Lab 9

Source Code

// Name: Preston Knibbe

// elevator controller (simulator)

// Finish functions marked with "Finish ME"

// Hints please finish the functions in the following order:

// int Elevator::Random(int StartRange, int EndRange)

// void Elevator::GetOnElevator()

// void Elevator::DetermineFloorAndDirection()

// void Elevator::ElevatorStatus()

// void Elevator::PrintStats()

#include <iostream>

#include <cstdio>

#include <cstdlib>

#include <unistd.h>

#include <ctime>

#include <vector>

using namespace std;

// CONSTANTS in C preprocessor language style (before the advent of the const keyword)

#define UP 0

#define DOWN 1

#define STOPPED 2

#define ON\_ELEVATOR 3

#define WAITING 4

#define EMPTY 5

#define MAX\_PEOPLE 10

#define TOP\_FLOOR 10

#define BOTTOM\_FLOOR 1

#define MAX\_BUTTON\_PUSHS 3

// Data type for a Elevator Passenger

struct Passenger

{

int DestFloor;

int SourceFloor;

int State; // ON\_ELEVATOR, WAITING, or EMPTY

int Number;

};

class Elevator

{

public:

Elevator();

// The ElevatorControl function calls the other functions in a logical

// Manner

void ElevatorControl();

private:

int totalPeople;

int Random(int,int); // Function to Generator Random #s in a specific range

// Data

int CurrentDirection; // (UpOrDown): States: UP/DOWN/STOPPED

int CurrentFloor; // Which floor is the Elevator on

int LastPassengerID; //

int stats[TOP\_FLOOR+1][3];// Stats Counters for ON/OFF/TO FULL

vector<Passenger> Queue; // Queue to get on Elevator

Passenger ElevatorContents[MAX\_PEOPLE]; // Persons on the Elevator

// Functions that do most of the work.

void ButtonPushed();

void GetOffElevator();

void GetOnElevator();

void ElevatorStatus();

void DetermineFloorAndDirection();

void PrintStats();

};

// Constructor for elevator class. It just initializes the state of the internal

// class variables.

Elevator::Elevator()

{

srand(time(0));

LastPassengerID = 0;

CurrentFloor = (TOP\_FLOOR-BOTTOM\_FLOOR)/2;

CurrentDirection = DOWN;

totalPeople = 0;

for( int i = 0; i < MAX\_PEOPLE; i++)

ElevatorContents[i].State = EMPTY;

for(int i = BOTTOM\_FLOOR; i < TOP\_FLOOR+1;i++)

{

stats[i][0] = 0;

stats[i][1] = 0;

stats[i][2] = 0;

}

}

// This function controls the entire simulation and it calls the other functions in the proper order

void Elevator::ElevatorControl()

{

for ( int i = 0; i <= 100; i++)

{

ButtonPushed();

ElevatorStatus();

GetOffElevator();

GetOnElevator();

DetermineFloorAndDirection();

if( (i % 50) == 0 && (i != 0)) {

PrintStats();

}

//sleep(2);

}

}

// This function determines in what direction and to what floor the elevator will

// go to next. If the elevator as at the BOTTOM\_FLOOR than it should go UP and if the elevator is at

// the TOP\_FLOOR it should go down. In all other cases it should continue going in the same direction.

//

// Finish ME

void Elevator::DetermineFloorAndDirection()

{

if(ElevatorContents[0].State==EMPTY) {

for (int a = 0; a < Queue.size(); a++) {

if (Queue[a].State == WAITING) {

CurrentFloor = Queue[a].SourceFloor;

if (Queue[a].SourceFloor > Queue[a].DestFloor) {

CurrentDirection = DOWN;

} else if (Queue[a].SourceFloor < Queue[a].DestFloor) {

CurrentDirection = UP;

}

}

}

} else {

if (CurrentDirection == UP) {

int nextFloor = TOP\_FLOOR;

for (int c = 0; c < MAX\_PEOPLE; c++) {

if (ElevatorContents[c].DestFloor < nextFloor &&

ElevatorContents[c].DestFloor > CurrentFloor) {

nextFloor = ElevatorContents[c].DestFloor;

}

}

for (int x = 0; x < Queue.size(); x++) {

if (Queue[x].SourceFloor > CurrentFloor &&

Queue[x].SourceFloor < nextFloor &&

Queue[x].DestFloor > Queue[x].SourceFloor) {

nextFloor = Queue[x].SourceFloor;

}

}

CurrentFloor = nextFloor;

} else if (CurrentDirection == DOWN) {

int nextFloor = BOTTOM\_FLOOR;

for (int a = 0; a < MAX\_PEOPLE; a++) {

if (ElevatorContents[a].DestFloor > nextFloor &&

ElevatorContents[a].DestFloor < CurrentFloor &&

Queue[a].DestFloor < Queue[a].SourceFloor) {

nextFloor = ElevatorContents[a].DestFloor;

}

}

for (int b = 0; b < Queue.size(); b++) {

if (Queue[b].SourceFloor < CurrentFloor &&

Queue[b].SourceFloor > nextFloor) {

nextFloor = Queue[b].SourceFloor;

}

}

CurrentFloor = nextFloor;

}

}

if (CurrentFloor == TOP\_FLOOR) {

CurrentDirection = DOWN;

} else if (CurrentFloor == BOTTOM\_FLOOR) {

CurrentDirection = UP;

}

}

// This function places passengers in a Queue waiting for the elevator. It sets

// the status to WAITING for these new passengers. It makes sure that the passenger

// is actually going to a different floor.

void Elevator::ButtonPushed()

{

for( int i = 0; i < Random(0, MAX\_BUTTON\_PUSHS); i++)

{

Passenger NewPerson;

int SourceFloor = Random(BOTTOM\_FLOOR, TOP\_FLOOR);

int DestFloor = Random(BOTTOM\_FLOOR, TOP\_FLOOR);

while(SourceFloor == DestFloor)

DestFloor = Random(BOTTOM\_FLOOR, TOP\_FLOOR);

NewPerson.SourceFloor = SourceFloor;

NewPerson.DestFloor = DestFloor;

NewPerson.State = WAITING;

NewPerson.Number = LastPassengerID;

Queue.push\_back(NewPerson);

LastPassengerID++;

}

}

// This function allows the passenger to leave the elevator once the elevator is at the correct

// floor and than updates the stats

// It sets it ElevatorContents to EMPTY to free up room for the next passenger to get on.

void Elevator::GetOffElevator()

{

for( int i = 0; i < MAX\_PEOPLE; i++) {

if (ElevatorContents[i].State != EMPTY &&

ElevatorContents[i].DestFloor == CurrentFloor) {

ElevatorContents[i].State = EMPTY;

cout << "\tPerson# " << ElevatorContents[i].Number

<< " OFF on floor: " << CurrentFloor

<< " From floor: "

<< ElevatorContents[i].SourceFloor

<< endl;

stats[CurrentFloor-1][1] = stats[CurrentFloor-1][1] + 1;

break;

}

}

}

// This function determines if the passenger get on. It checks the direction of the elevator,

// if the elevator has room for a new passenger, and what floor the passenger is waiting on to see if

// the elevator is on the correct floor the passenger.

// It removes the passenger from the queue by setting the passenger QUEUE STATE to EMPTY

// Finish ME

void Elevator::GetOnElevator()

{

// The following for loop is for testing only

/\*cout << Queue.size() << endl;

for( int i = 0; i < Queue.size(); i++) {

if(Queue[i].State == WAITING)

cout << "Passenger Waiting on : " << Queue[i].SourceFloor <<

" To go to floor: " << Queue[i].DestFloor << endl;

}\*/

for(int i = 0; i < Queue.size(); i++) {

if (Queue[i].SourceFloor == CurrentFloor) {

if (Queue[i].DestFloor>Queue[i].SourceFloor && CurrentDirection == UP) {

for (int b = 0; b < MAX\_PEOPLE; b++) {

if (ElevatorContents[b].State == EMPTY) {

ElevatorContents[b] = Queue[i];

ElevatorContents[b].State = ON\_ELEVATOR;

totalPeople ++;

Queue[i].State = EMPTY;

cout << "\tPerson# " << ElevatorContents[b].Number

<< " ON at floor: " << CurrentFloor

<< " to go to: "

<< ElevatorContents[b].DestFloor

<< endl;

break;

} else {

stats[CurrentFloor-1][2] = stats[CurrentFloor-1][2] + 1;

}

}

} else if (Queue[i].DestFloor<Queue[i].SourceFloor && CurrentDirection == DOWN) {

for (int b = 0; b < MAX\_PEOPLE; b++) {

if (ElevatorContents[b].State == EMPTY) {

ElevatorContents[b] = Queue[i];

ElevatorContents[b].State = ON\_ELEVATOR;

totalPeople ++;

Queue[i].State = EMPTY;

cout << "\tPerson# " << ElevatorContents[b].Number

<< " ON at floor: " << CurrentFloor

<< " to go to: "

<< ElevatorContents[b].DestFloor

<< endl;

break;

} else {

stats[CurrentFloor-1][2] = stats[CurrentFloor-1][2] + 1;

}

}

}

}

}

stats[CurrentFloor-1][0] = stats[CurrentFloor-1][0] + 1;

// This bit of code is used to clean the queue after someone gets on the elevator

for( int i = 0; i < Queue.size(); i++) {

if(Queue[i].State == EMPTY)

Queue.erase(Queue.begin()+i);

}

}

// Displays the Elevator Direction, Number of Passengers, Current Floor, and

// Sim Time (you will need to add Sim Time to your class (if you want to use it))

// Finish ME

void Elevator::ElevatorStatus()

{

int people = 0;

for (int a = 0; a < MAX\_PEOPLE; a++) {

if (ElevatorContents[a].State == ON\_ELEVATOR) {

people++;

}

}

string direction;

if (CurrentDirection == 0) {

direction = "UP";

} else if (CurrentDirection == 1) {

direction = "DOWN";

}

cout << "Elevator Status: "

<< " Floor: " << CurrentFloor

<< " Number of Passengers: " << people

<< " Direction: " << direction

<< endl;

}

// Displays the stats for number of passengers getting on and off at particular floor, total passengers

// Handled by the elevator, and if no room was on the elevator for new passengers.

// It mainly uses the stats[][] array.

// Finish ME

void Elevator::PrintStats()

{

cout << "Floor\t" << "Src\t" << "Dstn\t" << "Full" << endl;

for (int a = 0; a < TOP\_FLOOR; a++) {

cout << a+1 << "\t";

for (int b = 0; b < 3; b++) {

cout << stats[a][b] << "\t";

}

cout << endl;

}

cout << "Total passengers: " << totalPeople << endl;

}

// Returns a random number between StartRange and EndRange

// Finish ME

int Elevator::Random(int StartRange, int EndRange)

{

int random = rand() % EndRange + StartRange;

return random;

}

// Creates the class and runs the simulation

int main()

{

Elevator Elevator1;

Elevator1.ElevatorControl();

return 0;

}

Code Output

1.

Elevator Status: Floor: 4 Number of Passengers: 0 Direction: DOWN

Elevator Status: Floor: 4 Number of Passengers: 0 Direction: DOWN

Elevator Status: Floor: 8 Number of Passengers: 0 Direction: DOWN

Person# 1 ON at floor: 8 to go to: 6

Elevator Status: Floor: 5 Number of Passengers: 1 Direction: DOWN

Elevator Status: Floor: 3 Number of Passengers: 1 Direction: DOWN

Elevator Status: Floor: 1 Number of Passengers: 1 Direction: UP

Elevator Status: Floor: 3 Number of Passengers: 1 Direction: UP

Person# 3 ON at floor: 3 to go to: 9

Elevator Status: Floor: 4 Number of Passengers: 2 Direction: UP

Person# 8 ON at floor: 4 to go to: 5

Elevator Status: Floor: 5 Number of Passengers: 3 Direction: UP

Person# 8 OFF on floor: 5 From floor: 4

Person# 0 ON at floor: 5 to go to: 10

Person# 2 ON at floor: 5 to go to: 10

Elevator Status: Floor: 6 Number of Passengers: 4 Direction: UP

Person# 1 OFF on floor: 6 From floor: 8

Person# 4 ON at floor: 6 to go to: 8

Elevator Status: Floor: 7 Number of Passengers: 4 Direction: UP

Person# 10 ON at floor: 7 to go to: 8

Elevator Status: Floor: 8 Number of Passengers: 5 Direction: UP

Person# 4 OFF on floor: 8 From floor: 6

Elevator Status: Floor: 9 Number of Passengers: 4 Direction: DOWN

Person# 3 OFF on floor: 9 From floor: 3

Person# 13 ON at floor: 9 to go to: 5

Elevator Status: Floor: 7 Number of Passengers: 4 Direction: DOWN

Person# 12 ON at floor: 7 to go to: 6

Elevator Status: Floor: 6 Number of Passengers: 5 Direction: DOWN

Person# 12 OFF on floor: 6 From floor: 7

Person# 6 ON at floor: 6 to go to: 5

Person# 9 ON at floor: 6 to go to: 2

Person# 17 ON at floor: 6 to go to: 4

Elevator Status: Floor: 5 Number of Passengers: 7 Direction: DOWN

Person# 13 OFF on floor: 5 From floor: 9

Person# 7 ON at floor: 5 to go to: 1

Elevator Status: Floor: 3 Number of Passengers: 7 Direction: DOWN

Elevator Status: Floor: 2 Number of Passengers: 7 Direction: DOWN

Person# 9 OFF on floor: 2 From floor: 6

Elevator Status: Floor: 1 Number of Passengers: 6 Direction: UP

Person# 7 OFF on floor: 1 From floor: 5

Elevator Status: Floor: 3 Number of Passengers: 5 Direction: UP

Person# 16 ON at floor: 3 to go to: 10

Person# 18 ON at floor: 3 to go to: 8

Elevator Status: Floor: 4 Number of Passengers: 7 Direction: UP

Person# 17 OFF on floor: 4 From floor: 6

Elevator Status: Floor: 5 Number of Passengers: 6 Direction: UP

Person# 6 OFF on floor: 5 From floor: 6

Person# 19 ON at floor: 5 to go to: 10

Elevator Status: Floor: 6 Number of Passengers: 6 Direction: UP

Person# 20 ON at floor: 6 to go to: 8

Elevator Status: Floor: 8 Number of Passengers: 7 Direction: UP

Person# 10 OFF on floor: 8 From floor: 7

Elevator Status: Floor: 10 Number of Passengers: 6 Direction: DOWN

Person# 16 OFF on floor: 10 From floor: 3

Person# 5 ON at floor: 10 to go to: 3

Person# 14 ON at floor: 10 to go to: 9

Elevator Status: Floor: 9 Number of Passengers: 7 Direction: DOWN

Person# 14 OFF on floor: 9 From floor: 10

Person# 24 ON at floor: 9 to go to: 7

Elevator Status: Floor: 6 Number of Passengers: 7 Direction: DOWN

Person# 22 ON at floor: 6 to go to: 5

Elevator Status: Floor: 4 Number of Passengers: 8 Direction: DOWN

Elevator Status: Floor: 2 Number of Passengers: 8 Direction: DOWN

Elevator Status: Floor: 1 Number of Passengers: 8 Direction: UP

Person# 21 ON at floor: 1 to go to: 7

Person# 23 ON at floor: 1 to go to: 10

Elevator Status: Floor: 2 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 3 Number of Passengers: 10 Direction: UP

Person# 5 OFF on floor: 3 From floor: 10

Elevator Status: Floor: 5 Number of Passengers: 9 Direction: UP

Person# 22 OFF on floor: 5 From floor: 6

Person# 34 ON at floor: 5 to go to: 7

Elevator Status: Floor: 6 Number of Passengers: 9 Direction: UP

Person# 27 ON at floor: 6 to go to: 9

Elevator Status: Floor: 7 Number of Passengers: 10 Direction: UP

Person# 34 OFF on floor: 7 From floor: 5

Elevator Status: Floor: 3 Number of Passengers: 9 Direction: UP

Person# 36 ON at floor: 3 to go to: 4

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: UP

Person# 36 OFF on floor: 4 From floor: 3

Person# 25 ON at floor: 4 to go to: 7

Elevator Status: Floor: 6 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 7 Number of Passengers: 10 Direction: UP

Person# 25 OFF on floor: 7 From floor: 4

Elevator Status: Floor: 2 Number of Passengers: 9 Direction: UP

Person# 11 ON at floor: 2 to go to: 4

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: UP

Person# 11 OFF on floor: 4 From floor: 2

Person# 28 ON at floor: 4 to go to: 8

Elevator Status: Floor: 6 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 7 Number of Passengers: 10 Direction: UP

Person# 24 OFF on floor: 7 From floor: 9

Person# 38 ON at floor: 7 to go to: 8

Elevator Status: Floor: 8 Number of Passengers: 10 Direction: UP

Person# 28 OFF on floor: 8 From floor: 4

Elevator Status: Floor: 6 Number of Passengers: 9 Direction: DOWN

Person# 33 ON at floor: 6 to go to: 2

Elevator Status: Floor: 5 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 2 Number of Passengers: 10 Direction: DOWN

Person# 33 OFF on floor: 2 From floor: 6

Elevator Status: Floor: 1 Number of Passengers: 9 Direction: UP

Person# 26 ON at floor: 1 to go to: 2

Elevator Status: Floor: 2 Number of Passengers: 10 Direction: UP

Person# 26 OFF on floor: 2 From floor: 1

Person# 15 ON at floor: 2 to go to: 7

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: UP

Floor Src Dstn Full

1 10 1 63

2 6 3 50

3 6 1 6

4 9 3 32

5 6 4 16

6 8 2 72

7 5 3 9

8 4 3 0

9 2 2 4

10 1 1 4

Total passengers: 33

Elevator Status: Floor: 6 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 7 Number of Passengers: 10 Direction: UP

Person# 15 OFF on floor: 7 From floor: 2

Elevator Status: Floor: 10 Number of Passengers: 9 Direction: DOWN

Person# 19 OFF on floor: 10 From floor: 5

Person# 50 ON at floor: 10 to go to: 2

Elevator Status: Floor: 9 Number of Passengers: 9 Direction: DOWN

Person# 27 OFF on floor: 9 From floor: 6

Person# 30 ON at floor: 9 to go to: 1

Elevator Status: Floor: 8 Number of Passengers: 9 Direction: DOWN

Person# 38 OFF on floor: 8 From floor: 7

Person# 37 ON at floor: 8 to go to: 7

Person# 44 ON at floor: 8 to go to: 6

Elevator Status: Floor: 6 Number of Passengers: 10 Direction: DOWN

Person# 44 OFF on floor: 6 From floor: 8

Person# 40 ON at floor: 6 to go to: 4

Elevator Status: Floor: 5 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: DOWN

Person# 40 OFF on floor: 4 From floor: 6

Person# 52 ON at floor: 4 to go to: 2

Elevator Status: Floor: 3 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 2 Number of Passengers: 10 Direction: DOWN

Person# 50 OFF on floor: 2 From floor: 10

Elevator Status: Floor: 7 Number of Passengers: 9 Direction: UP

Person# 37 OFF on floor: 7 From floor: 8

Person# 56 ON at floor: 7 to go to: 10

Person# 57 ON at floor: 7 to go to: 10

Elevator Status: Floor: 8 Number of Passengers: 10 Direction: UP

Person# 18 OFF on floor: 8 From floor: 3

Elevator Status: Floor: 10 Number of Passengers: 9 Direction: DOWN

Person# 56 OFF on floor: 10 From floor: 7

Elevator Status: Floor: 2 Number of Passengers: 8 Direction: UP

Person# 52 OFF on floor: 2 From floor: 4

Person# 35 ON at floor: 2 to go to: 7

Person# 47 ON at floor: 2 to go to: 9

Person# 59 ON at floor: 2 to go to: 6

Elevator Status: Floor: 3 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 6 Number of Passengers: 10 Direction: UP

Person# 59 OFF on floor: 6 From floor: 2

Person# 32 ON at floor: 6 to go to: 9

Elevator Status: Floor: 7 Number of Passengers: 10 Direction: UP

Person# 35 OFF on floor: 7 From floor: 2

Elevator Status: Floor: 1 Number of Passengers: 9 Direction: UP

Person# 30 OFF on floor: 1 From floor: 9

Person# 29 ON at floor: 1 to go to: 4

Person# 43 ON at floor: 1 to go to: 2

Elevator Status: Floor: 2 Number of Passengers: 10 Direction: UP

Person# 43 OFF on floor: 2 From floor: 1

Elevator Status: Floor: 3 Number of Passengers: 9 Direction: UP

Person# 48 ON at floor: 3 to go to: 10

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: UP

Person# 29 OFF on floor: 4 From floor: 1

Person# 39 ON at floor: 4 to go to: 8

Elevator Status: Floor: 6 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 7 Number of Passengers: 10 Direction: UP

Person# 21 OFF on floor: 7 From floor: 1

Elevator Status: Floor: 8 Number of Passengers: 9 Direction: UP

Person# 39 OFF on floor: 8 From floor: 4

Person# 66 ON at floor: 8 to go to: 10

Elevator Status: Floor: 9 Number of Passengers: 9 Direction: UP

Person# 47 OFF on floor: 9 From floor: 2

Elevator Status: Floor: 10 Number of Passengers: 8 Direction: DOWN

Person# 66 OFF on floor: 10 From floor: 8

Person# 61 ON at floor: 10 to go to: 6

Elevator Status: Floor: 9 Number of Passengers: 8 Direction: DOWN

Person# 32 OFF on floor: 9 From floor: 6

Person# 65 ON at floor: 9 to go to: 5

Elevator Status: Floor: 8 Number of Passengers: 8 Direction: DOWN

Person# 20 OFF on floor: 8 From floor: 6

Person# 46 ON at floor: 8 to go to: 5

Person# 49 ON at floor: 8 to go to: 6

Person# 51 ON at floor: 8 to go to: 6

Elevator Status: Floor: 6 Number of Passengers: 10 Direction: DOWN

Person# 61 OFF on floor: 6 From floor: 10

Person# 41 ON at floor: 6 to go to: 5

Elevator Status: Floor: 5 Number of Passengers: 10 Direction: DOWN

Person# 41 OFF on floor: 5 From floor: 6

Person# 31 ON at floor: 5 to go to: 3

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 3 Number of Passengers: 10 Direction: DOWN

Person# 31 OFF on floor: 3 From floor: 5

Person# 64 ON at floor: 3 to go to: 2

Elevator Status: Floor: 2 Number of Passengers: 10 Direction: DOWN

Person# 64 OFF on floor: 2 From floor: 3

Elevator Status: Floor: 1 Number of Passengers: 9 Direction: UP

Person# 55 ON at floor: 1 to go to: 8

Elevator Status: Floor: 2 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 3 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 5 Number of Passengers: 10 Direction: UP

Person# 65 OFF on floor: 5 From floor: 9

Elevator Status: Floor: 6 Number of Passengers: 9 Direction: UP

Person# 49 OFF on floor: 6 From floor: 8

Person# 45 ON at floor: 6 to go to: 8

Elevator Status: Floor: 8 Number of Passengers: 9 Direction: UP

Person# 55 OFF on floor: 8 From floor: 1

Elevator Status: Floor: 4 Number of Passengers: 8 Direction: UP

Person# 42 ON at floor: 4 to go to: 8

Person# 78 ON at floor: 4 to go to: 7

Elevator Status: Floor: 5 Number of Passengers: 10 Direction: UP

Person# 46 OFF on floor: 5 From floor: 8

Elevator Status: Floor: 6 Number of Passengers: 9 Direction: UP

Person# 51 OFF on floor: 6 From floor: 8

Elevator Status: Floor: 7 Number of Passengers: 8 Direction: UP

Person# 78 OFF on floor: 7 From floor: 4

Person# 80 ON at floor: 7 to go to: 9

Elevator Status: Floor: 8 Number of Passengers: 8 Direction: UP

Person# 42 OFF on floor: 8 From floor: 4

Elevator Status: Floor: 8 Number of Passengers: 7 Direction: DOWN

Person# 45 OFF on floor: 8 From floor: 6

Person# 71 ON at floor: 8 to go to: 2

Person# 81 ON at floor: 8 to go to: 7

Person# 82 ON at floor: 8 to go to: 4

Elevator Status: Floor: 6 Number of Passengers: 9 Direction: DOWN

Elevator Status: Floor: 5 Number of Passengers: 9 Direction: DOWN

Person# 58 ON at floor: 5 to go to: 2

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: DOWN

Person# 82 OFF on floor: 4 From floor: 8

Person# 53 ON at floor: 4 to go to: 2

Floor Src Dstn Full

1 12 2 104

2 11 7 72

3 11 2 67

4 16 6 133

5 11 7 54

6 16 7 141

7 10 8 19

8 11 10 74

9 5 5 10

10 4 4 4

Total passengers: 68

Process returned 0 (0x0) execution time : 0.820 s

Press any key to continue.

Code Output

2.

Elevator Status: Floor: 4 Number of Passengers: 0 Direction: DOWN

Elevator Status: Floor: 5 Number of Passengers: 0 Direction: UP

Person# 1 ON at floor: 5 to go to: 10

Elevator Status: Floor: 10 Number of Passengers: 1 Direction: DOWN

Person# 1 OFF on floor: 10 From floor: 5

Elevator Status: Floor: 7 Number of Passengers: 0 Direction: DOWN

Person# 0 ON at floor: 7 to go to: 3

Person# 3 ON at floor: 7 to go to: 4

Elevator Status: Floor: 4 Number of Passengers: 2 Direction: DOWN

Person# 3 OFF on floor: 4 From floor: 7

Elevator Status: Floor: 3 Number of Passengers: 1 Direction: DOWN

Person# 0 OFF on floor: 3 From floor: 7

Elevator Status: Floor: 3 Number of Passengers: 0 Direction: UP

Person# 2 ON at floor: 3 to go to: 8

Person# 4 ON at floor: 3 to go to: 5

Elevator Status: Floor: 5 Number of Passengers: 2 Direction: UP

Person# 4 OFF on floor: 5 From floor: 3

Elevator Status: Floor: 8 Number of Passengers: 1 Direction: UP

Person# 2 OFF on floor: 8 From floor: 3

Elevator Status: Floor: 5 Number of Passengers: 0 Direction: DOWN

Person# 8 ON at floor: 5 to go to: 3

Elevator Status: Floor: 3 Number of Passengers: 1 Direction: DOWN

Person# 8 OFF on floor: 3 From floor: 5

Elevator Status: Floor: 2 Number of Passengers: 0 Direction: UP

Person# 7 ON at floor: 2 to go to: 4

Elevator Status: Floor: 4 Number of Passengers: 1 Direction: UP

Person# 7 OFF on floor: 4 From floor: 2

Elevator Status: Floor: 5 Number of Passengers: 0 Direction: UP

Person# 10 ON at floor: 5 to go to: 9

Elevator Status: Floor: 9 Number of Passengers: 1 Direction: UP

Person# 10 OFF on floor: 9 From floor: 5

Elevator Status: Floor: 10 Number of Passengers: 0 Direction: DOWN

Person# 12 ON at floor: 10 to go to: 5

Elevator Status: Floor: 9 Number of Passengers: 1 Direction: DOWN

Person# 6 ON at floor: 9 to go to: 1

Elevator Status: Floor: 8 Number of Passengers: 2 Direction: DOWN

Person# 5 ON at floor: 8 to go to: 4

Elevator Status: Floor: 7 Number of Passengers: 3 Direction: DOWN

Person# 9 ON at floor: 7 to go to: 1

Elevator Status: Floor: 6 Number of Passengers: 4 Direction: DOWN

Elevator Status: Floor: 5 Number of Passengers: 4 Direction: DOWN

Person# 12 OFF on floor: 5 From floor: 10

Elevator Status: Floor: 8 Number of Passengers: 3 Direction: DOWN

Person# 16 ON at floor: 8 to go to: 1

Elevator Status: Floor: 6 Number of Passengers: 4 Direction: DOWN

Elevator Status: Floor: 5 Number of Passengers: 4 Direction: DOWN

Elevator Status: Floor: 3 Number of Passengers: 4 Direction: DOWN

Person# 20 ON at floor: 3 to go to: 2

Elevator Status: Floor: 2 Number of Passengers: 5 Direction: DOWN

Person# 20 OFF on floor: 2 From floor: 3

Elevator Status: Floor: 1 Number of Passengers: 4 Direction: UP

Person# 16 OFF on floor: 1 From floor: 8

Elevator Status: Floor: 4 Number of Passengers: 3 Direction: UP

Person# 5 OFF on floor: 4 From floor: 8

Person# 19 ON at floor: 4 to go to: 6

Person# 22 ON at floor: 4 to go to: 8

Person# 24 ON at floor: 4 to go to: 5

Elevator Status: Floor: 5 Number of Passengers: 5 Direction: UP

Person# 24 OFF on floor: 5 From floor: 4

Person# 13 ON at floor: 5 to go to: 8

Elevator Status: Floor: 6 Number of Passengers: 5 Direction: UP

Person# 19 OFF on floor: 6 From floor: 4

Person# 11 ON at floor: 6 to go to: 10

Person# 23 ON at floor: 6 to go to: 7

Elevator Status: Floor: 7 Number of Passengers: 6 Direction: UP

Person# 23 OFF on floor: 7 From floor: 6

Elevator Status: Floor: 8 Number of Passengers: 5 Direction: UP

Person# 22 OFF on floor: 8 From floor: 4

Elevator Status: Floor: 10 Number of Passengers: 4 Direction: DOWN

Person# 11 OFF on floor: 10 From floor: 6

Elevator Status: Floor: 5 Number of Passengers: 3 Direction: DOWN

Person# 25 ON at floor: 5 to go to: 1

Elevator Status: Floor: 3 Number of Passengers: 4 Direction: DOWN

Person# 21 ON at floor: 3 to go to: 1

Elevator Status: Floor: 2 Number of Passengers: 5 Direction: DOWN

Elevator Status: Floor: 1 Number of Passengers: 5 Direction: UP

Person# 25 OFF on floor: 1 From floor: 5

Person# 29 ON at floor: 1 to go to: 3

Person# 30 ON at floor: 1 to go to: 8

Elevator Status: Floor: 2 Number of Passengers: 6 Direction: UP

Person# 17 ON at floor: 2 to go to: 8

Person# 31 ON at floor: 2 to go to: 10

Elevator Status: Floor: 3 Number of Passengers: 8 Direction: UP

Person# 29 OFF on floor: 3 From floor: 1

Person# 14 ON at floor: 3 to go to: 10

Elevator Status: Floor: 6 Number of Passengers: 8 Direction: UP

Person# 27 ON at floor: 6 to go to: 9

Elevator Status: Floor: 8 Number of Passengers: 9 Direction: UP

Person# 13 OFF on floor: 8 From floor: 5

Elevator Status: Floor: 9 Number of Passengers: 8 Direction: UP

Person# 27 OFF on floor: 9 From floor: 6

Elevator Status: Floor: 10 Number of Passengers: 7 Direction: DOWN

Person# 14 OFF on floor: 10 From floor: 3

Person# 36 ON at floor: 10 to go to: 8

Elevator Status: Floor: 9 Number of Passengers: 7 Direction: DOWN

Person# 15 ON at floor: 9 to go to: 3

Elevator Status: Floor: 8 Number of Passengers: 8 Direction: DOWN

Person# 36 OFF on floor: 8 From floor: 10

Elevator Status: Floor: 7 Number of Passengers: 7 Direction: DOWN

Person# 18 ON at floor: 7 to go to: 4

Person# 26 ON at floor: 7 to go to: 4

Person# 28 ON at floor: 7 to go to: 4

Elevator Status: Floor: 6 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 5 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: DOWN

Person# 18 OFF on floor: 4 From floor: 7

Elevator Status: Floor: 1 Number of Passengers: 9 Direction: UP

Person# 6 OFF on floor: 1 From floor: 9

Person# 34 ON at floor: 1 to go to: 10

Person# 38 ON at floor: 1 to go to: 3

Elevator Status: Floor: 3 Number of Passengers: 10 Direction: UP

Person# 38 OFF on floor: 3 From floor: 1

Floor Src Dstn Full

1 9 3 32

2 4 1 13

3 7 4 7

4 5 4 6

5 9 3 14

6 5 1 23

7 4 1 31

8 6 4 2

9 4 2 5

10 4 3 0

Total passengers: 35

Elevator Status: Floor: 4 Number of Passengers: 9 Direction: UP

Person# 26 OFF on floor: 4 From floor: 7

Elevator Status: Floor: 6 Number of Passengers: 8 Direction: UP

Person# 35 ON at floor: 6 to go to: 10

Elevator Status: Floor: 8 Number of Passengers: 9 Direction: UP

Person# 30 OFF on floor: 8 From floor: 1

Elevator Status: Floor: 10 Number of Passengers: 8 Direction: DOWN

Person# 34 OFF on floor: 10 From floor: 1

Person# 41 ON at floor: 10 to go to: 7

Elevator Status: Floor: 9 Number of Passengers: 8 Direction: DOWN

Person# 46 ON at floor: 9 to go to: 5

Elevator Status: Floor: 8 Number of Passengers: 9 Direction: DOWN

Person# 17 OFF on floor: 8 From floor: 2

Elevator Status: Floor: 7 Number of Passengers: 8 Direction: DOWN

Person# 41 OFF on floor: 7 From floor: 10

Person# 39 ON at floor: 7 to go to: 3

Person# 42 ON at floor: 7 to go to: 2

Elevator Status: Floor: 6 Number of Passengers: 9 Direction: DOWN

Person# 37 ON at floor: 6 to go to: 1

Elevator Status: Floor: 5 Number of Passengers: 10 Direction: DOWN

Person# 46 OFF on floor: 5 From floor: 9

Person# 32 ON at floor: 5 to go to: 3

Elevator Status: Floor: 3 Number of Passengers: 10 Direction: DOWN

Person# 39 OFF on floor: 3 From floor: 7

Person# 33 ON at floor: 3 to go to: 2

Elevator Status: Floor: 2 Number of Passengers: 10 Direction: DOWN

Person# 33 OFF on floor: 2 From floor: 3

Person# 43 ON at floor: 2 to go to: 1

Elevator Status: Floor: 1 Number of Passengers: 10 Direction: UP

Person# 43 OFF on floor: 1 From floor: 2

Person# 40 ON at floor: 1 to go to: 9

Elevator Status: Floor: 2 Number of Passengers: 10 Direction: UP

Person# 42 OFF on floor: 2 From floor: 7

Person# 51 ON at floor: 2 to go to: 7

Elevator Status: Floor: 3 Number of Passengers: 10 Direction: UP

Person# 15 OFF on floor: 3 From floor: 9

Person# 49 ON at floor: 3 to go to: 6

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: UP

Person# 28 OFF on floor: 4 From floor: 7

Person# 56 ON at floor: 4 to go to: 7

Elevator Status: Floor: 5 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 6 Number of Passengers: 10 Direction: UP

Person# 49 OFF on floor: 6 From floor: 3

Elevator Status: Floor: 7 Number of Passengers: 9 Direction: UP

Person# 51 OFF on floor: 7 From floor: 2

Elevator Status: Floor: 8 Number of Passengers: 8 Direction: UP

Person# 53 ON at floor: 8 to go to: 9

Person# 59 ON at floor: 8 to go to: 9

Elevator Status: Floor: 9 Number of Passengers: 10 Direction: UP

Person# 40 OFF on floor: 9 From floor: 1

Elevator Status: Floor: 6 Number of Passengers: 9 Direction: DOWN

Person# 52 ON at floor: 6 to go to: 1

Elevator Status: Floor: 5 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 3 Number of Passengers: 10 Direction: DOWN

Person# 32 OFF on floor: 3 From floor: 5

Person# 48 ON at floor: 3 to go to: 1

Elevator Status: Floor: 2 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 1 Number of Passengers: 10 Direction: UP

Person# 52 OFF on floor: 1 From floor: 6

Person# 44 ON at floor: 1 to go to: 8

Elevator Status: Floor: 2 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 3 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 5 Number of Passengers: 10 Direction: UP

Elevator Status: Floor: 7 Number of Passengers: 10 Direction: UP

Person# 56 OFF on floor: 7 From floor: 4

Elevator Status: Floor: 8 Number of Passengers: 9 Direction: UP

Person# 44 OFF on floor: 8 From floor: 1

Person# 67 ON at floor: 8 to go to: 9

Elevator Status: Floor: 9 Number of Passengers: 9 Direction: UP

Person# 67 OFF on floor: 9 From floor: 8

Elevator Status: Floor: 9 Number of Passengers: 8 Direction: DOWN

Person# 53 OFF on floor: 9 From floor: 8

Person# 68 ON at floor: 9 to go to: 3

Person# 73 ON at floor: 9 to go to: 3

Person# 74 ON at floor: 9 to go to: 7

Elevator Status: Floor: 8 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 7 Number of Passengers: 10 Direction: DOWN

Person# 74 OFF on floor: 7 From floor: 9

Person# 75 ON at floor: 7 to go to: 3

Elevator Status: Floor: 6 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 5 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 3 Number of Passengers: 10 Direction: DOWN

Person# 68 OFF on floor: 3 From floor: 9

Elevator Status: Floor: 8 Number of Passengers: 9 Direction: UP

Person# 77 ON at floor: 8 to go to: 9

Elevator Status: Floor: 9 Number of Passengers: 10 Direction: UP

Person# 77 OFF on floor: 9 From floor: 8

Elevator Status: Floor: 8 Number of Passengers: 9 Direction: UP

Person# 79 ON at floor: 8 to go to: 10

Elevator Status: Floor: 9 Number of Passengers: 10 Direction: UP

Person# 59 OFF on floor: 9 From floor: 8

Elevator Status: Floor: 10 Number of Passengers: 9 Direction: DOWN

Person# 79 OFF on floor: 10 From floor: 8

Person# 61 ON at floor: 10 to go to: 7

Person# 70 ON at floor: 10 to go to: 4

Elevator Status: Floor: 9 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 8 Number of Passengers: 10 Direction: DOWN

Elevator Status: Floor: 7 Number of Passengers: 10 Direction: DOWN

Person# 61 OFF on floor: 7 From floor: 10

Elevator Status: Floor: 3 Number of Passengers: 9 Direction: UP

Person# 73 OFF on floor: 3 From floor: 9

Person# 66 ON at floor: 3 to go to: 5

Person# 83 ON at floor: 3 to go to: 6

Elevator Status: Floor: 4 Number of Passengers: 10 Direction: UP

Person# 70 OFF on floor: 4 From floor: 10

Person# 58 ON at floor: 4 to go to: 8

Floor Src Dstn Full

1 11 5 42

2 8 3 49

3 13 9 50

4 11 7 71

5 14 4 89

6 10 2 112

7 9 6 46

8 14 7 52

9 11 7 33

10 6 5 36

Total passengers: 65

Process returned 0 (0x0) execution time : 0.497 s

Press any key to continue.