 93
3257
3258 Line: 14217,63,14
3259 Read Passenger:
3260 Passenger 00A99C20:
3261     Start Time: 14217
3262     Start Floor: 63
3263     End Floor: 14
3264
3265 Line: 14240,8,28
3266 Read Passenger:
3267 Passenger 00A9A0E0:
3268     Start Time: 14240
3269     Start Floor: 8
3270     End Floor: 28
3271
3272 Line: 14292,24,74
3273 Read Passenger:
3274 Passenger 00A99C60:
3275     Start Time: 14292
3276     Start Floor: 24
```

```
3277     End Floor: 74
3278
3279 Line: 14307,72,96
3280 Read Passenger:
3281 Passenger 00A99DE0:
3282     Start Time: 14307
3283     Start Floor: 72
3284     End Floor: 96
3285
3286 Line: 14343,34,79
3287 Read Passenger:
3288 Passenger 00A99E20:
3289     Start Time: 14343
3290     Start Floor: 34
3291     End Floor: 79
3292
3293 Line: 14377,9,92
3294 Read Passenger:
3295 Passenger 00A9A160:
3296     Start Time: 14377
3297     Start Floor: 9
3298     End Floor: 92
3299
3300 Line: 14408,74,44
3301 Read Passenger:
3302 Passenger 00A99CA0:
3303     Start Time: 14408
3304     Start Floor: 74
3305     End Floor: 44
3306
3307 Line: 14423,21,39
3308 Read Passenger:
3309 Passenger 00A99EE0:
3310     Start Time: 14423
3311     Start Floor: 21
3312     End Floor: 39
3313
3314 Line: 14430,32,21
3315 Read Passenger:
3316 Passenger 00A99F20:
3317     Start Time: 14430
3318     Start Floor: 32
3319     End Floor: 21
3320
3321 Line: 14473,34,36
3322 Read Passenger:
3323 Passenger 00A99F60:
3324     Start Time: 14473
3325     Start Floor: 34
3326     End Floor: 36
3327
3328 Line: 14530,10,96
```

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3329 Read Passenger:
3330 Passenger 00A99D20:
3331     Start Time: 14530
3332     Start Floor: 10
3333     End Floor: 96
3334
3335 Line: 14551,79,86
3336 Read Passenger:
3337 Passenger 00A9A1A0:
3338     Start Time: 14551
3339     Start Floor: 79
3340     End Floor: 86
3341
3342 Line: 14552,30,34
3343 Read Passenger:
3344 Passenger 00A99FE0:
3345     Start Time: 14552
3346     Start Floor: 30
3347     End Floor: 34
3348
3349 Line: 14569,30,97
3350 Read Passenger:
3351 Passenger 00A9BD30:
3352     Start Time: 14569
3353     Start Floor: 30
3354     End Floor: 97
3355
3356 Line: 14617,42,83
3357 Read Passenger:
3358 Passenger 00A9B6B0:
3359     Start Time: 14617
3360     Start Floor: 42
3361     End Floor: 83
3362
3363 Line: 14619,73,54
3364 Read Passenger:
3365 Passenger 00A9BBB0:
3366     Start Time: 14619
3367     Start Floor: 73
3368     End Floor: 54
3369
3370 Line: 14644,67,10
3371 Read Passenger:
3372 Passenger 00A9B5B0:
3373     Start Time: 14644
3374     Start Floor: 67
3375     End Floor: 10
3376
3377 Line: 14680,96,46
3378 Read Passenger:
3379 Passenger 00A9B770:
3380     Start Time: 14680
```

3381 Start Floor: 96
3382 End Floor: 46
3383
3384 Line: 14734,17,82
3385 Read Passenger:
3386 Passenger 00A9BCB0:
3387 Start Time: 14734
3388 Start Floor: 17
3389 End Floor: 82
3390
3391 Line: 14763,61,3
3392 Read Passenger:
3393 Passenger 00A9B730:
3394 Start Time: 14763
3395 Start Floor: 61
3396 End Floor: 3
3397
3398 Line: 14767,20,79
3399 Read Passenger:
3400 Passenger 00A9BA30:
3401 Start Time: 14767
3402 Start Floor: 20
3403 End Floor: 79
3404
3405 Line: 14789,39,29
3406 Read Passenger:
3407 Passenger 00A9B670:
3408 Start Time: 14789
3409 Start Floor: 39
3410 End Floor: 29
3411
3412 Line: 14845,19,17
3413 Read Passenger:
3414 Passenger 00A9BC70:
3415 Start Time: 14845
3416 Start Floor: 19
3417 End Floor: 17
3418
3419 Line: 14858,12,40
3420 Read Passenger:
3421 Passenger 00A9BBF0:
3422 Start Time: 14858
3423 Start Floor: 12
3424 End Floor: 40
3425
3426 Line: 14904,22,62
3427 Read Passenger:
3428 Passenger 00A9B5F0:
3429 Start Time: 14904
3430 Start Floor: 22
3431 End Floor: 62
3432

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3433 Line: 14937,90,94
3434 Read Passenger:
3435 Passenger 00A9BC30:
3436     Start Time: 14937
3437     Start Floor: 90
3438     End Floor: 94
3439
3440 Line: 14940,89,19
3441 Read Passenger:
3442 Passenger 00A9B8F0:
3443     Start Time: 14940
3444     Start Floor: 89
3445     End Floor: 19
3446
3447 Line: 14955,85,89
3448 Read Passenger:
3449 Passenger 00A9BB70:
3450     Start Time: 14955
3451     Start Floor: 85
3452     End Floor: 89
3453
3454 Line: 14960,35,35
3455 Read Passenger:
3456 Passenger 00A9BCF0:
3457     Start Time: 14960
3458     Start Floor: 35
3459     End Floor: 35
3460
3461 Line: 14995,57,67
3462 Read Passenger:
3463 Passenger 00A9B8B0:
3464     Start Time: 14995
3465     Start Floor: 57
3466     End Floor: 67
3467
3468 Line: 15037,50,45
3469 Read Passenger:
3470 Passenger 00A9B7F0:
3471     Start Time: 15037
3472     Start Floor: 50
3473     End Floor: 45
3474
3475 Line: 15071,7,43
3476 Read Passenger:
3477 Passenger 00A9B970:
3478     Start Time: 15071
3479     Start Floor: 7
3480     End Floor: 43
3481
3482 Line: 15114,67,23
3483 Read Passenger:
3484 Passenger 00A9B930:
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3485     Start Time: 15114
3486     Start Floor: 67
3487     End Floor: 23
3488
3489 Line: 15120,8,36
3490 Read Passenger:
3491 Passenger 00A9BA70:
3492     Start Time: 15120
3493     Start Floor: 8
3494     End Floor: 36
3495
3496 Line: 15122,91,2
3497 Read Passenger:
3498 Passenger 00A9B9F0:
3499     Start Time: 15122
3500     Start Floor: 91
3501     End Floor: 2
3502
3503 Line: 15155,33,62
3504 Read Passenger:
3505 Passenger 00A9B630:
3506     Start Time: 15155
3507     Start Floor: 33
3508     End Floor: 62
3509
3510 Line: 15215,42,76
3511 Read Passenger:
3512 Passenger 00A9B9B0:
3513     Start Time: 15215
3514     Start Floor: 42
3515     End Floor: 76
3516
3517 Running Sim with Elevator TimeToFloor 10
3518
3519 Sim Complete
3520
3521 Running Sim with Elevator TimeToFloor 5
3522
3523 Sim Complete
3524
3525 For Elevator Speed 10:
3526     Avg Wait Time: 6941.95 seconds
3527     Avg Travel Time: 7347.46 seconds
3528
3529 For Elevator Speed 5:
3530     Avg Wait Time: 5821.72 seconds
3531     Avg Travel Time: 6062.73 seconds
3532
3533 Wait Time Reduction: 16.1372%
3534 Travel Time Reduction: 17.4853%
3535
```