***Programming Techniques***

***Assignment 1***

***Queues Simulator***

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# **Objectives**

The main purpose of this project is to design a queue simulator which simulates the behaviour of clients entering and leaving queues. The created clients should have an ID, a time of arrival and a time of service.

In order to implement a functional application, we make use of the following mathematical operations:

1. Create N random clients(tasks)
2. Create Q queues(servers)
3. Add clients to the queues using a certain strategy
4. Make clients go further in line by each time pass

For a user-friendly approach we implement a graphical user interface in order to introduce the data input used to implement the above mentioned operations.

# **Problem Analysis, Modelling, Scenarios, Use Cases**

## **Problem Analysis**

A system which performs queues simulation can be mainly used to improve the process of clients waiting at the queue in store or markets. This algorithm can also be used for any kind of game or video game, in order to simulate each players’ steps in a game level.

The application provides a user-friendly interface where the user can easily introduce the data input and start the simulation because of the buttons and textfields displayed on the application.

## **Modelling**

The simulation consists of a list of servers. Each server represents a queue to which several clients/tasks are distributed, thus a server has as attribute a list of tasks. A client/task is an object which has three main attributes: an ID, the time of arrival and the time of service.

The simulation has several attributes like: the number of clients, the number of queues, the maximum simulation time, the minimum and maximum arrival time and the minimum and maximum service time.

## **Scenarios and Use Cases**

In order to perform the simulation, the user must introduce the attributes of the simulation, listed above in section *II. Modelling*. Introduced values must be positive integers.

*Use case: Simulation*

Performed by: user

Best case scenario:

1. User introduces the data input: number of clients, number of queues, maximum simulation time, minimum arrival time, maximum arrival time, minimum service time and maximum service time.
2. User presses the button **Start simulation**
3. The program reads and validates the introduced data
4. The program performs the simulation and computes the result
5. The result is displayed by the program

# **Design**

## **Class Design and UML Diagram**

Diagram

Description automatically generated

The class *Task* defines the data structure used to represent a client. A client is defined by an ID, an arrival time and a service time.

The arrival time represents the time of the simulation in which the task/client can enter the server/queue, which happens when the arrival time of the client is greater or equal than the current time of the simulation.

The service time represents the duration the task/client stays in the server/queue. The value of the service time starts decreasing once the task enters the server and when the value of the service time becomes 0, the task/client leaves the server/queue.

The class *Server* is used to represent a queue which, when instantiated, starts a new thread. The attribute of a server is a list of tasks/clients of type *Task.*

The class *SimulationManager* is used to start the simulation. In fact, this class implements a thread which is started at the beginning of the program. In this class, the tasks and servers are generated and for each server, a new thread is started, because each server represents a thread.

The class *Controller* controlls the execution of the queue simulation. The methods defined in this class are used to validate the inputs and to start the simulation with the provided data input.

The class *Main* launches a new window, starts the application and creates a new instance of the class Controller, which will create an instance of the *SimulationManager* class, which will execute the queue simulation.

## **Packages and Relationships**

The relationship between class Controller and class SimulationManager is a „uses a” relationship, since there is an object of type SimulationManager instantiated in a method from class Controller. The relationship between classes Task, Server and SimulationManager is a „has a” relationghip i.e. an aggregation relationship.

## **Algorithms and Data Structures**

In this implementation, the algorithms are used to manage the time attributes of the tasks and their distribution to the servers.

All randomly generated tasks are sent to a waiting queue in the first place. Then, they are added to servers by a simple strategy: a task goes to the server which has the minimum processing time i.e. where the sum of service time of all of the task being currently in the queue is minimum.

Another algorithm is rather trivial and is used to decrement the service time of all tasks being currently in a queue. At each current simulation time, the list of tasks of each server is being iterated and the service time of each task is decremented by 1. When the service time of a tasks becomes 0, the task is eliminated from the server i.e. the client leaves the queue.

The simulation ends when the current simulation time has the maximum value of the simulation time or when there are no mor clients waiting to enter the queues or when there are no more clients in the queues.

The data structures used in the implementation of this algorithms are:

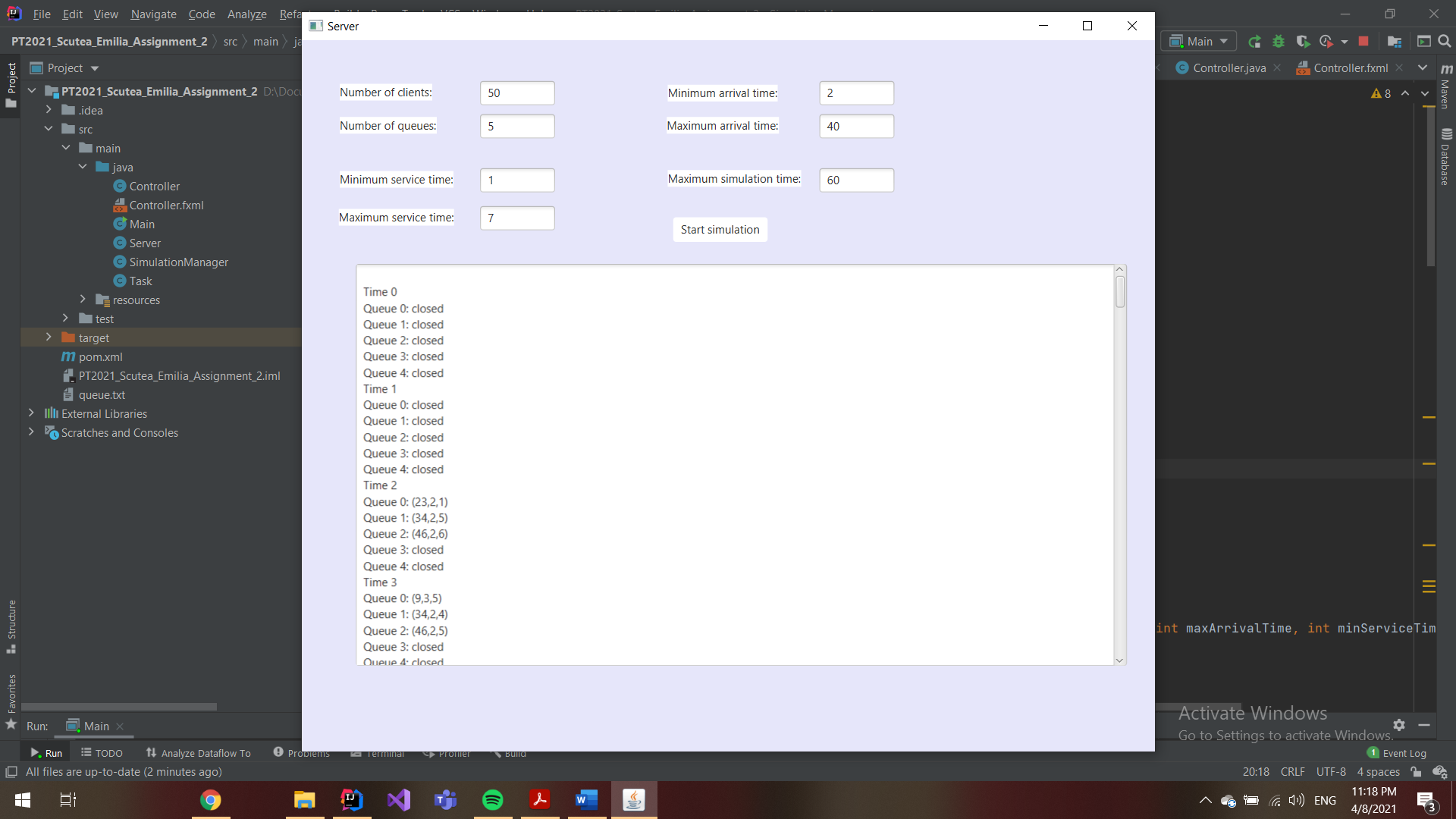
* List<Server> servers
* List<Task> waitingTasks

## **Graphical User Interface**

The graphical user interface is a simple interface with buttons and text fields.

The text fields are used to introduce the input data: the number of queues, the number of clients, the maximum simulation time, the minimum and maximum arrival time and the minimum and maximum service time. The text field used for displaying the result is not editable.

The only button available in this user interface is the one which is pressed to start the simulation, as its name suggests.



# **Implementation**

## **Class Task**

In the class *Task* is defined the data structue used to represent a client. The client has the following attributes: an ID, an arrival time and a service time. The arrival time and the service time are randomly created and they must have a value between the minimum and maximum arrival time, respectively between the minimum and maximum service time.

The defined methods in this class are:

* getID(): returns the ID of the task/client
* getArrivalTime (): returns the arrival time of the task/client
* getServiceTime(): returns the service time of the task/client

## **Class Server**

Class *Server* contains a list of tasks, of type *Task,* which will represent the tasks/clients in the server at each time of the simulation. The processingTime attribute is an integer which specifies the sum of the service time of all tasks currently being in the queue. The processingTime attribute is used in order to determine, for a new task, to which server to go i.e. which has minimum processing time. The methods defined in this class are:

* getProcessingTime(): returns the processing time of the server
* setProcessingTime(int processingTime): increments the current value of the processing time with the value given as parameter
* setProcessingTime(): sets the value of the processing time to 0
* BlockingQueue<Task> getTasks(): returns the list of tasks which are in the server

## **Controller**

The controller class defines methods which are set on action when buttons in the user interface are pressed. The defined attributes are:

* TextField N 🡪 defines the textfield in which the value of N(number of clients) is introduced by the user
* TextField Q 🡪 defines the textfield in which the value of Q(number of queues) is introduced by the user
* TextField maxSimulationTime 🡪 defines the textfield in which the maximum value of the simulation time is introduced by the user
* TextField minArrivalTime 🡪 defines the textfield in which the minimum value of the arrival time is introduced by the user
* TextField maxArrivalTime 🡪 defines the textfield in which the maximum value of the arrival time is introduced by the user
* TextField minServiceTime 🡪 defines the textfield in which the minimum value of the service time is introduced by the user
* TextField maxServiceTime 🡪 defines the textfield in which the maximum value of the service time is introduced by the user

The methods defined in the class Controller:

* getNumberOfClients(): gets the value introduced in the textfield N
* getNumberOfQueues(): gets the value introduced in the textfield Q
* getMaxSimulationTime (): gets the value introduced in the textfield maxSimulationTime
* getMinArrivalTime (): gets the value introduced in the textfield minArrivalTime
* getMaxArrivalTime (): gets the value introduced in the textfield maxArrivalTime
* getMinServiceTime (): gets the value introduced in the textfield minServiceTime
* getMaxServiceTime (): gets the value introduced in the textfield maxServiceTime
* inputsValidated(): checks if all inputs have been introduced in the provided text fields
* start(): starts the simulation

## **Main**

In the Main class is launched a new window, starts the application and creates a new instance of the class Controller, which will create an instance of the *SimulationManager* class, which will execute the queue simulation.

## **SimulationManager**

The class SimulationManager is used to start the simulation. In fact, this class implements a thread which is started at the beginning of the program. In this class, the tasks and servers are generated and for each server, a new thread is started, because each server represents a thread.

The methods defined in this class are the following:

* generateClients(): generates N clients having an ID and a random arrival and service time
* generateServers(): generates Q servers, each server having a list of tasks, which is empty at generation time
* getQueueWithMinimumTask(): returns the server with minimum processing time, i.e. the sum of the service time of all tasks in server is minimum
* decrementServiceTime(): iterates through all servers and to each task of each server, it decrements the service time
* taskNotInQueueYet(Task task): checks if given task is currently in any of the generated servers, returns the server if true, otherwise returns null
* displayQueues(): displays in a file, at each simulation time, the queues and the tasks in each queue or nothing if a queue has no tasks in it
* areServersEmpty(): checks if there are still tasks in the servers, returns true if yes, otherwise false
* doStuff(): runs the above mentioned methods as long as the conditions to stop the simulation are false

# **Results**

To perform the queue imulation, the user has to introduce the input data in the provided user interface. There are 3 tests being run on the application:

1. **First set of input data**

N = 4

Q = 2

𝑡𝑠𝑖𝑚𝑢𝑙𝑎𝑡𝑖𝑜𝑛𝑀𝐴𝑋= 60 seconds

[𝑡𝑎𝑟𝑟𝑖𝑣𝑎𝑙𝑀𝐼𝑁, 𝑡𝑎𝑟𝑟𝑖𝑣𝑎𝑙𝑀𝐴𝑋] = [2, 30]

[𝑡𝑠𝑒𝑟𝑣𝑖𝑐𝑒𝑀𝐼𝑁,𝑡𝑠𝑒𝑟𝑣𝑖𝑐𝑒𝑀𝐴𝑋]= [2, 4]

Results of the simulation on this input:

Time 0  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Time 1  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Time 2  
Queue 0: (23,2,1)  
Queue 1: (34,2,5)  
Queue 2: (46,2,6)  
Queue 3: closed  
Queue 4: closed  
Time 3  
Queue 0: (9,3,5)  
Queue 1: (34,2,4)  
Queue 2: (46,2,5)  
Queue 3: closed  
Queue 4: closed  
Time 4  
Queue 0: (9,3,4)  
Queue 1: (34,2,3)  
Queue 2: (46,2,4)  
Queue 3: (14,4,6)  
Queue 4: closed  
Time 5  
Queue 0: (9,3,3)  
Queue 1: (34,2,2)  
Queue 2: (46,2,3)  
Queue 3: (14,4,5)  
Queue 4: (30,5,2)  
Time 6  
Queue 0: (9,3,2)  
Queue 1: (34,2,1)  
Queue 2: (46,2,2)  
Queue 3: (14,4,4)  
Queue 4: (30,5,1)  
Time 7  
Queue 0: (9,3,1)  
Queue 1: (5,7,3)  
Queue 2: (46,2,1)  
Queue 3: (14,4,3)  
Queue 4: closed  
Time 8  
Queue 0: closed  
Queue 1: (5,7,2)  
Queue 2: closed  
Queue 3: (14,4,2)  
Queue 4: closed  
Time 9  
Queue 0: (1,9,1)  
Queue 1: (5,7,1)  
Queue 2: closed  
Queue 3: (14,4,1)  
Queue 4: closed  
Time 10  
Queue 0: (6,10,1)  
Queue 1: (41,10,2)  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Time 11  
Queue 0: closed  
Queue 1: (41,10,1)  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Time 12  
Queue 0: (15,12,5)  
Queue 1: (22,12,1)  
Queue 2: (24,12,2)  
Queue 3: closed  
Queue 4: closed  
Time 13  
Queue 0: (15,12,4)  
Queue 1: closed  
Queue 2: (24,12,1)  
Queue 3: closed  
Queue 4: closed  
Time 14  
Queue 0: (15,12,3)  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Time 15  
Queue 0: (15,12,2)  
Queue 1: (10,15,1)  
Queue 2: (19,15,6)  
Queue 3: (47,15,6)  
Queue 4: closed  
Time 16  
Queue 0: (15,12,1)  
Queue 1: (3,16,2)  
Queue 2: (19,15,5)  
Queue 3: (47,15,5)  
Queue 4: (12,16,5)  
Time 17  
Queue 0: (8,17,6)  
Queue 1: (3,16,1); (49,17,1)  
Queue 2: (19,15,4)  
Queue 3: (47,15,4)  
Queue 4: (12,16,4)  
Time 18  
Queue 0: (8,17,5)  
Queue 1: closed  
Queue 2: (19,15,3)  
Queue 3: (47,15,3)  
Queue 4: (12,16,3)  
Time 19  
Queue 0: (8,17,4)  
Queue 1: (48,19,4)  
Queue 2: (19,15,2)  
Queue 3: (47,15,2)  
Queue 4: (12,16,2)  
Time 20  
Queue 0: (8,17,3)  
Queue 1: (48,19,3)  
Queue 2: (19,15,1); (13,20,6)  
Queue 3: (47,15,1); (29,20,1)  
Queue 4: (12,16,1)  
Time 21  
Queue 0: (8,17,2)  
Queue 1: (48,19,2)  
Queue 2: (13,20,5)  
Queue 3: closed  
Queue 4: closed  
Time 22  
Queue 0: (8,17,1)  
Queue 1: (48,19,1)  
Queue 2: (13,20,4)  
Queue 3: (33,22,2)  
Queue 4: closed  
Time 23  
Queue 0: (38,23,3)  
Queue 1: closed  
Queue 2: (13,20,3)  
Queue 3: (33,22,1)  
Queue 4: closed  
Time 24  
Queue 0: (38,23,2)  
Queue 1: (4,24,3)  
Queue 2: (13,20,2)  
Queue 3: (21,24,4)  
Queue 4: closed  
Time 25  
Queue 0: (38,23,1)  
Queue 1: (4,24,2)  
Queue 2: (13,20,1)  
Queue 3: (21,24,3)  
Queue 4: closed  
Time 26  
Queue 0: (7,26,1)  
Queue 1: (4,24,1)  
Queue 2: (40,26,6)  
Queue 3: (21,24,2)  
Queue 4: closed  
Time 27  
Queue 0: closed  
Queue 1: closed  
Queue 2: (40,26,5)  
Queue 3: (21,24,1)  
Queue 4: closed  
Time 28  
Queue 0: closed  
Queue 1: closed  
Queue 2: (40,26,4)  
Queue 3: closed  
Queue 4: closed  
Time 29  
Queue 0: (39,29,3)  
Queue 1: (45,29,2)  
Queue 2: (40,26,3)  
Queue 3: closed  
Queue 4: closed  
Time 30  
Queue 0: (39,29,2)  
Queue 1: (45,29,1)  
Queue 2: (40,26,2)  
Queue 3: (32,30,4)  
Queue 4: closed  
Time 31  
Queue 0: (39,29,1)  
Queue 1: closed  
Queue 2: (40,26,1)  
Queue 3: (32,30,3)  
Queue 4: closed  
Time 32  
Queue 0: (0,32,1)  
Queue 1: (20,32,6)  
Queue 2: (35,32,3)  
Queue 3: (32,30,2)  
Queue 4: (42,32,2)  
Time 33  
Queue 0: (28,33,5)  
Queue 1: (20,32,5)  
Queue 2: (35,32,2)  
Queue 3: (32,30,1); (36,33,4)  
Queue 4: (42,32,1)  
Time 34  
Queue 0: (28,33,4)  
Queue 1: (20,32,4)  
Queue 2: (35,32,1); (44,34,6)  
Queue 3: (36,33,3)  
Queue 4: (25,34,5)  
Time 35  
Queue 0: (28,33,3); (27,35,1)  
Queue 1: (20,32,3)  
Queue 2: (44,34,5)  
Queue 3: (36,33,2); (17,35,3)  
Queue 4: (25,34,4)  
Time 36  
Queue 0: (28,33,2); (2,36,3)  
Queue 1: (20,32,2)  
Queue 2: (44,34,4)  
Queue 3: (36,33,1); (17,35,2)  
Queue 4: (25,34,3)  
Time 37  
Queue 0: (28,33,1); (2,36,2)  
Queue 1: (20,32,1); (16,37,6)  
Queue 2: (44,34,3)  
Queue 3: (17,35,1); (18,37,3)  
Queue 4: (25,34,2)  
Time 38  
Queue 0: (2,36,1); (26,38,4)  
Queue 1: (16,37,5)  
Queue 2: (44,34,2); (43,38,2)  
Queue 3: (18,37,2)  
Queue 4: (25,34,1); (37,38,5)  
Time 39  
Queue 0: (26,38,3)  
Queue 1: (16,37,4)  
Queue 2: (44,34,1); (43,38,1); (31,39,4)  
Queue 3: (18,37,1); (11,39,1)  
Queue 4: (37,38,4)  
Time 40  
Queue 0: (26,38,2)  
Queue 1: (16,37,3)  
Queue 2: (31,39,3)  
Queue 3: closed  
Queue 4: (37,38,3)  
Time 41  
Queue 0: (26,38,1)  
Queue 1: (16,37,2)  
Queue 2: (31,39,2)  
Queue 3: closed  
Queue 4: (37,38,2)  
Time 42  
Queue 0: closed  
Queue 1: (16,37,1)  
Queue 2: (31,39,1)  
Queue 3: closed  
Queue 4: (37,38,1)  
Time 43  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
  
Peek hour 37  
Average waiting time 3.82  
Average service time 3.4

1. **Second set of input data**

N = 50

Q = 5

𝑡𝑠𝑖𝑚𝑢𝑙𝑎𝑡𝑖𝑜𝑛𝑀𝐴𝑋= 60 seconds

[𝑡𝑎𝑟𝑟𝑖𝑣𝑎𝑙𝑀𝐼𝑁, 𝑡𝑎𝑟𝑟𝑖𝑣𝑎𝑙𝑀𝐴𝑋] = [2, 40]

[𝑡𝑠𝑒𝑟𝑣𝑖𝑐𝑒𝑀𝐼𝑁,𝑡𝑠𝑒𝑟𝑣𝑖𝑐𝑒𝑀𝐴𝑋]=[1, 7]

Results of the simulation on this input:

Time 0  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Time 1  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Time 2  
Queue 0: (23,2,1)  
Queue 1: (34,2,5)  
Queue 2: (46,2,6)  
Queue 3: closed  
Queue 4: closed  
Time 3  
Queue 0: (9,3,5)  
Queue 1: (34,2,4)  
Queue 2: (46,2,5)  
Queue 3: closed  
Queue 4: closed  
Time 4  
Queue 0: (9,3,4)  
Queue 1: (34,2,3)  
Queue 2: (46,2,4)  
Queue 3: (14,4,6)  
Queue 4: closed  
Time 5  
Queue 0: (9,3,3)  
Queue 1: (34,2,2)  
Queue 2: (46,2,3)  
Queue 3: (14,4,5)  
Queue 4: (30,5,2)  
Time 6  
Queue 0: (9,3,2)  
Queue 1: (34,2,1)  
Queue 2: (46,2,2)  
Queue 3: (14,4,4)  
Queue 4: (30,5,1)  
Time 7  
Queue 0: (9,3,1)  
Queue 1: (5,7,3)  
Queue 2: (46,2,1)  
Queue 3: (14,4,3)  
Queue 4: closed  
Time 8  
Queue 0: closed  
Queue 1: (5,7,2)  
Queue 2: closed  
Queue 3: (14,4,2)  
Queue 4: closed  
Time 9  
Queue 0: (1,9,1)  
Queue 1: (5,7,1)  
Queue 2: closed  
Queue 3: (14,4,1)  
Queue 4: closed  
Time 10  
Queue 0: (6,10,1)  
Queue 1: (41,10,2)  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Time 11  
Queue 0: closed  
Queue 1: (41,10,1)  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Time 12  
Queue 0: (15,12,5)  
Queue 1: (22,12,1)  
Queue 2: (24,12,2)  
Queue 3: closed  
Queue 4: closed  
Time 13  
Queue 0: (15,12,4)  
Queue 1: closed  
Queue 2: (24,12,1)  
Queue 3: closed  
Queue 4: closed  
Time 14  
Queue 0: (15,12,3)  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Time 15  
Queue 0: (15,12,2)  
Queue 1: (10,15,1)  
Queue 2: (19,15,6)  
Queue 3: (47,15,6)  
Queue 4: closed  
Time 16  
Queue 0: (15,12,1)  
Queue 1: (3,16,2)  
Queue 2: (19,15,5)  
Queue 3: (47,15,5)  
Queue 4: (12,16,5)  
Time 17  
Queue 0: (8,17,6)  
Queue 1: (3,16,1); (49,17,1)  
Queue 2: (19,15,4)  
Queue 3: (47,15,4)  
Queue 4: (12,16,4)  
Time 18  
Queue 0: (8,17,5)  
Queue 1: closed  
Queue 2: (19,15,3)  
Queue 3: (47,15,3)  
Queue 4: (12,16,3)  
Time 19  
Queue 0: (8,17,4)  
Queue 1: (48,19,4)  
Queue 2: (19,15,2)  
Queue 3: (47,15,2)  
Queue 4: (12,16,2)  
Time 20  
Queue 0: (8,17,3)  
Queue 1: (48,19,3)  
Queue 2: (19,15,1); (13,20,6)  
Queue 3: (47,15,1); (29,20,1)  
Queue 4: (12,16,1)  
Time 21  
Queue 0: (8,17,2)  
Queue 1: (48,19,2)  
Queue 2: (13,20,5)  
Queue 3: closed  
Queue 4: closed  
Time 22  
Queue 0: (8,17,1)  
Queue 1: (48,19,1)  
Queue 2: (13,20,4)  
Queue 3: (33,22,2)  
Queue 4: closed  
Time 23  
Queue 0: (38,23,3)  
Queue 1: closed  
Queue 2: (13,20,3)  
Queue 3: (33,22,1)  
Queue 4: closed  
Time 24  
Queue 0: (38,23,2)  
Queue 1: (4,24,3)  
Queue 2: (13,20,2)  
Queue 3: (21,24,4)  
Queue 4: closed  
Time 25  
Queue 0: (38,23,1)  
Queue 1: (4,24,2)  
Queue 2: (13,20,1)  
Queue 3: (21,24,3)  
Queue 4: closed  
Time 26  
Queue 0: (7,26,1)  
Queue 1: (4,24,1)  
Queue 2: (40,26,6)  
Queue 3: (21,24,2)  
Queue 4: closed  
Time 27  
Queue 0: closed  
Queue 1: closed  
Queue 2: (40,26,5)  
Queue 3: (21,24,1)  
Queue 4: closed  
Time 28  
Queue 0: closed  
Queue 1: closed  
Queue 2: (40,26,4)  
Queue 3: closed  
Queue 4: closed  
Time 29  
Queue 0: (39,29,3)  
Queue 1: (45,29,2)  
Queue 2: (40,26,3)  
Queue 3: closed  
Queue 4: closed  
Time 30  
Queue 0: (39,29,2)  
Queue 1: (45,29,1)  
Queue 2: (40,26,2)  
Queue 3: (32,30,4)  
Queue 4: closed  
Time 31  
Queue 0: (39,29,1)  
Queue 1: closed  
Queue 2: (40,26,1)  
Queue 3: (32,30,3)  
Queue 4: closed  
Time 32  
Queue 0: (0,32,1)  
Queue 1: (20,32,6)  
Queue 2: (35,32,3)  
Queue 3: (32,30,2)  
Queue 4: (42,32,2)  
Time 33  
Queue 0: (28,33,5)  
Queue 1: (20,32,5)  
Queue 2: (35,32,2)  
Queue 3: (32,30,1); (36,33,4)  
Queue 4: (42,32,1)  
Time 34  
Queue 0: (28,33,4)  
Queue 1: (20,32,4)  
Queue 2: (35,32,1); (44,34,6)  
Queue 3: (36,33,3)  
Queue 4: (25,34,5)  
Time 35  
Queue 0: (28,33,3); (27,35,1)  
Queue 1: (20,32,3)  
Queue 2: (44,34,5)  
Queue 3: (36,33,2); (17,35,3)  
Queue 4: (25,34,4)  
Time 36  
Queue 0: (28,33,2); (2,36,3)  
Queue 1: (20,32,2)  
Queue 2: (44,34,4)  
Queue 3: (36,33,1); (17,35,2)  
Queue 4: (25,34,3)  
Time 37  
Queue 0: (28,33,1); (2,36,2)  
Queue 1: (20,32,1); (16,37,6)  
Queue 2: (44,34,3)  
Queue 3: (17,35,1); (18,37,3)  
Queue 4: (25,34,2)  
Time 38  
Queue 0: (2,36,1); (26,38,4)  
Queue 1: (16,37,5)  
Queue 2: (44,34,2); (43,38,2)  
Queue 3: (18,37,2)  
Queue 4: (25,34,1); (37,38,5)  
Time 39  
Queue 0: (26,38,3)  
Queue 1: (16,37,4)  
Queue 2: (44,34,1); (43,38,1); (31,39,4)  
Queue 3: (18,37,1); (11,39,1)  
Queue 4: (37,38,4)  
Time 40  
Queue 0: (26,38,2)  
Queue 1: (16,37,3)  
Queue 2: (31,39,3)  
Queue 3: closed  
Queue 4: (37,38,3)  
Time 41  
Queue 0: (26,38,1)  
Queue 1: (16,37,2)  
Queue 2: (31,39,2)  
Queue 3: closed  
Queue 4: (37,38,2)  
Time 42  
Queue 0: closed  
Queue 1: (16,37,1)  
Queue 2: (31,39,1)  
Queue 3: closed  
Queue 4: (37,38,1)  
Time 43  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
  
Peek hour 37  
Average waiting time 3.82  
Average service time 3.4

1. **Third set of input data**

N = 1000

Q = 20

𝑡𝑠𝑖𝑚𝑢𝑙𝑎𝑡𝑖𝑜𝑛𝑀𝐴𝑋= 200 seconds

[𝑡𝑎𝑟𝑟𝑖𝑣𝑎𝑙𝑀𝐼𝑁, 𝑡𝑎𝑟𝑟𝑖𝑣𝑎𝑙𝑀𝐴𝑋] = [10, 100]

[𝑡𝑠𝑒𝑟𝑣𝑖𝑐𝑒𝑀𝐼𝑁,𝑡𝑠𝑒𝑟𝑣𝑖𝑐𝑒𝑀𝐴𝑋]=[3, 9]

Results of the simulation on this input:

Time 0  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Queue 5: closed  
Queue 6: closed  
Queue 7: closed  
Queue 8: closed  
Queue 9: closed  
Queue 10: closed  
Queue 11: closed  
Queue 12: closed  
Queue 13: closed  
Queue 14: closed  
Queue 15: closed  
Queue 16: closed  
Queue 17: closed  
Queue 18: closed  
Queue 19: closed  
Time 1  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Queue 5: closed  
Queue 6: closed  
Queue 7: closed  
Queue 8: closed  
Queue 9: closed  
Queue 10: closed  
Queue 11: closed  
Queue 12: closed  
Queue 13: closed  
Queue 14: closed  
Queue 15: closed  
Queue 16: closed  
Queue 17: closed  
Queue 18: closed  
Queue 19: closed  
Time 2  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Queue 5: closed  
Queue 6: closed  
Queue 7: closed  
Queue 8: closed  
Queue 9: closed  
Queue 10: closed  
Queue 11: closed  
Queue 12: closed  
Queue 13: closed  
Queue 14: closed  
Queue 15: closed  
Queue 16: closed  
Queue 17: closed  
Queue 18: closed  
Queue 19: closed  
Time 3  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Queue 5: closed  
Queue 6: closed  
Queue 7: closed  
Queue 8: closed  
Queue 9: closed  
Queue 10: closed  
Queue 11: closed  
Queue 12: closed  
Queue 13: closed  
Queue 14: closed  
Queue 15: closed  
Queue 16: closed  
Queue 17: closed  
Queue 18: closed  
Queue 19: closed  
Time 4  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Queue 5: closed  
Queue 6: closed  
Queue 7: closed  
Queue 8: closed  
Queue 9: closed  
Queue 10: closed  
Queue 11: closed  
Queue 12: closed  
Queue 13: closed  
Queue 14: closed  
Queue 15: closed  
Queue 16: closed  
Queue 17: closed  
Queue 18: closed  
Queue 19: closed  
Time 5  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Queue 5: closed  
Queue 6: closed  
Queue 7: closed  
Queue 8: closed  
Queue 9: closed  
Queue 10: closed  
Queue 11: closed  
Queue 12: closed  
Queue 13: closed  
Queue 14: closed  
Queue 15: closed  
Queue 16: closed  
Queue 17: closed  
Queue 18: closed  
Queue 19: closed  
Time 6  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Queue 5: closed  
Queue 6: closed  
Queue 7: closed  
Queue 8: closed  
Queue 9: closed  
Queue 10: closed  
Queue 11: closed  
Queue 12: closed  
Queue 13: closed  
Queue 14: closed  
Queue 15: closed  
Queue 16: closed  
Queue 17: closed  
Queue 18: closed  
Queue 19: closed  
Time 7  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Queue 5: closed  
Queue 6: closed  
Queue 7: closed  
Queue 8: closed  
Queue 9: closed  
Queue 10: closed  
Queue 11: closed  
Queue 12: closed  
Queue 13: closed  
Queue 14: closed  
Queue 15: closed  
Queue 16: closed  
Queue 17: closed  
Queue 18: closed  
Queue 19: closed  
Time 8  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Queue 5: closed  
Queue 6: closed  
Queue 7: closed  
Queue 8: closed  
Queue 9: closed  
Queue 10: closed  
Queue 11: closed  
Queue 12: closed  
Queue 13: closed  
Queue 14: closed  
Queue 15: closed  
Queue 16: closed  
Queue 17: closed  
Queue 18: closed  
Queue 19: closed  
Time 9  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Queue 5: closed  
Queue 6: closed  
Queue 7: closed  
Queue 8: closed  
Queue 9: closed  
Queue 10: closed  
Queue 11: closed  
Queue 12: closed  
Queue 13: closed  
Queue 14: closed  
Queue 15: closed  
Queue 16: closed  
Queue 17: closed  
Queue 18: closed  
Queue 19: closed  
Time 10  
Queue 0: (318,10,7)  
Queue 1: (595,10,7)  
Queue 2: (660,10,6)  
Queue 3: (736,10,8)  
Queue 4: (810,10,3)  
Queue 5: (875,10,3)  
Queue 6: (965,10,6)  
Queue 7: closed  
Queue 8: closed  
Queue 9: closed  
Queue 10: closed  
Queue 11: closed  
Queue 12: closed  
Queue 13: closed  
Queue 14: closed  
Queue 15: closed  
Queue 16: closed  
Queue 17: closed  
Queue 18: closed  
Queue 19: closed  
Time 11  
Queue 0: (318,10,6)  
Queue 1: (595,10,6)  
Queue 2: (660,10,5)  
Queue 3: (736,10,7)  
Queue 4: (810,10,2); (790,11,7)  
Queue 5: (875,10,2)  
Queue 6: (965,10,5)  
Queue 7: (144,11,3)  
Queue 8: (231,11,3)  
Queue 9: (235,11,3)  
Queue 10: (237,11,5)  
Queue 11: (256,11,7)  
Queue 12: (326,11,3)  
Queue 13: (341,11,3)  
Queue 14: (352,11,7)  
Queue 15: (534,11,6)  
Queue 16: (614,11,8)  
Queue 17: (623,11,7)  
Queue 18: (667,11,8)  
Queue 19: (763,11,5)  
Time 12  
Queue 0: (318,10,5)  
Queue 1: (595,10,5)  
Queue 2: (660,10,4); (733,12,8)  
Queue 3: (736,10,6)  
Queue 4: (810,10,1); (790,11,6)  
Queue 5: (875,10,1); (138,12,6)  
Queue 6: (965,10,4); (803,12,7)  
Queue 7: (144,11,2); (142,12,4)  
Queue 8: (231,11,2); (335,12,5)  
Queue 9: (235,11,2); (528,12,5)  
Queue 10: (237,11,4); (909,12,7)  
Queue 11: (256,11,6)  
Queue 12: (326,11,2); (699,12,3)  
Queue 13: (341,11,2); (717,12,8)  
Queue 14: (352,11,6)  
Queue 15: (534,11,5)  
Queue 16: (614,11,7)  
Queue 17: (623,11,6)  
Queue 18: (667,11,7)  
Queue 19: (763,11,4)  
Time 13  
Queue 0: (318,10,4); (383,13,3)  
Queue 1: (595,10,4); (517,13,7)  
Queue 2: (660,10,3); (733,12,7)  
Queue 3: (736,10,5); (755,13,8)  
Queue 4: (790,11,5); (845,13,7)  
Queue 5: (138,12,5); (915,13,4)  
Queue 6: (965,10,3); (803,12,6)  
Queue 7: (144,11,1); (142,12,3); (519,13,6)  
Queue 8: (231,11,1); (335,12,4); (994,13,5)  
Queue 9: (235,11,1); (528,12,4); (995,13,5)  
Queue 10: (237,11,3); (909,12,6)  
Queue 11: (256,11,5)  
Queue 12: (326,11,1); (699,12,2); (67,13,6)  
Queue 13: (341,11,1); (717,12,7)  
Queue 14: (352,11,5)  
Queue 15: (534,11,4); (685,13,8)  
Queue 16: (614,11,6)  
Queue 17: (623,11,5)  
Queue 18: (667,11,6)  
Queue 19: (763,11,3); (110,13,6)  
Time 14  
Queue 0: (318,10,3); (383,13,2); (251,14,8)  
Queue 1: (595,10,3); (517,13,6)  
Queue 2: (660,10,2); (733,12,6)  
Queue 3: (736,10,4); (755,13,7)  
Queue 4: (790,11,4); (845,13,6)  
Queue 5: (138,12,4); (915,13,3); (716,14,5)  
Queue 6: (965,10,2); (803,12,5); (747,14,7)  
Queue 7: (142,12,2); (519,13,5); (769,14,6)  
Queue 8: (335,12,3); (994,13,4); (797,14,7)  
Queue 9: (528,12,3); (995,13,4); (865,14,7)  
Queue 10: (237,11,2); (909,12,5); (894,14,7)  
Queue 11: (256,11,4); (39,14,7)  
Queue 12: (699,12,1); (67,13,5); (600,14,4)  
Queue 13: (717,12,6); (624,14,6)  
Queue 14: (352,11,4); (116,14,7)  
Queue 15: (534,11,3); (685,13,7)  
Queue 16: (614,11,5); (324,14,5)  
Queue 17: (623,11,4); (175,14,7)  
Queue 18: (667,11,5); (553,14,6)  
Queue 19: (763,11,2); (110,13,5)  
Time 15  
Queue 0: (318,10,2); (383,13,1); (251,14,7)  
Queue 1: (595,10,2); (517,13,5); (121,15,6)  
Queue 2: (660,10,1); (733,12,5); (95,15,4)  
Queue 3: (736,10,3); (755,13,6); (766,15,6)  
Queue 4: (790,11,3); (845,13,5); (296,15,7)  
Queue 5: (138,12,3); (915,13,2); (716,14,4); (885,15,4)  
Queue 6: (965,10,1); (803,12,4); (747,14,6)  
Queue 7: (142,12,1); (519,13,4); (769,14,5)  
Queue 8: (335,12,2); (994,13,3); (797,14,6)  
Queue 9: (528,12,2); (995,13,3); (865,14,6)  
Queue 10: (237,11,1); (909,12,4); (894,14,6)  
Queue 11: (256,11,3); (39,14,6); (983,15,4)  
Queue 12: (67,13,4); (600,14,3); (278,15,6)  
Queue 13: (717,12,5); (624,14,5)  
Queue 14: (352,11,3); (116,14,6)  
Queue 15: (534,11,2); (685,13,6); (552,15,7)  
Queue 16: (614,11,4); (324,14,4); (761,15,6)  
Queue 17: (623,11,3); (175,14,6)  
Queue 18: (667,11,4); (553,14,5)  
Queue 19: (763,11,1); (110,13,4); (47,15,4)  
Time 16  
Queue 0: (318,10,1); (251,14,6); (73,16,5)  
Queue 1: (595,10,1); (517,13,4); (121,15,5)  
Queue 2: (733,12,4); (95,15,3); (120,16,6)  
Queue 3: (736,10,2); (755,13,5); (766,15,5)  
Queue 4: (790,11,2); (845,13,4); (296,15,6)  
Queue 5: (138,12,2); (915,13,1); (716,14,3); (885,15,3); (892,16,6)  
Queue 6: (803,12,3); (747,14,5); (276,16,4)  
Queue 7: (519,13,3); (769,14,4); (130,16,7)  
Queue 8: (335,12,1); (994,13,2); (797,14,5); (282,16,6)  
Queue 9: (528,12,1); (995,13,2); (865,14,5); (345,16,6)  
Queue 10: (909,12,3); (894,14,5); (560,16,8)  
Queue 11: (256,11,2); (39,14,5); (983,15,3)  
Queue 12: (67,13,3); (600,14,2); (278,15,5)  
Queue 13: (717,12,4); (624,14,4); (640,16,8)  
Queue 14: (352,11,2); (116,14,5); (134,16,5)  
Queue 15: (534,11,1); (685,13,5); (552,15,6)  
Queue 16: (614,11,3); (324,14,3); (761,15,5)  
Queue 17: (623,11,2); (175,14,5); (141,16,4)  
Queue 18: (667,11,3); (553,14,4); (192,16,5)  
Queue 19: (110,13,3); (47,15,3); (33,16,4)  
Time 17  
Queue 0: (251,14,5); (73,16,4)  
Queue 1: (517,13,3); (121,15,4); (93,17,3)  
Queue 2: (733,12,3); (95,15,2); (120,16,5)  
Queue 3: (736,10,1); (755,13,4); (766,15,4)  
Queue 4: (790,11,1); (845,13,3); (296,15,5)  
Queue 5: (138,12,1); (716,14,2); (885,15,2); (892,16,5)  
Queue 6: (803,12,2); (747,14,4); (276,16,3)  
Queue 7: (519,13,2); (769,14,3); (130,16,6)  
Queue 8: (994,13,1); (797,14,4); (282,16,5)  
Queue 9: (995,13,1); (865,14,4); (345,16,5)  
Queue 10: (909,12,2); (894,14,4); (560,16,7)  
Queue 11: (256,11,1); (39,14,4); (983,15,2); (537,17,5)  
Queue 12: (67,13,2); (600,14,1); (278,15,4); (668,17,3)  
Queue 13: (717,12,3); (624,14,3); (640,16,7)  
Queue 14: (352,11,1); (116,14,4); (134,16,4)  
Queue 15: (685,13,4); (552,15,5)  
Queue 16: (614,11,2); (324,14,2); (761,15,4); (945,17,7)  
Queue 17: (623,11,1); (175,14,4); (141,16,3); (958,17,7)  
Queue 18: (667,11,2); (553,14,3); (192,16,4)  
Queue 19: (110,13,2); (47,15,2); (33,16,3); (681,17,8)  
Time 18  
Queue 0: (251,14,4); (73,16,3); (677,18,5)  
Queue 1: (517,13,2); (121,15,3); (93,17,2); (752,18,4)  
Queue 2: (733,12,2); (95,15,1); (120,16,4); (939,18,3)  
Queue 3: (755,13,3); (766,15,3); (76,18,4)  
Queue 4: (845,13,2); (296,15,4); (209,18,4)  
Queue 5: (716,14,1); (885,15,1); (892,16,4); (314,18,6)  
Queue 6: (803,12,1); (747,14,3); (276,16,2); (364,18,8)  
Queue 7: (519,13,1); (769,14,2); (130,16,5)  
Queue 8: (797,14,3); (282,16,4); (946,18,4)  
Queue 9: (865,14,3); (345,16,4); (956,18,3)  
Queue 10: (909,12,1); (894,14,3); (560,16,6)  
Queue 11: (39,14,3); (983,15,1); (537,17,4)  
Queue 12: (67,13,1); (278,15,3); (668,17,2); (468,18,8)  
Queue 13: (717,12,2); (624,14,2); (640,16,6)  
Queue 14: (116,14,3); (134,16,3); (476,18,3)  
Queue 15: (685,13,3); (552,15,4); (988,18,6)  
Queue 16: (614,11,1); (324,14,1); (761,15,3); (945,17,6)  
Queue 17: (175,14,3); (141,16,2); (958,17,6)  
Queue 18: (667,11,1); (553,14,2); (192,16,3); (569,18,6)  
Queue 19: (110,13,1); (47,15,1); (33,16,2); (681,17,7)  
Time 19  
Queue 0: (251,14,3); (73,16,2); (677,18,4)  
Queue 1: (517,13,1); (121,15,2); (93,17,1); (752,18,3); (239,19,3)  
Queue 2: (733,12,1); (120,16,3); (939,18,2); (125,19,7)  
Queue 3: (755,13,2); (766,15,2); (76,18,3); (288,19,5)  
Queue 4: (845,13,1); (296,15,3); (209,18,3); (353,19,3)  
Queue 5: (892,16,3); (314,18,5); (771,19,4)  
Queue 6: (747,14,2); (276,16,1); (364,18,7)  
Queue 7: (769,14,1); (130,16,4); (15,19,6)  
Queue 8: (797,14,2); (282,16,3); (946,18,3); (840,19,6)  
Queue 9: (865,14,2); (345,16,3); (956,18,2); (377,19,8)  
Queue 10: (894,14,2); (560,16,5); (484,19,3)  
Queue 11: (39,14,2); (537,17,3); (46,19,7)  
Queue 12: (278,15,2); (668,17,1); (468,18,7)  
Queue 13: (717,12,1); (624,14,1); (640,16,5); (523,19,7)  
Queue 14: (116,14,2); (134,16,2); (476,18,2); (176,19,7)  
Queue 15: (685,13,2); (552,15,3); (988,18,5)  
Queue 16: (761,15,2); (945,17,5); (549,19,7)  
Queue 17: (175,14,2); (141,16,1); (958,17,5); (947,19,6)  
Queue 18: (553,14,1); (192,16,2); (569,18,5)  
Queue 19: (33,16,1); (681,17,6); (578,19,4)  
Time 20  
Queue 0: (251,14,2); (73,16,1); (677,18,3); (265,20,7)  
Queue 1: (121,15,1); (752,18,2); (239,19,2); (3,20,3); (782,20,6)  
Queue 2: (120,16,2); (939,18,1); (125,19,6)  
Queue 3: (755,13,1); (766,15,1); (76,18,2); (288,19,4); (927,20,6)  
Queue 4: (296,15,2); (209,18,2); (353,19,2); (286,20,3)  
Queue 5: (892,16,2); (314,18,4); (771,19,3)  
Queue 6: (747,14,1); (364,18,6); (313,20,5)  
Queue 7: (130,16,3); (15,19,5)  
Queue 8: (797,14,1); (282,16,2); (946,18,2); (840,19,5)  
Queue 9: (865,14,1); (345,16,2); (956,18,1); (377,19,7)  
Queue 10: (894,14,1); (560,16,4); (484,19,2); (388,20,5)  
Queue 11: (39,14,1); (537,17,2); (46,19,6)  
Queue 12: (278,15,1); (468,18,6); (508,20,7)  
Queue 13: (640,16,4); (523,19,6)  
Queue 14: (116,14,1); (134,16,1); (476,18,1); (176,19,6)  
Queue 15: (685,13,1); (552,15,2); (988,18,4); (530,20,4)  
Queue 16: (761,15,1); (945,17,4); (549,19,6)  
Queue 17: (175,14,1); (958,17,4); (947,19,5)  
Queue 18: (192,16,1); (569,18,4); (100,20,7)  
Queue 19: (681,17,5); (578,19,3)  
Time 21  
Queue 0: (251,14,1); (677,18,2); (265,20,6)  
Queue 1: (752,18,1); (239,19,1); (3,20,2); (782,20,5)  
Queue 2: (120,16,1); (125,19,5); (368,21,6)  
Queue 3: (76,18,1); (288,19,3); (927,20,5)  
Queue 4: (296,15,1); (209,18,1); (353,19,1); (286,20,2); (14,21,3)  
Queue 5: (892,16,1); (314,18,3); (771,19,2); (378,21,3)  
Queue 6: (364,18,5); (313,20,4)  
Queue 7: (130,16,2); (15,19,4); (590,21,7)  
Queue 8: (282,16,1); (946,18,1); (840,19,4); (643,21,3)  
Queue 9: (345,16,1); (377,19,6); (904,21,4)  
Queue 10: (560,16,3); (484,19,1); (388,20,4)  
Queue 11: (537,17,1); (46,19,5); (663,21,6)  
Queue 12: (468,18,5); (508,20,6)  
Queue 13: (640,16,3); (523,19,5)  
Queue 14: (176,19,5); (112,21,8)  
Queue 15: (552,15,1); (988,18,3); (530,20,3)  
Queue 16: (945,17,3); (549,19,5)  
Queue 17: (958,17,3); (947,19,4)  
Queue 18: (569,18,3); (100,20,6)  
Queue 19: (681,17,4); (578,19,2); (776,21,4)  
Time 22  
Queue 0: (677,18,1); (265,20,5); (598,22,3)  
Queue 1: (3,20,1); (782,20,4); (233,22,7)  
Queue 2: (125,19,4); (368,21,5)  
Queue 3: (288,19,2); (927,20,4); (737,22,5)  
Queue 4: (286,20,1); (14,21,2); (66,22,6)  
Queue 5: (314,18,2); (771,19,1); (378,21,2); (395,22,3)  
Queue 6: (364,18,4); (313,20,3); (828,22,8)  
Queue 7: (130,16,1); (15,19,3); (590,21,6)  
Queue 8: (840,19,3); (643,21,2); (397,22,8)  
Queue 9: (377,19,5); (904,21,3)  
Queue 10: (560,16,2); (388,20,3); (493,22,7)  
Queue 11: (46,19,4); (663,21,5)  
Queue 12: (468,18,4); (508,20,5)  
Queue 13: (640,16,2); (523,19,4); (786,22,5)  
Queue 14: (176,19,4); (112,21,7)  
Queue 15: (988,18,2); (530,20,2); (83,22,4)  
Queue 16: (945,17,2); (549,19,4); (787,22,5)  
Queue 17: (958,17,2); (947,19,3); (509,22,5)  
Queue 18: (569,18,2); (100,20,5)  
Queue 19: (681,17,3); (578,19,1); (776,21,3)  
Time 23  
Queue 0: (265,20,4); (598,22,2); (466,23,8)  
Queue 1: (782,20,3); (233,22,6)  
Queue 2: (125,19,3); (368,21,4); (627,23,7)  
Queue 3: (288,19,1); (927,20,3); (737,22,4)  
Queue 4: (14,21,1); (66,22,5); (495,23,4)  
Queue 5: (314,18,1); (378,21,1); (395,22,2); (17,23,8)  
Queue 6: (364,18,3); (313,20,2); (828,22,7)  
Queue 7: (15,19,2); (590,21,5); (703,23,7)  
Queue 8: (840,19,2); (643,21,1); (397,22,7)  
Queue 9: (377,19,4); (904,21,2); (550,23,8)  
Queue 10: (560,16,1); (388,20,2); (493,22,6)  
Queue 11: (46,19,3); (663,21,4); (922,23,8)  
Queue 12: (468,18,3); (508,20,4); (959,23,6)  
Queue 13: (640,16,1); (523,19,3); (786,22,4)  
Queue 14: (176,19,3); (112,21,6)  
Queue 15: (988,18,1); (530,20,1); (83,22,3); (417,23,6)  
Queue 16: (945,17,1); (549,19,3); (787,22,4)  
Queue 17: (958,17,1); (947,19,2); (509,22,4)  
Queue 18: (569,18,1); (100,20,4); (420,23,7)  
Queue 19: (681,17,2); (776,21,2); (32,23,3)  
Time 24  
Queue 0: (265,20,3); (598,22,1); (466,23,7)  
Queue 1: (782,20,2); (233,22,5); (918,24,3)  
Queue 2: (125,19,2); (368,21,3); (627,23,6)  
Queue 3: (927,20,2); (737,22,3); (132,24,6)  
Queue 4: (66,22,4); (495,23,3)  
Queue 5: (395,22,1); (17,23,7)  
Queue 6: (364,18,2); (313,20,1); (828,22,6)  
Queue 7: (15,19,1); (590,21,4); (703,23,6)  
Queue 8: (840,19,1); (397,22,6)  
Queue 9: (377,19,3); (904,21,1); (550,23,7)  
Queue 10: (388,20,1); (493,22,5); (322,24,6)  
Queue 11: (46,19,2); (663,21,3); (922,23,7)  
Queue 12: (468,18,2); (508,20,3); (959,23,5)  
Queue 13: (523,19,2); (786,22,3); (158,24,7)  
Queue 14: (176,19,2); (112,21,5)  
Queue 15: (83,22,2); (417,23,5)  
Queue 16: (549,19,2); (787,22,3); (260,24,5)  
Queue 17: (947,19,1); (509,22,3); (11,24,5)  
Queue 18: (100,20,3); (420,23,6)  
Queue 19: (681,17,1); (776,21,1); (32,23,2); (20,24,5)  
Time 25  
Queue 0: (265,20,2); (466,23,6)  
Queue 1: (782,20,1); (233,22,4); (918,24,2); (928,25,3)  
Queue 2: (125,19,1); (368,21,2); (627,23,5)  
Queue 3: (927,20,1); (737,22,2); (132,24,5)  
Queue 4: (66,22,3); (495,23,2); (54,25,3)  
Queue 5: (17,23,6); (806,25,8)  
Queue 6: (364,18,1); (828,22,5); (825,25,6)  
Queue 7: (590,21,3); (703,23,5)  
Queue 8: (397,22,5); (55,25,8)  
Queue 9: (377,19,2); (550,23,6)  
Queue 10: (493,22,4); (322,24,5)  
Queue 11: (46,19,1); (663,21,2); (922,23,6)  
Queue 12: (468,18,1); (508,20,2); (959,23,4)  
Queue 13: (523,19,1); (786,22,2); (158,24,6)  
Queue 14: (176,19,1); (112,21,4); (146,25,5)  
Queue 15: (83,22,1); (417,23,4); (479,25,4)  
Queue 16: (549,19,1); (787,22,2); (260,24,4)  
Queue 17: (509,22,2); (11,24,4); (890,25,4)  
Queue 18: (100,20,2); (420,23,5)  
Queue 19: (32,23,1); (20,24,4); (536,25,3)  
Time 26  
Queue 0: (265,20,1); (466,23,5); (457,26,4)  
Queue 1: (233,22,3); (918,24,1); (928,25,2); (539,26,3)  
Queue 2: (368,21,1); (627,23,4); (113,26,6)  
Queue 3: (737,22,1); (132,24,4); (205,26,3); (882,26,3)  
Queue 4: (66,22,2); (495,23,1); (54,25,2); (241,26,7)  
Queue 5: (17,23,5); (806,25,7)  
Queue 6: (828,22,4); (825,25,5)  
Queue 7: (590,21,2); (703,23,4); (597,26,7)  
Queue 8: (397,22,4); (55,25,7)  
Queue 9: (377,19,1); (550,23,5); (606,26,7)  
Queue 10: (493,22,3); (322,24,4); (775,26,6)  
Queue 11: (663,21,1); (922,23,5); (659,26,5)  
Queue 12: (508,20,1); (959,23,3); (0,26,5)  
Queue 13: (786,22,1); (158,24,5); (710,26,8)  
Queue 14: (112,21,3); (146,25,4); (781,26,8)  
Queue 15: (417,23,3); (479,25,3); (711,26,7)  
Queue 16: (787,22,1); (260,24,3); (106,26,6)  
Queue 17: (509,22,1); (11,24,3); (890,25,3); (812,26,8)  
Queue 18: (100,20,1); (420,23,4); (346,26,8)  
Queue 19: (20,24,3); (536,25,2); (365,26,7)  
Time 27  
Queue 0: (466,23,4); (457,26,3); (363,27,5)  
Queue 1: (233,22,2); (928,25,1); (539,26,2); (200,27,7)  
Queue 2: (627,23,3); (113,26,5)  
Queue 3: (132,24,3); (205,26,2); (882,26,2); (532,27,7)  
Queue 4: (66,22,1); (54,25,1); (241,26,6)  
Queue 5: (17,23,4); (806,25,6)  
Queue 6: (828,22,3); (825,25,4); (561,27,8)  
Queue 7: (590,21,1); (703,23,3); (597,26,6)  
Queue 8: (397,22,3); (55,25,6)  
Queue 9: (550,23,4); (606,26,6)  
Queue 10: (493,22,2); (322,24,3); (775,26,5)  
Queue 11: (922,23,4); (659,26,4)  
Queue 12: (959,23,2); (0,26,4); (332,27,6)  
Queue 13: (158,24,4); (710,26,7)  
Queue 14: (112,21,2); (146,25,3); (781,26,7)  
Queue 15: (417,23,2); (479,25,2); (711,26,6)  
Queue 16: (260,24,2); (106,26,5); (599,27,4)  
Queue 17: (11,24,2); (890,25,2); (812,26,7)  
Queue 18: (420,23,3); (346,26,7)  
Queue 19: (20,24,2); (536,25,1); (365,26,6)  
Time 28  
Queue 0: (466,23,3); (457,26,2); (363,27,4)  
Queue 1: (233,22,1); (539,26,1); (200,27,6)  
Queue 2: (627,23,2); (113,26,4); (77,28,4)  
Queue 3: (132,24,2); (205,26,1); (882,26,1); (532,27,6)  
Queue 4: (241,26,5); (42,28,7)  
Queue 5: (17,23,3); (806,25,5)  
Queue 6: (828,22,2); (825,25,3); (561,27,7)  
Queue 7: (703,23,2); (597,26,5); (613,28,3)  
Queue 8: (397,22,2); (55,25,5); (739,28,3)  
Queue 9: (550,23,3); (606,26,5)  
Queue 10: (493,22,1); (322,24,2); (775,26,4); (857,28,4)  
Queue 11: (922,23,3); (659,26,3); (115,28,5)  
Queue 12: (959,23,1); (0,26,3); (332,27,5)  
Queue 13: (158,24,3); (710,26,6)  
Queue 14: (112,21,1); (146,25,2); (781,26,6)  
Queue 15: (417,23,1); (479,25,1); (711,26,5); (919,28,8)  
Queue 16: (260,24,1); (106,26,4); (599,27,3)  
Queue 17: (11,24,1); (890,25,1); (812,26,6)  
Queue 18: (420,23,2); (346,26,6)  
Queue 19: (20,24,1); (365,26,5); (566,28,7)  
Time 29  
Queue 0: (466,23,2); (457,26,1); (363,27,3); (169,29,3); (889,29,6)  
Queue 1: (200,27,5); (51,29,4); (998,29,8)  
Queue 2: (627,23,1); (113,26,3); (77,28,3); (607,29,3)  
Queue 3: (132,24,1); (532,27,5); (274,29,8)  
Queue 4: (241,26,4); (42,28,6)  
Queue 5: (17,23,2); (806,25,4); (327,29,3)  
Queue 6: (828,22,1); (825,25,2); (561,27,6)  
Queue 7: (703,23,1); (597,26,4); (613,28,2); (720,29,7)  
Queue 8: (397,22,1); (55,25,4); (739,28,2); (815,29,7)  
Queue 9: (550,23,2); (606,26,4); (330,29,4)  
Queue 10: (322,24,1); (775,26,3); (857,28,3); (853,29,4)  
Queue 11: (922,23,2); (659,26,2); (115,28,4); (883,29,8)  
Queue 12: (0,26,2); (332,27,4); (371,29,3)  
Queue 13: (158,24,2); (710,26,5); (864,29,8)  
Queue 14: (146,25,1); (781,26,5); (408,29,6)  
Queue 15: (711,26,4); (919,28,7)  
Queue 16: (106,26,3); (599,27,2); (68,29,4)  
Queue 17: (812,26,5); (107,29,6)  
Queue 18: (420,23,1); (346,26,5); (571,29,3)  
Queue 19: (365,26,4); (566,28,6)  
Time 30  
Queue 0: (466,23,1); (363,27,2); (169,29,2); (889,29,5)  
Queue 1: (200,27,4); (51,29,3); (998,29,7)  
Queue 2: (113,26,2); (77,28,2); (607,29,2); (84,30,8)  
Queue 3: (532,27,4); (274,29,7)  
Queue 4: (241,26,3); (42,28,5); (907,30,7)  
Queue 5: (17,23,1); (806,25,3); (327,29,2); (160,30,3)  
Queue 6: (825,25,1); (561,27,5); (180,30,5)  
Queue 7: (597,26,3); (613,28,1); (720,29,6)  
Queue 8: (55,25,3); (739,28,1); (815,29,6)  
Queue 9: (550,23,1); (606,26,3); (330,29,3); (591,30,4)  
Queue 10: (775,26,2); (857,28,2); (853,29,3); (629,30,3)  
Queue 11: (922,23,1); (659,26,1); (115,28,3); (883,29,7)  
Queue 12: (0,26,1); (332,27,3); (371,29,2); (409,30,8)  
Queue 13: (158,24,1); (710,26,4); (864,29,7)  
Queue 14: (781,26,4); (408,29,5)  
Queue 15: (711,26,3); (919,28,6)  
Queue 16: (106,26,2); (599,27,1); (68,29,3); (546,30,3)  
Queue 17: (812,26,4); (107,29,5)  
Queue 18: (346,26,4); (571,29,2); (581,30,3)  
Queue 19: (365,26,3); (566,28,5)  
Time 31  
Queue 0: (363,27,1); (169,29,1); (889,29,4); (453,31,6)  
Queue 1: (200,27,3); (51,29,2); (998,29,6)  
Queue 2: (113,26,1); (77,28,1); (607,29,1); (84,30,7)  
Queue 3: (532,27,3); (274,29,6)  
Queue 4: (241,26,2); (42,28,4); (907,30,6)  
Queue 5: (806,25,2); (327,29,1); (160,30,2); (149,31,7)  
Queue 6: (561,27,4); (180,30,4); (952,31,7)  
Queue 7: (597,26,2); (720,29,5); (647,31,3)  
Queue 8: (55,25,2); (815,29,5); (693,31,8)  
Queue 9: (606,26,2); (330,29,2); (591,30,3); (748,31,5)  
Queue 10: (775,26,1); (857,28,1); (853,29,2); (629,30,2); (463,31,7)  
Queue 11: (115,28,2); (883,29,6)  
Queue 12: (332,27,2); (371,29,1); (409,30,7)  
Queue 13: (710,26,3); (864,29,6)  
Queue 14: (781,26,3); (408,29,4); (772,31,8)  
Queue 15: (711,26,2); (919,28,5); (841,31,5)  
Queue 16: (106,26,1); (68,29,2); (546,30,2); (277,31,7)  
Queue 17: (812,26,3); (107,29,4); (931,31,6)  
Queue 18: (346,26,3); (571,29,1); (581,30,2); (488,31,8)  
Queue 19: (365,26,2); (566,28,4); (633,31,6)  
Time 32  
Queue 0: (889,29,3); (453,31,5); (689,32,4)  
Queue 1: (200,27,2); (51,29,1); (998,29,5)  
Queue 2: (84,30,6); (80,32,6)  
Queue 3: (532,27,2); (274,29,5); (264,32,7)  
Queue 4: (241,26,1); (42,28,3); (907,30,5)  
Queue 5: (806,25,1); (160,30,1); (149,31,6)  
Queue 6: (561,27,3); (180,30,3); (952,31,6)  
Queue 7: (597,26,1); (720,29,4); (647,31,2); (426,32,4)  
Queue 8: (55,25,1); (815,29,4); (693,31,7)  
Queue 9: (606,26,1); (330,29,1); (591,30,2); (748,31,4)  
Queue 10: (853,29,1); (629,30,1); (463,31,6)  
Queue 11: (115,28,1); (883,29,5); (88,32,3)  
Queue 12: (332,27,1); (409,30,6); (601,32,7)  
Queue 13: (710,26,2); (864,29,5); (648,32,4)  
Queue 14: (781,26,2); (408,29,3); (772,31,7)  
Queue 15: (711,26,1); (919,28,4); (841,31,4)  
Queue 16: (68,29,1); (546,30,1); (277,31,6)  
Queue 17: (812,26,2); (107,29,3); (931,31,5)  
Queue 18: (346,26,2); (581,30,1); (488,31,7)  
Queue 19: (365,26,1); (566,28,3); (633,31,5)  
Time 33  
Queue 0: (889,29,2); (453,31,4); (689,32,3)  
Queue 1: (200,27,1); (998,29,4); (38,33,7)  
Queue 2: (84,30,5); (80,32,5)  
Queue 3: (532,27,1); (274,29,4); (264,32,6)  
Queue 4: (42,28,2); (907,30,4); (574,33,4)  
Queue 5: (149,31,5); (272,33,5)  
Queue 6: (561,27,2); (180,30,2); (952,31,5)  
Queue 7: (720,29,3); (647,31,1); (426,32,3); (819,33,3)  
Queue 8: (815,29,3); (693,31,6)  
Queue 9: (591,30,1); (748,31,3); (31,33,7)  
Queue 10: (463,31,5); (290,33,4)  
Queue 11: (883,29,4); (88,32,2); (639,33,3)  
Queue 12: (409,30,5); (601,32,6)  
Queue 13: (710,26,1); (864,29,4); (648,32,3); (913,33,4)  
Queue 14: (781,26,1); (408,29,2); (772,31,6)  
Queue 15: (919,28,3); (841,31,3); (674,33,3)  
Queue 16: (277,31,5); (443,33,6)  
Queue 17: (812,26,1); (107,29,2); (931,31,4); (838,33,3)  
Queue 18: (346,26,1); (488,31,6); (900,33,4)  
Queue 19: (566,28,2); (633,31,4); (727,33,5)  
Time 34  
Queue 0: (889,29,1); (453,31,3); (689,32,2); (178,34,3)  
Queue 1: (998,29,3); (38,33,6)  
Queue 2: (84,30,4); (80,32,4); (554,34,5)  
Queue 3: (274,29,3); (264,32,5); (583,34,6)  
Queue 4: (42,28,1); (907,30,3); (574,33,3); (424,34,8)  
Queue 5: (149,31,4); (272,33,4); (676,34,5)  
Queue 6: (561,27,1); (180,30,1); (952,31,4); (250,34,7)  
Queue 7: (720,29,2); (426,32,2); (819,33,2); (268,34,7)  
Queue 8: (815,29,2); (693,31,5); (471,34,3)  
Queue 9: (748,31,2); (31,33,6); (713,34,3)  
Queue 10: (463,31,4); (290,33,3); (522,34,3)  
Queue 11: (883,29,3); (88,32,1); (639,33,2); (271,34,8)  
Queue 12: (409,30,4); (601,32,5)  
Queue 13: (864,29,3); (648,32,2); (913,33,3); (802,34,6)  
Queue 14: (408,29,1); (772,31,5); (344,34,6)  
Queue 15: (919,28,2); (841,31,2); (674,33,2); (393,34,7)  
Queue 16: (277,31,4); (443,33,5)  
Queue 17: (107,29,1); (931,31,3); (838,33,2); (394,34,5)  
Queue 18: (488,31,5); (900,33,3); (829,34,6)  
Queue 19: (566,28,1); (633,31,3); (727,33,4); (977,34,8)  
Time 35  
Queue 0: (453,31,2); (689,32,1); (178,34,2); (49,35,4); (638,35,5)  
Queue 1: (998,29,2); (38,33,5); (135,35,6)  
Queue 2: (84,30,3); (80,32,3); (554,34,4)  
Queue 3: (274,29,2); (264,32,4); (583,34,5)  
Queue 4: (907,30,2); (574,33,2); (424,34,7)  
Queue 5: (149,31,3); (272,33,3); (676,34,4)  
Queue 6: (952,31,3); (250,34,6); (886,35,6)  
Queue 7: (720,29,1); (426,32,1); (819,33,1); (268,34,6); (943,35,7)  
Queue 8: (815,29,1); (693,31,4); (471,34,2); (217,35,6)  
Queue 9: (748,31,1); (31,33,5); (713,34,2); (628,35,4)  
Queue 10: (463,31,3); (290,33,2); (522,34,2); (440,35,3)  
Queue 11: (883,29,2); (639,33,1); (271,34,7)  
Queue 12: (409,30,3); (601,32,4); (445,35,7)  
Queue 13: (864,29,2); (648,32,1); (913,33,2); (802,34,5)  
Queue 14: (772,31,4); (344,34,5)  
Queue 15: (919,28,1); (841,31,1); (674,33,1); (393,34,6)  
Queue 16: (277,31,3); (443,33,4); (499,35,6)  
Queue 17: (931,31,2); (838,33,1); (394,34,4); (586,35,6)  
Queue 18: (488,31,4); (900,33,2); (829,34,5)  
Queue 19: (633,31,2); (727,33,3); (977,34,7)  
Time 36  
Queue 0: (453,31,1); (178,34,1); (49,35,3); (638,35,4)  
Queue 1: (998,29,1); (38,33,4); (135,35,5)  
Queue 2: (84,30,2); (80,32,2); (554,34,3); (594,36,5)  
Queue 3: (274,29,1); (264,32,3); (583,34,4); (795,36,4)  
Queue 4: (907,30,1); (574,33,1); (424,34,6)  
Queue 5: (149,31,2); (272,33,2); (676,34,3); (654,36,3)  
Queue 6: (952,31,2); (250,34,5); (886,35,5)  
Queue 7: (268,34,5); (943,35,6)  
Queue 8: (693,31,3); (471,34,1); (217,35,5)  
Queue 9: (31,33,4); (713,34,1); (628,35,3)  
Queue 10: (463,31,2); (290,33,1); (522,34,1); (440,35,2); (460,36,6)  
Queue 11: (883,29,1); (271,34,6); (666,36,4)  
Queue 12: (409,30,2); (601,32,3); (445,35,6)  
Queue 13: (864,29,1); (913,33,1); (802,34,4); (572,36,3)  
Queue 14: (772,31,3); (344,34,4); (777,36,4)  
Queue 15: (393,34,5); (321,36,8)  
Queue 16: (277,31,2); (443,33,3); (499,35,5)  
Queue 17: (931,31,1); (394,34,3); (586,35,5)  
Queue 18: (488,31,3); (900,33,1); (829,34,4)  
Queue 19: (633,31,1); (727,33,2); (977,34,6)  
Time 37  
Queue 0: (49,35,2); (638,35,3); (74,37,5)  
Queue 1: (38,33,3); (135,35,4)  
Queue 2: (84,30,1); (80,32,1); (554,34,2); (594,36,4)  
Queue 3: (264,32,2); (583,34,3); (795,36,3)  
Queue 4: (424,34,5); (225,37,4)  
Queue 5: (149,31,1); (272,33,1); (676,34,2); (654,36,2); (632,37,7)  
Queue 6: (952,31,1); (250,34,4); (886,35,4)  
Queue 7: (268,34,4); (943,35,5)  
Queue 8: (693,31,2); (217,35,4); (731,37,5)  
Queue 9: (31,33,3); (628,35,2); (273,37,6)  
Queue 10: (463,31,1); (440,35,1); (460,36,5)  
Queue 11: (271,34,5); (666,36,3)  
Queue 12: (409,30,1); (601,32,2); (445,35,5)  
Queue 13: (802,34,3); (572,36,2); (538,37,6)  
Queue 14: (772,31,2); (344,34,3); (777,36,3)  
Queue 15: (393,34,4); (321,36,7)  
Queue 16: (277,31,1); (443,33,2); (499,35,4)  
Queue 17: (394,34,2); (586,35,4); (866,37,5)  
Queue 18: (488,31,2); (829,34,3); (587,37,4)  
Queue 19: (727,33,1); (977,34,5); (933,37,7)  
Time 38  
Queue 0: (49,35,1); (638,35,2); (74,37,4); (979,38,8)  
Queue 1: (38,33,2); (135,35,3); (557,38,5)  
Queue 2: (554,34,1); (594,36,3); (184,38,8)  
Queue 3: (264,32,1); (583,34,2); (795,36,2); (605,38,7)  
Queue 4: (424,34,4); (225,37,3)  
Queue 5: (676,34,1); (654,36,1); (632,37,6)  
Queue 6: (250,34,3); (886,35,3); (887,38,6)  
Queue 7: (268,34,3); (943,35,4)  
Queue 8: (693,31,1); (217,35,3); (731,37,4)  
Queue 9: (31,33,2); (628,35,1); (273,37,5)  
Queue 10: (460,36,4); (219,38,4)  
Queue 11: (271,34,4); (666,36,2); (901,38,5)  
Queue 12: (601,32,1); (445,35,4); (730,38,5)  
Queue 13: (802,34,2); (572,36,1); (538,37,5)  
Queue 14: (772,31,1); (344,34,2); (777,36,2); (778,38,4)  
Queue 15: (393,34,3); (321,36,6)  
Queue 16: (443,33,1); (499,35,3); (230,38,8)  
Queue 17: (394,34,1); (586,35,3); (866,37,4)  
Queue 18: (488,31,1); (829,34,2); (587,37,3); (969,38,3)  
Queue 19: (977,34,4); (933,37,6)  
Time 39  
Queue 0: (638,35,1); (74,37,3); (979,38,7)  
Queue 1: (38,33,1); (135,35,2); (557,38,4)  
Queue 2: (594,36,2); (184,38,7)  
Queue 3: (583,34,1); (795,36,1); (605,38,6)  
Queue 4: (424,34,3); (225,37,2); (148,39,8)  
Queue 5: (632,37,5); (157,39,3)  
Queue 6: (250,34,2); (886,35,2); (887,38,5)  
Queue 7: (268,34,2); (943,35,3); (367,39,5)  
Queue 8: (217,35,2); (731,37,3); (403,39,3)  
Queue 9: (31,33,1); (273,37,4); (496,39,8)  
Queue 10: (460,36,3); (219,38,3)  
Queue 11: (271,34,3); (666,36,1); (901,38,4)  
Queue 12: (445,35,3); (730,38,4)  
Queue 13: (802,34,1); (538,37,4); (585,39,8)  
Queue 14: (344,34,1); (777,36,1); (778,38,3); (704,39,6)  
Queue 15: (393,34,2); (321,36,5)  
Queue 16: (499,35,2); (230,38,7)  
Queue 17: (586,35,2); (866,37,3); (807,39,6)  
Queue 18: (829,34,1); (587,37,2); (969,38,2); (908,39,5)  
Queue 19: (977,34,3); (933,37,5)  
Time 40  
Queue 0: (74,37,2); (979,38,6)  
Queue 1: (135,35,1); (557,38,3); (98,40,3)  
Queue 2: (594,36,1); (184,38,6)  
Queue 3: (605,38,5); (301,40,8)  
Queue 4: (424,34,2); (225,37,1); (148,39,7)  
Queue 5: (632,37,4); (157,39,2); (993,40,8)  
Queue 6: (250,34,1); (886,35,1); (887,38,4)  
Queue 7: (268,34,1); (943,35,2); (367,39,4)  
Queue 8: (217,35,1); (731,37,2); (403,39,2); (682,40,8)  
Queue 9: (273,37,3); (496,39,7)  
Queue 10: (460,36,2); (219,38,2); (103,40,7)  
Queue 11: (271,34,2); (901,38,3); (924,40,3)  
Queue 12: (445,35,2); (730,38,3); (985,40,7)  
Queue 13: (538,37,3); (585,39,7)  
Queue 14: (778,38,2); (704,39,5)  
Queue 15: (393,34,1); (321,36,4); (991,40,3)  
Queue 16: (499,35,1); (230,38,6)  
Queue 17: (586,35,1); (866,37,2); (807,39,5)  
Queue 18: (587,37,1); (969,38,1); (908,39,4)  
Queue 19: (977,34,2); (933,37,4)  
Time 41  
Queue 0: (74,37,1); (979,38,5); (756,41,5)  
Queue 1: (557,38,2); (98,40,2); (102,41,4)  
Queue 2: (184,38,5); (316,41,5)  
Queue 3: (605,38,4); (301,40,7)  
Queue 4: (424,34,1); (148,39,6); (843,41,8)  
Queue 5: (632,37,3); (157,39,1); (993,40,7)  
Queue 6: (887,38,3); (29,41,5)  
Queue 7: (943,35,1); (367,39,3); (162,41,7)  
Queue 8: (731,37,1); (403,39,1); (682,40,7)  
Queue 9: (273,37,2); (496,39,6)  
Queue 10: (460,36,1); (219,38,1); (103,40,6)  
Queue 11: (271,34,1); (901,38,2); (924,40,2); (343,41,6)  
Queue 12: (445,35,1); (730,38,2); (985,40,6)  
Queue 13: (538,37,2); (585,39,6)  
Queue 14: (778,38,1); (704,39,4); (429,41,3)  
Queue 15: (321,36,3); (991,40,2); (510,41,4)  
Queue 16: (230,38,5); (683,41,4)  
Queue 17: (866,37,1); (807,39,4); (706,41,8)  
Queue 18: (908,39,3); (63,41,4); (878,41,3)  
Queue 19: (977,34,1); (933,37,3); (199,41,7)  
Time 42  
Queue 0: (979,38,4); (756,41,4)  
Queue 1: (557,38,1); (98,40,1); (102,41,3); (4,42,3)  
Queue 2: (184,38,4); (316,41,4)  
Queue 3: (605,38,3); (301,40,6)  
Queue 4: (148,39,5); (843,41,7)  
Queue 5: (632,37,2); (993,40,6)  
Queue 6: (887,38,2); (29,41,4); (147,42,7)  
Queue 7: (367,39,2); (162,41,6)  
Queue 8: (682,40,6); (221,42,7)  
Queue 9: (273,37,1); (496,39,5); (505,42,6)  
Queue 10: (103,40,5); (43,42,8)  
Queue 11: (901,38,1); (924,40,1); (343,41,5); (679,42,3)  
Queue 12: (730,38,1); (985,40,5); (570,42,7)  
Queue 13: (538,37,1); (585,39,5); (616,42,4)  
Queue 14: (704,39,3); (429,41,2); (145,42,5)  
Queue 15: (321,36,2); (991,40,1); (510,41,3); (622,42,7)  
Queue 16: (230,38,4); (683,41,3); (852,42,7)  
Queue 17: (807,39,3); (706,41,7)  
Queue 18: (908,39,2); (63,41,3); (878,41,2); (996,42,7)  
Queue 19: (933,37,2); (199,41,6)  
Time 43  
Queue 0: (979,38,3); (756,41,3); (258,43,5); (987,43,6)  
Queue 1: (102,41,2); (4,42,2); (72,43,8)  
Queue 2: (184,38,3); (316,41,3); (267,43,6)  
Queue 3: (605,38,2); (301,40,5); (579,43,6)  
Queue 4: (148,39,4); (843,41,6)  
Queue 5: (632,37,1); (993,40,5); (297,43,5)  
Queue 6: (887,38,1); (29,41,3); (147,42,6)  
Queue 7: (367,39,1); (162,41,5); (391,43,3); (708,43,7)  
Queue 8: (682,40,5); (221,42,6)  
Queue 9: (496,39,4); (505,42,5); (932,43,4)  
Queue 10: (103,40,4); (43,42,7)  
Queue 11: (343,41,4); (679,42,2); (421,43,8)  
Queue 12: (985,40,4); (570,42,6)  
Queue 13: (585,39,4); (616,42,3); (588,43,6)  
Queue 14: (704,39,2); (429,41,1); (145,42,4); (650,43,5)  
Queue 15: (321,36,1); (510,41,2); (622,42,6); (948,43,7)  
Queue 16: (230,38,3); (683,41,2); (852,42,6)  
Queue 17: (807,39,2); (706,41,6); (701,43,6)  
Queue 18: (908,39,1); (63,41,2); (878,41,1); (996,42,6)  
Queue 19: (933,37,1); (199,41,5); (449,43,5)  
Time 44  
Queue 0: (979,38,2); (756,41,2); (258,43,4); (987,43,5)  
Queue 1: (102,41,1); (4,42,1); (72,43,7); (637,44,6)  
Queue 2: (184,38,2); (316,41,2); (267,43,5); (833,44,5)  
Queue 3: (605,38,1); (301,40,4); (579,43,5)  
Queue 4: (148,39,3); (843,41,5); (126,44,8)  
Queue 5: (993,40,4); (297,43,4); (198,44,8)  
Queue 6: (29,41,2); (147,42,5); (97,44,7)  
Queue 7: (162,41,4); (391,43,2); (708,43,6)  
Queue 8: (682,40,4); (221,42,5); (984,44,7)  
Queue 9: (496,39,3); (505,42,4); (932,43,3)  
Queue 10: (103,40,3); (43,42,6)  
Queue 11: (343,41,3); (679,42,1); (421,43,7)  
Queue 12: (985,40,3); (570,42,5); (338,44,8)  
Queue 13: (585,39,3); (616,42,2); (588,43,5)  
Queue 14: (704,39,1); (145,42,3); (650,43,4); (399,44,3)  
Queue 15: (510,41,1); (622,42,5); (948,43,6)  
Queue 16: (230,38,2); (683,41,1); (852,42,5); (414,44,5)  
Queue 17: (807,39,1); (706,41,5); (701,43,5)  
Queue 18: (63,41,1); (996,42,5); (7,44,4)  
Queue 19: (199,41,4); (449,43,4); (489,44,4)  
Time 45  
Queue 0: (979,38,1); (756,41,1); (258,43,3); (987,43,4); (544,45,5); (767,45,6); (813,45,5); (951,45,3); (982,45,6)  
Queue 1: (72,43,6); (637,44,5)  
Queue 2: (184,38,1); (316,41,1); (267,43,4); (833,44,4)  
Queue 3: (301,40,3); (579,43,4); (48,45,4)  
Queue 4: (148,39,2); (843,41,4); (126,44,7)  
Queue 5: (993,40,3); (297,43,3); (198,44,7)  
Queue 6: (29,41,1); (147,42,4); (97,44,6)  
Queue 7: (162,41,3); (391,43,1); (708,43,5); (661,45,5)  
Queue 8: (682,40,3); (221,42,4); (984,44,6)  
Queue 9: (496,39,2); (505,42,3); (932,43,2); (105,45,8)  
Queue 10: (103,40,2); (43,42,5); (118,45,3)  
Queue 11: (343,41,2); (421,43,6); (392,45,6)  
Queue 12: (985,40,2); (570,42,4); (338,44,7)  
Queue 13: (585,39,2); (616,42,1); (588,43,4); (152,45,7)  
Queue 14: (145,42,2); (650,43,3); (399,44,2); (218,45,8)  
Queue 15: (622,42,4); (948,43,5); (664,45,8)  
Queue 16: (230,38,1); (852,42,4); (414,44,4); (709,45,7)  
Queue 17: (706,41,4); (701,43,4); (454,45,3)  
Queue 18: (996,42,4); (7,44,3); (306,45,4)  
Queue 19: (199,41,3); (449,43,3); (489,44,3); (712,45,5)  
Time 46  
Queue 0: (258,43,2); (987,43,3); (544,45,4); (767,45,5); (813,45,4); (951,45,2); (982,45,5); (851,46,8); (898,46,8); (937,46,8)  
Queue 1: (72,43,5); (637,44,4); (688,46,8)  
Queue 2: (267,43,3); (833,44,3); (85,46,3); (719,46,8)  
Queue 3: (301,40,2); (579,43,3); (48,45,3); (461,46,6)  
Queue 4: (148,39,1); (843,41,3); (126,44,6)  
Queue 5: (993,40,2); (297,43,2); (198,44,6)  
Queue 6: (147,42,3); (97,44,5); (490,46,5)  
Queue 7: (162,41,2); (708,43,4); (661,45,4)  
Queue 8: (682,40,2); (221,42,3); (984,44,5)  
Queue 9: (496,39,1); (505,42,2); (932,43,1); (105,45,7)  
Queue 10: (103,40,1); (43,42,4); (118,45,2); (109,46,6)  
Queue 11: (343,41,1); (421,43,5); (392,45,5)  
Queue 12: (985,40,1); (570,42,3); (338,44,6)  
Queue 13: (585,39,1); (588,43,3); (152,45,6)  
Queue 14: (145,42,1); (650,43,2); (399,44,1); (218,45,7)  
Queue 15: (622,42,3); (948,43,4); (664,45,7)  
Queue 16: (852,42,3); (414,44,3); (709,45,6)  
Queue 17: (706,41,3); (701,43,3); (454,45,2); (577,46,4)  
Queue 18: (996,42,3); (7,44,2); (306,45,3); (596,46,5)  
Queue 19: (199,41,2); (449,43,2); (489,44,2); (712,45,4)  
Time 47  
Queue 0: (258,43,1); (987,43,2); (544,45,3); (767,45,4); (813,45,3); (951,45,1); (982,45,4); (851,46,7); (898,46,7); (937,46,7)  
Queue 1: (72,43,4); (637,44,3); (688,46,7)  
Queue 2: (267,43,2); (833,44,2); (85,46,2); (719,46,7)  
Queue 3: (301,40,1); (579,43,2); (48,45,2); (461,46,5)  
Queue 4: (843,41,2); (126,44,5); (187,47,8)  
Queue 5: (993,40,1); (297,43,1); (198,44,5); (435,47,5)  
Queue 6: (147,42,2); (97,44,4); (490,46,4)  
Queue 7: (162,41,1); (708,43,3); (661,45,3); (464,47,5)  
Queue 8: (682,40,1); (221,42,2); (984,44,4); (469,47,3)  
Queue 9: (505,42,1); (105,45,6); (518,47,4)  
Queue 10: (43,42,3); (118,45,1); (109,46,5); (999,47,5)  
Queue 11: (421,43,4); (392,45,4); (839,47,7)  
Queue 12: (570,42,2); (338,44,5); (563,47,8)  
Queue 13: (588,43,2); (152,45,5); (649,47,5)  
Queue 14: (650,43,1); (218,45,6); (821,47,7)  
Queue 15: (622,42,2); (948,43,3); (664,45,6)  
Queue 16: (852,42,2); (414,44,2); (709,45,5)  
Queue 17: (706,41,2); (701,43,2); (454,45,1); (577,46,3); (976,47,5)  
Queue 18: (996,42,2); (7,44,1); (306,45,2); (596,46,4)  
Queue 19: (199,41,1); (449,43,1); (489,44,1); (712,45,3); (117,47,8)  
Time 48  
Queue 0: (987,43,1); (544,45,2); (767,45,3); (813,45,2); (982,45,3); (851,46,6); (898,46,6); (937,46,6)  
Queue 1: (72,43,3); (637,44,2); (688,46,6)  
Queue 2: (267,43,1); (833,44,1); (85,46,1); (719,46,6); (847,48,4)  
Queue 3: (579,43,1); (48,45,1); (461,46,4); (101,48,3); (849,48,4)  
Queue 4: (843,41,1); (126,44,4); (187,47,7)  
Queue 5: (198,44,4); (435,47,4); (415,48,3)  
Queue 6: (147,42,1); (97,44,3); (490,46,3); (311,48,5)  
Queue 7: (708,43,2); (661,45,2); (464,47,4); (470,48,6)  
Queue 8: (221,42,1); (984,44,3); (469,47,2); (236,48,6)  
Queue 9: (105,45,5); (518,47,3); (513,48,4)  
Queue 10: (43,42,2); (109,46,4); (999,47,4)  
Queue 11: (421,43,3); (392,45,3); (839,47,6)  
Queue 12: (570,42,1); (338,44,4); (563,47,7)  
Queue 13: (588,43,1); (152,45,4); (649,47,4)  
Queue 14: (218,45,5); (821,47,6)  
Queue 15: (622,42,1); (948,43,2); (664,45,5); (675,48,6)  
Queue 16: (852,42,1); (414,44,1); (709,45,4); (308,48,3)  
Queue 17: (706,41,1); (701,43,1); (577,46,2); (976,47,4); (811,48,6)  
Queue 18: (996,42,1); (306,45,1); (596,46,3); (19,48,7)  
Queue 19: (712,45,2); (117,47,7)  
Time 49  
Queue 0: (544,45,1); (767,45,2); (813,45,1); (982,45,2); (851,46,5); (898,46,5); (937,46,5)  
Queue 1: (72,43,2); (637,44,1); (688,46,5); (492,49,6)  
Queue 2: (719,46,5); (847,48,3); (520,49,6)  
Queue 3: (461,46,3); (101,48,2); (849,48,3); (580,49,8)  
Queue 4: (126,44,3); (187,47,6); (861,49,7)  
Queue 5: (198,44,3); (435,47,3); (415,48,2); (670,49,8)  
Queue 6: (97,44,2); (490,46,2); (311,48,4); (691,49,5)  
Queue 7: (708,43,1); (661,45,1); (464,47,3); (470,48,5)  
Queue 8: (984,44,2); (469,47,1); (236,48,5); (715,49,3)  
Queue 9: (105,45,4); (518,47,2); (513,48,3); (862,49,5)  
Queue 10: (43,42,1); (109,46,3); (999,47,3); (185,49,5)  
Queue 11: (421,43,2); (392,45,2); (839,47,5); (905,49,5)  
Queue 12: (338,44,3); (563,47,6); (911,49,8)  
Queue 13: (152,45,3); (649,47,3); (174,49,5)  
Queue 14: (218,45,4); (821,47,5); (966,49,5)  
Queue 15: (948,43,1); (664,45,4); (675,48,5)  
Queue 16: (709,45,3); (308,48,2); (129,49,8)  
Queue 17: (577,46,1); (976,47,3); (811,48,5); (990,49,5)  
Queue 18: (596,46,2); (19,48,6); (773,49,5)  
Queue 19: (712,45,1); (117,47,6); (482,49,5)  
Time 50  
Queue 0: (767,45,1); (982,45,1); (851,46,4); (898,46,4); (937,46,4)  
Queue 1: (72,43,1); (688,46,4); (492,49,5)  
Queue 2: (719,46,4); (847,48,2); (520,49,5)  
Queue 3: (461,46,2); (101,48,1); (849,48,2); (580,49,7)  
Queue 4: (126,44,2); (187,47,5); (861,49,6)  
Queue 5: (198,44,2); (435,47,2); (415,48,1); (670,49,7)  
Queue 6: (97,44,1); (490,46,1); (311,48,3); (691,49,4)  
Queue 7: (464,47,2); (470,48,4); (41,50,6)  
Queue 8: (984,44,1); (236,48,4); (715,49,2); (385,50,7)  
Queue 9: (105,45,3); (518,47,1); (513,48,2); (862,49,4)  
Queue 10: (109,46,2); (999,47,2); (185,49,4); (416,50,4)  
Queue 11: (421,43,1); (392,45,1); (839,47,4); (905,49,4)  
Queue 12: (338,44,2); (563,47,5); (911,49,7)  
Queue 13: (152,45,2); (649,47,2); (174,49,4); (830,50,3)  
Queue 14: (218,45,3); (821,47,4); (966,49,4)  
Queue 15: (664,45,3); (675,48,4); (406,50,7)  
Queue 16: (709,45,2); (308,48,1); (129,49,7)  
Queue 17: (976,47,2); (811,48,4); (990,49,4)  
Queue 18: (596,46,1); (19,48,5); (773,49,4)  
Queue 19: (117,47,5); (482,49,4)  
Time 51  
Queue 0: (851,46,3); (898,46,3); (937,46,3)  
Queue 1: (688,46,3); (492,49,4); (188,51,7)  
Queue 2: (719,46,3); (847,48,1); (520,49,4); (963,51,4)  
Queue 3: (461,46,1); (849,48,1); (580,49,6); (974,51,8)  
Queue 4: (126,44,1); (187,47,4); (861,49,5)  
Queue 5: (198,44,1); (435,47,1); (670,49,6)  
Queue 6: (311,48,2); (691,49,3); (9,51,8)  
Queue 7: (464,47,1); (470,48,3); (41,50,5)  
Queue 8: (236,48,3); (715,49,1); (385,50,6)  
Queue 9: (105,45,2); (513,48,1); (862,49,3); (27,51,6)  
Queue 10: (109,46,1); (999,47,1); (185,49,3); (416,50,3)  
Queue 11: (839,47,3); (905,49,3); (159,51,7)  
Queue 12: (338,44,1); (563,47,4); (911,49,6)  
Queue 13: (152,45,1); (649,47,1); (174,49,3); (830,50,2); (222,51,6)  
Queue 14: (218,45,2); (821,47,3); (966,49,3)  
Queue 15: (664,45,2); (675,48,3); (406,50,6)  
Queue 16: (709,45,1); (129,49,6); (325,51,5)  
Queue 17: (976,47,1); (811,48,3); (990,49,3); (652,51,8)  
Queue 18: (19,48,4); (773,49,3); (779,51,4)  
Queue 19: (117,47,4); (482,49,3); (912,51,3)  
Time 52  
Queue 0: (851,46,2); (898,46,2); (937,46,2); (389,52,7)  
Queue 1: (688,46,2); (492,49,3); (188,51,6)  
Queue 2: (719,46,2); (520,49,3); (963,51,3); (899,52,8)  
Queue 3: (580,49,5); (974,51,7)  
Queue 4: (187,47,3); (861,49,4); (545,52,5)  
Queue 5: (670,49,5); (259,52,3); (920,52,3)  
Queue 6: (311,48,1); (691,49,2); (9,51,7)  
Queue 7: (470,48,2); (41,50,4); (437,52,7)  
Queue 8: (236,48,2); (385,50,5); (800,52,8)  
Queue 9: (105,45,1); (862,49,2); (27,51,5)  
Queue 10: (185,49,2); (416,50,2); (215,52,6)  
Queue 11: (839,47,2); (905,49,2); (159,51,6)  
Queue 12: (563,47,3); (911,49,5)  
Queue 13: (174,49,2); (830,50,1); (222,51,5)  
Queue 14: (218,45,1); (821,47,2); (966,49,2); (351,52,6)  
Queue 15: (664,45,1); (675,48,2); (406,50,5)  
Queue 16: (129,49,5); (325,51,4)  
Queue 17: (811,48,2); (990,49,2); (652,51,7)  
Queue 18: (19,48,3); (773,49,2); (779,51,3)  
Queue 19: (117,47,3); (482,49,2); (912,51,2); (897,52,5)  
Time 53  
Queue 0: (851,46,1); (898,46,1); (937,46,1); (389,52,6)  
Queue 1: (688,46,1); (492,49,2); (188,51,5)  
Queue 2: (719,46,1); (520,49,2); (963,51,2); (899,52,7)  
Queue 3: (580,49,4); (974,51,6)  
Queue 4: (187,47,2); (861,49,3); (545,52,4)  
Queue 5: (670,49,4); (259,52,2); (920,52,2)  
Queue 6: (691,49,1); (9,51,6); (724,53,3)  
Queue 7: (470,48,1); (41,50,3); (437,52,6)  
Queue 8: (236,48,1); (385,50,4); (800,52,7)  
Queue 9: (862,49,1); (27,51,4); (128,53,8)  
Queue 10: (185,49,1); (416,50,1); (215,52,5); (762,53,8)  
Queue 11: (839,47,1); (905,49,1); (159,51,5); (826,53,3)  
Queue 12: (563,47,2); (911,49,4); (292,53,7)  
Queue 13: (174,49,1); (222,51,4); (131,53,5)  
Queue 14: (821,47,1); (966,49,1); (351,52,5); (874,53,4)  
Queue 15: (675,48,1); (406,50,4); (133,53,3)  
Queue 16: (129,49,4); (325,51,3); (949,53,3)  
Queue 17: (811,48,1); (990,49,1); (652,51,6)  
Queue 18: (19,48,2); (773,49,1); (779,51,2); (193,53,6)  
Queue 19: (117,47,2); (482,49,1); (912,51,1); (897,52,4)  
Time 54  
Queue 0: (389,52,5); (202,54,5)  
Queue 1: (492,49,1); (188,51,4); (208,54,6)  
Queue 2: (520,49,1); (963,51,1); (899,52,6)  
Queue 3: (580,49,3); (974,51,5)  
Queue 4: (187,47,1); (861,49,2); (545,52,3); (582,54,4)  
Queue 5: (670,49,3); (259,52,1); (920,52,1); (418,54,6)  
Queue 6: (9,51,5); (724,53,2); (722,54,6)  
Queue 7: (41,50,2); (437,52,5); (746,54,7)  
Queue 8: (385,50,3); (800,52,6)  
Queue 9: (27,51,3); (128,53,7)  
Queue 10: (215,52,4); (762,53,7)  
Queue 11: (159,51,4); (826,53,2); (641,54,5)  
Queue 12: (563,47,1); (911,49,3); (292,53,6)  
Queue 13: (222,51,3); (131,53,4); (850,54,8)  
Queue 14: (351,52,4); (874,53,3); (880,54,6)  
Queue 15: (406,50,3); (133,53,2); (494,54,8)  
Queue 16: (129,49,3); (325,51,2); (949,53,2)  
Queue 17: (652,51,5); (503,54,5)  
Queue 18: (19,48,1); (779,51,1); (193,53,5)  
Queue 19: (117,47,1); (897,52,3); (195,54,5)  
Time 55  
Queue 0: (389,52,4); (202,54,4); (656,55,4)  
Queue 1: (188,51,3); (208,54,5); (895,55,3)  
Queue 2: (899,52,5); (122,55,8)  
Queue 3: (580,49,2); (974,51,4); (143,55,7)  
Queue 4: (861,49,1); (545,52,2); (582,54,3); (287,55,6)  
Queue 5: (670,49,2); (418,54,5); (366,55,4)  
Queue 6: (9,51,4); (724,53,1); (722,54,5)  
Queue 7: (41,50,1); (437,52,4); (746,54,6)  
Queue 8: (385,50,2); (800,52,5); (480,55,5)  
Queue 9: (27,51,2); (128,53,6)  
Queue 10: (215,52,3); (762,53,6)  
Queue 11: (159,51,3); (826,53,1); (641,54,4)  
Queue 12: (911,49,2); (292,53,5); (610,55,6)  
Queue 13: (222,51,2); (131,53,3); (850,54,7)  
Queue 14: (351,52,3); (874,53,2); (880,54,5)  
Queue 15: (406,50,2); (133,53,1); (494,54,7)  
Queue 16: (129,49,2); (325,51,1); (949,53,1); (35,55,6)  
Queue 17: (652,51,4); (503,54,4)  
Queue 18: (193,53,4); (91,55,7)  
Queue 19: (897,52,2); (195,54,4); (337,55,4)  
Time 56  
Queue 0: (389,52,3); (202,54,3); (656,55,3)  
Queue 1: (188,51,2); (208,54,4); (895,55,2)  
Queue 2: (899,52,4); (122,55,7)  
Queue 3: (580,49,1); (974,51,3); (143,55,6)  
Queue 4: (545,52,1); (582,54,2); (287,55,5)  
Queue 5: (670,49,1); (418,54,4); (366,55,3)  
Queue 6: (9,51,3); (722,54,4); (444,56,8)  
Queue 7: (437,52,3); (746,54,5)  
Queue 8: (385,50,1); (800,52,4); (480,55,4)  
Queue 9: (27,51,1); (128,53,5); (295,56,4)  
Queue 10: (215,52,2); (762,53,5); (784,56,7)  
Queue 11: (159,51,2); (641,54,3); (44,56,8)  
Queue 12: (911,49,1); (292,53,4); (610,55,5)  
Queue 13: (222,51,1); (131,53,2); (850,54,6)  
Queue 14: (351,52,2); (874,53,1); (880,54,4); (789,56,7)  
Queue 15: (406,50,1); (494,54,6); (823,56,5)  
Queue 16: (129,49,1); (35,55,5); (342,56,8)  
Queue 17: (652,51,3); (503,54,3); (430,56,5)  
Queue 18: (193,53,3); (91,55,6)  
Queue 19: (897,52,1); (195,54,3); (337,55,3); (891,56,7)  
Time 57  
Queue 0: (389,52,2); (202,54,2); (656,55,2); (422,57,7)  
Queue 1: (188,51,1); (208,54,3); (895,55,1); (156,57,4)  
Queue 2: (899,52,3); (122,55,6)  
Queue 3: (974,51,2); (143,55,5); (799,57,8)  
Queue 4: (582,54,1); (287,55,4); (263,57,6)  
Queue 5: (418,54,3); (366,55,2); (317,57,8)  
Queue 6: (9,51,2); (722,54,3); (444,56,7)  
Queue 7: (437,52,2); (746,54,4); (467,57,4)  
Queue 8: (800,52,3); (480,55,3); (645,57,3)  
Queue 9: (128,53,4); (295,56,3)  
Queue 10: (215,52,1); (762,53,4); (784,56,6)  
Queue 11: (159,51,1); (641,54,2); (44,56,7)  
Queue 12: (292,53,3); (610,55,4)  
Queue 13: (131,53,1); (850,54,5); (658,57,8)  
Queue 14: (351,52,1); (880,54,3); (789,56,6)  
Queue 15: (494,54,5); (823,56,4)  
Queue 16: (35,55,4); (342,56,7)  
Queue 17: (652,51,2); (503,54,2); (430,56,4)  
Queue 18: (193,53,2); (91,55,5)  
Queue 19: (195,54,2); (337,55,2); (891,56,6)  
Time 58  
Queue 0: (389,52,1); (202,54,1); (656,55,1); (422,57,6)  
Queue 1: (208,54,2); (156,57,3); (60,58,4)  
Queue 2: (899,52,2); (122,55,5); (612,58,5)  
Queue 3: (974,51,1); (143,55,4); (799,57,7)  
Queue 4: (287,55,3); (263,57,5)  
Queue 5: (418,54,2); (366,55,1); (317,57,7)  
Queue 6: (9,51,1); (722,54,2); (444,56,6)  
Queue 7: (437,52,1); (746,54,3); (467,57,3); (646,58,7)  
Queue 8: (800,52,2); (480,55,2); (645,57,2); (608,58,5)  
Queue 9: (128,53,3); (295,56,2); (168,58,5)  
Queue 10: (762,53,3); (784,56,5)  
Queue 11: (641,54,1); (44,56,6); (673,58,3)  
Queue 12: (292,53,2); (610,55,3); (220,58,4)  
Queue 13: (850,54,4); (658,57,7)  
Queue 14: (880,54,2); (789,56,5); (734,58,8)  
Queue 15: (494,54,4); (823,56,3); (750,58,5)  
Queue 16: (35,55,3); (342,56,6)  
Queue 17: (652,51,1); (503,54,1); (430,56,3); (255,58,8)  
Queue 18: (193,53,1); (91,55,4); (261,58,4)  
Queue 19: (195,54,1); (337,55,1); (891,56,5); (934,58,6)  
Time 59  
Queue 0: (422,57,5); (81,59,4)  
Queue 1: (208,54,1); (156,57,2); (60,58,3); (304,59,3)  
Queue 2: (899,52,1); (122,55,4); (612,58,4)  
Queue 3: (143,55,3); (799,57,6)  
Queue 4: (287,55,2); (263,57,4); (319,59,3)  
Queue 5: (418,54,1); (317,57,6); (475,59,7)  
Queue 6: (722,54,1); (444,56,5); (340,59,6)  
Queue 7: (746,54,2); (467,57,2); (646,58,6)  
Queue 8: (800,52,1); (480,55,1); (645,57,1); (608,58,4); (589,59,5)  
Queue 9: (128,53,2); (295,56,1); (168,58,4); (869,59,8)  
Queue 10: (762,53,2); (784,56,4); (410,59,4)  
Queue 11: (44,56,5); (673,58,2); (940,59,4)  
Queue 12: (292,53,1); (610,55,2); (220,58,3); (411,59,8)  
Queue 13: (850,54,3); (658,57,6)  
Queue 14: (880,54,1); (789,56,4); (734,58,7)  
Queue 15: (494,54,3); (823,56,2); (750,58,4)  
Queue 16: (35,55,2); (342,56,5); (997,59,4)  
Queue 17: (430,56,2); (255,58,7)  
Queue 18: (91,55,3); (261,58,3); (447,59,7)  
Queue 19: (891,56,4); (934,58,5)  
Time 60  
Queue 0: (422,57,4); (81,59,3); (323,60,6)  
Queue 1: (156,57,1); (60,58,2); (304,59,2); (119,60,6)  
Queue 2: (122,55,3); (612,58,3); (257,60,4)  
Queue 3: (143,55,2); (799,57,5); (350,60,4)  
Queue 4: (287,55,1); (263,57,3); (319,59,2); (307,60,3)  
Queue 5: (317,57,5); (475,59,6)  
Queue 6: (444,56,4); (340,59,5)  
Queue 7: (746,54,1); (467,57,1); (646,58,5); (455,60,7)  
Queue 8: (608,58,3); (589,59,4); (512,60,5)  
Queue 9: (128,53,1); (168,58,3); (869,59,7)  
Queue 10: (762,53,1); (784,56,3); (410,59,3); (541,60,6)  
Queue 11: (44,56,4); (673,58,1); (940,59,3)  
Queue 12: (610,55,1); (220,58,2); (411,59,7)  
Queue 13: (850,54,2); (658,57,5); (620,60,3)  
Queue 14: (789,56,3); (734,58,6)  
Queue 15: (494,54,2); (823,56,1); (750,58,3); (312,60,6)  
Queue 16: (35,55,1); (342,56,4); (997,59,3)  
Queue 17: (430,56,1); (255,58,6)  
Queue 18: (91,55,2); (261,58,2); (447,59,6)  
Queue 19: (891,56,3); (934,58,4)  
Time 61  
Queue 0: (422,57,3); (81,59,2); (323,60,5)  
Queue 1: (60,58,1); (304,59,1); (119,60,5); (182,61,8)  
Queue 2: (122,55,2); (612,58,2); (257,60,3); (223,61,4)  
Queue 3: (143,55,1); (799,57,4); (350,60,3); (442,61,7)  
Queue 4: (263,57,2); (319,59,1); (307,60,2); (21,61,6)  
Queue 5: (317,57,4); (475,59,5); (893,61,4)  
Queue 6: (444,56,3); (340,59,4); (240,61,5)  
Queue 7: (646,58,4); (455,60,6)  
Queue 8: (608,58,2); (589,59,3); (512,60,4); (921,61,3)  
Queue 9: (168,58,2); (869,59,6); (491,61,7)  
Queue 10: (784,56,2); (410,59,2); (541,60,5)  
Queue 11: (44,56,3); (940,59,2); (30,61,3); (497,61,5)  
Queue 12: (220,58,1); (411,59,6); (280,61,8)  
Queue 13: (850,54,1); (658,57,4); (620,60,2); (302,61,8)  
Queue 14: (789,56,2); (734,58,5); (329,61,3)  
Queue 15: (494,54,1); (750,58,2); (312,60,5); (814,61,6)  
Queue 16: (342,56,3); (997,59,2); (61,61,4)  
Queue 17: (255,58,5); (75,61,8)  
Queue 18: (91,55,1); (261,58,1); (447,59,5); (348,61,3)  
Queue 19: (891,56,2); (934,58,3); (163,61,8)  
Time 62  
Queue 0: (422,57,2); (81,59,1); (323,60,4); (402,62,7); (780,62,7); (798,62,8); (860,62,5); (926,62,3)  
Queue 1: (119,60,4); (182,61,7)  
Queue 2: (122,55,1); (612,58,1); (257,60,2); (223,61,3); (526,62,8)  
Queue 3: (799,57,3); (350,60,2); (442,61,6)  
Queue 4: (263,57,1); (307,60,1); (21,61,5); (527,62,8)  
Queue 5: (317,57,3); (475,59,4); (893,61,3)  
Queue 6: (444,56,2); (340,59,3); (240,61,4); (669,62,6)  
Queue 7: (646,58,3); (455,60,5); (604,62,7)  
Queue 8: (608,58,1); (589,59,2); (512,60,3); (921,61,2); (611,62,8)  
Queue 9: (168,58,1); (869,59,5); (491,61,6)  
Queue 10: (784,56,1); (410,59,1); (541,60,4); (212,62,6)  
Queue 11: (44,56,2); (940,59,1); (30,61,2); (497,61,4); (686,62,8)  
Queue 12: (411,59,5); (280,61,7)  
Queue 13: (658,57,3); (620,60,1); (302,61,7)  
Queue 14: (789,56,1); (734,58,4); (329,61,2); (568,62,6)  
Queue 15: (750,58,1); (312,60,4); (814,61,5)  
Queue 16: (342,56,2); (997,59,1); (61,61,3); (254,62,4)  
Queue 17: (255,58,4); (75,61,7)  
Queue 18: (447,59,4); (348,61,2); (375,62,3); (759,62,5)  
Queue 19: (891,56,1); (934,58,2); (163,61,7)  
Time 63  
Queue 0: (422,57,1); (323,60,3); (402,62,6); (780,62,6); (798,62,7); (860,62,4); (926,62,2); (971,63,7)  
Queue 1: (119,60,3); (182,61,6); (529,63,5)  
Queue 2: (257,60,1); (223,61,2); (526,62,7)  
Queue 3: (799,57,2); (350,60,1); (442,61,5); (423,63,3)  
Queue 4: (21,61,4); (527,62,7)  
Queue 5: (317,57,2); (475,59,3); (893,61,2); (299,63,6)  
Queue 6: (444,56,1); (340,59,2); (240,61,3); (669,62,5)  
Queue 7: (646,58,2); (455,60,4); (604,62,6)  
Queue 8: (589,59,1); (512,60,2); (921,61,1); (611,62,7)  
Queue 9: (869,59,4); (491,61,5); (696,63,3)  
Queue 10: (541,60,3); (212,62,5); (441,63,4)  
Queue 11: (44,56,1); (30,61,1); (497,61,3); (686,62,7)  
Queue 12: (411,59,4); (280,61,6)  
Queue 13: (658,57,2); (302,61,6); (472,63,5)  
Queue 14: (734,58,3); (329,61,1); (568,62,5); (728,63,4)  
Queue 15: (312,60,3); (814,61,4); (370,63,5)  
Queue 16: (342,56,1); (61,61,2); (254,62,3); (234,63,4)  
Queue 17: (255,58,3); (75,61,6); (962,63,8)  
Queue 18: (447,59,3); (348,61,1); (375,62,2); (759,62,4)  
Queue 19: (934,58,1); (163,61,6); (382,63,8)  
Time 64  
Queue 0: (323,60,2); (402,62,5); (780,62,5); (798,62,6); (860,62,3); (926,62,1); (971,63,6); (738,64,6); (785,64,6); (842,64,7); (844,64,6); (846,64,8); (916,64,3); (964,64,4)  
Queue 1: (119,60,2); (182,61,5); (529,63,4)  
Queue 2: (223,61,1); (526,62,6); (62,64,4)  
Queue 3: (799,57,1); (442,61,4); (423,63,2); (64,64,6)  
Queue 4: (21,61,3); (527,62,6); (434,64,3)  
Queue 5: (317,57,1); (475,59,2); (893,61,1); (299,63,5); (436,64,3)  
Queue 6: (340,59,1); (240,61,2); (669,62,4); (96,64,4)  
Queue 7: (646,58,1); (455,60,3); (604,62,5); (448,64,7)  
Queue 8: (512,60,1); (611,62,6); (153,64,8)  
Queue 9: (869,59,3); (491,61,4); (696,63,2); (456,64,5)  
Queue 10: (541,60,2); (212,62,4); (441,63,3); (524,64,7)  
Queue 11: (497,61,2); (686,62,6); (248,64,6)  
Queue 12: (411,59,3); (280,61,5); (356,64,5)  
Queue 13: (658,57,1); (302,61,5); (472,63,4)  
Queue 14: (734,58,2); (568,62,4); (728,63,3); (535,64,6)  
Queue 15: (312,60,2); (814,61,3); (370,63,4); (680,64,4)  
Queue 16: (61,61,1); (254,62,2); (234,63,3); (23,64,7)  
Queue 17: (255,58,2); (75,61,5); (962,63,7)  
Queue 18: (447,59,2); (375,62,1); (759,62,3); (26,64,8)  
Queue 19: (163,61,5); (382,63,7)  
Time 65  
Queue 0: (323,60,1); (402,62,4); (780,62,4); (798,62,5); (860,62,2); (971,63,5); (738,64,5); (785,64,5); (842,64,6); (844,64,5); (846,64,7); (916,64,2); (964,64,3); (700,65,6); (740,65,8); (801,65,8); (848,65,5)  
Queue 1: (119,60,1); (182,61,4); (529,63,3); (269,65,5)  
Queue 2: (526,62,5); (62,64,3); (369,65,3)  
Queue 3: (442,61,3); (423,63,1); (64,64,5); (556,65,6)  
Queue 4: (21,61,2); (527,62,5); (434,64,2); (565,65,5)  
Queue 5: (475,59,1); (299,63,4); (436,64,2); (108,65,3)  
Queue 6: (240,61,1); (669,62,3); (96,64,3); (167,65,6)  
Queue 7: (455,60,2); (604,62,4); (448,64,6)  
Queue 8: (611,62,5); (153,64,7)  
Queue 9: (869,59,2); (491,61,3); (696,63,1); (456,64,4)  
Queue 10: (541,60,1); (212,62,3); (441,63,2); (524,64,6)  
Queue 11: (497,61,1); (686,62,5); (248,64,5)  
Queue 12: (411,59,2); (280,61,4); (356,64,4)  
Queue 13: (302,61,4); (472,63,3); (186,65,6)  
Queue 14: (734,58,1); (568,62,3); (728,63,2); (535,64,5)  
Queue 15: (312,60,1); (814,61,2); (370,63,3); (680,64,3); (603,65,4)  
Queue 16: (254,62,1); (234,63,2); (23,64,6); (634,65,4)  
Queue 17: (255,58,1); (75,61,4); (962,63,6)  
Queue 18: (447,59,1); (759,62,2); (26,64,7)  
Queue 19: (163,61,4); (382,63,6)  
Time 66  
Queue 0: (402,62,3); (780,62,3); (798,62,4); (860,62,1); (971,63,4); (738,64,4); (785,64,4); (842,64,5); (844,64,4); (846,64,6); (916,64,1); (964,64,2); (700,65,5); (740,65,7); (801,65,7); (848,65,4)  
Queue 1: (182,61,3); (529,63,2); (269,65,4)  
Queue 2: (526,62,4); (62,64,2); (369,65,2); (439,66,5)  
Queue 3: (442,61,2); (64,64,4); (556,65,5)  
Queue 4: (21,61,1); (527,62,4); (434,64,1); (565,65,4)  
Queue 5: (299,63,3); (436,64,1); (108,65,2); (12,66,6)  
Queue 6: (669,62,2); (96,64,2); (167,65,5)  
Queue 7: (455,60,1); (604,62,3); (448,64,5)  
Queue 8: (611,62,4); (153,64,6)  
Queue 9: (869,59,1); (491,61,2); (456,64,3); (183,66,7)  
Queue 10: (212,62,2); (441,63,1); (524,64,5); (714,66,6)  
Queue 11: (686,62,4); (248,64,4); (749,66,4)  
Queue 12: (411,59,1); (280,61,3); (356,64,3); (206,66,6)  
Queue 13: (302,61,3); (472,63,2); (186,65,5)  
Queue 14: (568,62,2); (728,63,1); (535,64,4); (262,66,6)  
Queue 15: (814,61,1); (370,63,2); (680,64,2); (603,65,3); (859,66,4)  
Queue 16: (234,63,1); (23,64,5); (634,65,3)  
Queue 17: (75,61,3); (962,63,5); (896,66,6)  
Queue 18: (759,62,1); (26,64,6); (293,66,4)  
Queue 19: (163,61,3); (382,63,5); (973,66,8)  
Time 67  
Queue 0: (402,62,2); (780,62,2); (798,62,3); (971,63,3); (738,64,3); (785,64,3); (842,64,4); (844,64,3); (846,64,5); (964,64,1); (700,65,4); (740,65,6); (801,65,6); (848,65,3)  
Queue 1: (182,61,2); (529,63,1); (269,65,3); (56,67,3)  
Queue 2: (526,62,3); (62,64,1); (369,65,1); (439,66,4)  
Queue 3: (442,61,1); (64,64,3); (556,65,4); (788,67,7)  
Queue 4: (527,62,3); (565,65,3); (86,67,5)  
Queue 5: (299,63,2); (108,65,1); (12,66,5); (930,67,7)  
Queue 6: (669,62,1); (96,64,1); (167,65,4); (279,67,3)  
Queue 7: (604,62,2); (448,64,4); (401,67,6)  
Queue 8: (611,62,3); (153,64,5); (989,67,4)  
Queue 9: (491,61,1); (456,64,2); (183,66,6)  
Queue 10: (212,62,1); (524,64,4); (714,66,5)  
Queue 11: (686,62,3); (248,64,3); (749,66,3)  
Queue 12: (280,61,2); (356,64,2); (206,66,5)  
Queue 13: (302,61,2); (472,63,1); (186,65,4); (485,67,6)  
Queue 14: (568,62,1); (535,64,3); (262,66,5)  
Queue 15: (370,63,1); (680,64,1); (603,65,2); (859,66,3); (653,67,8)  
Queue 16: (23,64,4); (634,65,2); (413,67,8)  
Queue 17: (75,61,2); (962,63,4); (896,66,5)  
Queue 18: (26,64,5); (293,66,3)  
Queue 19: (163,61,2); (382,63,4); (973,66,7)  
Time 68  
Queue 0: (402,62,1); (780,62,1); (798,62,2); (971,63,2); (738,64,2); (785,64,2); (842,64,3); (844,64,2); (846,64,4); (700,65,3); (740,65,5); (801,65,5); (848,65,2)  
Queue 1: (182,61,1); (269,65,2); (56,67,2); (22,68,4)  
Queue 2: (526,62,2); (439,66,3); (28,68,3); (981,68,5)  
Queue 3: (64,64,2); (556,65,3); (788,67,6)  
Queue 4: (527,62,2); (565,65,2); (86,67,4)  
Queue 5: (299,63,1); (12,66,4); (930,67,6)  
Queue 6: (167,65,3); (279,67,2); (89,68,5)  
Queue 7: (604,62,1); (448,64,3); (401,67,5)  
Queue 8: (611,62,2); (153,64,4); (989,67,3)  
Queue 9: (456,64,1); (183,66,5); (398,68,4)  
Queue 10: (524,64,3); (714,66,4); (754,68,6)  
Queue 11: (686,62,2); (248,64,2); (749,66,2); (465,68,5)  
Queue 12: (280,61,1); (356,64,1); (206,66,4); (631,68,7)  
Queue 13: (302,61,1); (186,65,3); (485,67,5)  
Queue 14: (535,64,2); (262,66,4); (642,68,6)  
Queue 15: (603,65,1); (859,66,2); (653,67,7)  
Queue 16: (23,64,3); (634,65,1); (413,67,7)  
Queue 17: (75,61,1); (962,63,3); (896,66,4)  
Queue 18: (26,64,4); (293,66,2); (745,68,6)  
Queue 19: (163,61,1); (382,63,3); (973,66,6)  
Time 69  
Queue 0: (798,62,1); (971,63,1); (738,64,1); (785,64,1); (842,64,2); (844,64,1); (846,64,3); (700,65,2); (740,65,4); (801,65,4); (848,65,1)  
Queue 1: (269,65,1); (56,67,1); (22,68,3); (82,69,8)  
Queue 2: (526,62,1); (439,66,2); (28,68,2); (981,68,4)  
Queue 3: (64,64,1); (556,65,2); (788,67,5)  
Queue 4: (527,62,1); (565,65,1); (86,67,3); (201,69,8)  
Queue 5: (12,66,3); (930,67,5)  
Queue 6: (167,65,2); (279,67,1); (89,68,4); (498,69,5)  
Queue 7: (448,64,2); (401,67,4); (253,69,4)  
Queue 8: (611,62,1); (153,64,3); (989,67,2); (339,69,5)  
Queue 9: (183,66,4); (398,68,3); (562,69,4)  
Queue 10: (524,64,2); (714,66,3); (754,68,5)  
Queue 11: (686,62,1); (248,64,1); (749,66,1); (465,68,4); (741,69,7)  
Queue 12: (206,66,3); (631,68,6)  
Queue 13: (186,65,2); (485,67,4); (373,69,4)  
Queue 14: (535,64,1); (262,66,3); (642,68,5)  
Queue 15: (859,66,1); (653,67,6); (753,69,6)  
Queue 16: (23,64,2); (413,67,6)  
Queue 17: (962,63,2); (896,66,3); (226,69,4)  
Queue 18: (26,64,3); (293,66,1); (745,68,5)  
Queue 19: (382,63,2); (973,66,5); (820,69,5)  
Time 70  
Queue 0: (842,64,1); (846,64,2); (700,65,1); (740,65,3); (801,65,3)  
Queue 1: (22,68,2); (82,69,7)  
Queue 2: (439,66,1); (28,68,1); (981,68,3); (203,70,4)  
Queue 3: (556,65,1); (788,67,4); (243,70,6)  
Queue 4: (86,67,2); (201,69,7)  
Queue 5: (12,66,2); (930,67,4); (359,70,8)  
Queue 6: (167,65,1); (89,68,3); (498,69,4)  
Queue 7: (448,64,1); (401,67,3); (253,69,3); (635,70,8)  
Queue 8: (153,64,2); (989,67,1); (339,69,4); (768,70,8)  
Queue 9: (183,66,3); (398,68,2); (562,69,3)  
Queue 10: (524,64,1); (714,66,2); (754,68,4); (794,70,5)  
Queue 11: (465,68,3); (741,69,6)  
Queue 12: (206,66,2); (631,68,5); (953,70,8)  
Queue 13: (186,65,1); (485,67,3); (373,69,3)  
Queue 14: (262,66,2); (642,68,4); (433,70,7)  
Queue 15: (653,67,5); (753,69,5)  
Queue 16: (23,64,1); (413,67,5); (514,70,5)  
Queue 17: (962,63,1); (896,66,2); (226,69,3); (617,70,5)  
Queue 18: (26,64,2); (745,68,4); (621,70,6)  
Queue 19: (382,63,1); (973,66,4); (820,69,4)  
Time 71  
Queue 0: (846,64,1); (740,65,2); (801,65,2); (227,71,4)  
Queue 1: (22,68,1); (82,69,6); (732,71,8)  
Queue 2: (981,68,2); (203,70,3); (294,71,7)  
Queue 3: (788,67,3); (243,70,5)  
Queue 4: (86,67,1); (201,69,6); (914,71,7)  
Queue 5: (12,66,1); (930,67,3); (359,70,7)  
Queue 6: (89,68,2); (498,69,3); (405,71,8)  
Queue 7: (401,67,2); (253,69,2); (635,70,7)  
Queue 8: (153,64,1); (339,69,3); (768,70,7)  
Queue 9: (183,66,2); (398,68,1); (562,69,2); (684,71,8)  
Queue 10: (714,66,1); (754,68,3); (794,70,4)  
Queue 11: (465,68,2); (741,69,5)  
Queue 12: (206,66,1); (631,68,4); (953,70,7)  
Queue 13: (485,67,2); (373,69,2); (16,71,3)  
Queue 14: (262,66,1); (642,68,3); (433,70,6)  
Queue 15: (653,67,4); (753,69,4)  
Queue 16: (413,67,4); (514,70,4)  
Queue 17: (896,66,1); (226,69,2); (617,70,4)  
Queue 18: (26,64,1); (745,68,3); (621,70,5)  
Queue 19: (973,66,3); (820,69,3); (721,71,7)  
Time 72  
Queue 0: (740,65,1); (801,65,1); (227,71,3); (483,72,8)  
Queue 1: (82,69,5); (732,71,7)  
Queue 2: (981,68,1); (203,70,2); (294,71,6)  
Queue 3: (788,67,2); (243,70,4); (702,72,6)  
Queue 4: (201,69,5); (914,71,6)  
Queue 5: (930,67,2); (359,70,6)  
Queue 6: (89,68,1); (498,69,2); (405,71,7)  
Queue 7: (401,67,1); (253,69,1); (635,70,6)  
Queue 8: (339,69,2); (768,70,6)  
Queue 9: (183,66,1); (562,69,1); (684,71,7)  
Queue 10: (754,68,2); (794,70,3); (502,72,4)  
Queue 11: (465,68,1); (741,69,4); (630,72,5)  
Queue 12: (631,68,3); (953,70,6)  
Queue 13: (485,67,1); (373,69,1); (16,71,2); (151,72,6)  
Queue 14: (642,68,2); (433,70,5)  
Queue 15: (653,67,3); (753,69,3)  
Queue 16: (413,67,3); (514,70,3)  
Queue 17: (226,69,1); (617,70,3); (474,72,4)  
Queue 18: (745,68,2); (621,70,4)  
Queue 19: (973,66,2); (820,69,2); (721,71,6)  
Time 73  
Queue 0: (227,71,2); (483,72,7)  
Queue 1: (82,69,4); (732,71,6)  
Queue 2: (203,70,1); (294,71,5); (504,73,4)  
Queue 3: (788,67,1); (243,70,3); (702,72,5)  
Queue 4: (201,69,4); (914,71,5)  
Queue 5: (930,67,1); (359,70,5); (515,73,3)  
Queue 6: (498,69,1); (405,71,6)  
Queue 7: (635,70,5); (59,73,4)  
Queue 8: (339,69,1); (768,70,5); (548,73,5)  
Queue 9: (684,71,6); (694,73,7)  
Queue 10: (754,68,1); (794,70,2); (502,72,3); (872,73,7)  
Queue 11: (741,69,3); (630,72,4)  
Queue 12: (631,68,2); (953,70,5)  
Queue 13: (16,71,1); (151,72,5)  
Queue 14: (642,68,1); (433,70,4); (190,73,4)  
Queue 15: (653,67,2); (753,69,2); (1,73,5)  
Queue 16: (413,67,2); (514,70,2); (10,73,7)  
Queue 17: (617,70,2); (474,72,3); (486,73,4)  
Queue 18: (745,68,1); (621,70,3); (50,73,4)  
Queue 19: (973,66,1); (820,69,1); (721,71,5)  
Time 74  
Queue 0: (227,71,1); (483,72,6); (910,74,3)  
Queue 1: (82,69,3); (732,71,5)  
Queue 2: (294,71,4); (504,73,3); (938,74,4)  
Queue 3: (243,70,2); (702,72,4); (328,74,3)  
Queue 4: (201,69,3); (914,71,4); (957,74,8)  
Queue 5: (359,70,4); (515,73,2); (333,74,8)  
Queue 6: (405,71,5); (214,74,8)  
Queue 7: (635,70,4); (59,73,3)  
Queue 8: (768,70,4); (548,73,4)  
Queue 9: (684,71,5); (694,73,6)  
Queue 10: (794,70,1); (502,72,2); (872,73,6)  
Queue 11: (741,69,2); (630,72,3); (216,74,8)  
Queue 12: (631,68,1); (953,70,4); (229,74,8)  
Queue 13: (151,72,4); (2,74,3)  
Queue 14: (433,70,3); (190,73,3); (657,74,8)  
Queue 15: (653,67,1); (753,69,1); (1,73,4); (783,74,4)  
Queue 16: (413,67,1); (514,70,1); (10,73,6)  
Queue 17: (617,70,1); (474,72,2); (486,73,3); (835,74,8)  
Queue 18: (621,70,2); (50,73,3); (246,74,6)  
Queue 19: (721,71,4); (154,74,4)  
Time 75  
Queue 0: (483,72,5); (910,74,2); (978,75,3)  
Queue 1: (82,69,2); (732,71,4); (361,75,3)  
Queue 2: (294,71,3); (504,73,2); (938,74,3)  
Queue 3: (243,70,1); (702,72,3); (328,74,2); (516,75,6)  
Queue 4: (201,69,2); (914,71,3); (957,74,7)  
Queue 5: (359,70,3); (515,73,1); (333,74,7)  
Queue 6: (405,71,4); (214,74,7)  
Queue 7: (635,70,3); (59,73,2); (104,75,3)  
Queue 8: (768,70,3); (548,73,3); (615,75,4)  
Queue 9: (684,71,4); (694,73,5)  
Queue 10: (502,72,1); (872,73,5); (751,75,4)  
Queue 11: (741,69,1); (630,72,2); (216,74,7)  
Queue 12: (953,70,3); (229,74,7)  
Queue 13: (151,72,3); (2,74,2); (172,75,7)  
Queue 14: (433,70,2); (190,73,2); (657,74,7)  
Queue 15: (1,73,3); (783,74,3); (867,75,6)  
Queue 16: (10,73,5); (242,75,8)  
Queue 17: (474,72,1); (486,73,2); (835,74,7)  
Queue 18: (621,70,1); (50,73,2); (246,74,5)  
Queue 19: (721,71,3); (154,74,3); (876,75,3)  
Time 76  
Queue 0: (483,72,4); (910,74,1); (978,75,2); (593,76,6)  
Queue 1: (82,69,1); (732,71,3); (361,75,2); (374,76,7)  
Queue 2: (294,71,2); (504,73,1); (938,74,2); (177,76,8)  
Queue 3: (702,72,2); (328,74,1); (516,75,5)  
Queue 4: (201,69,1); (914,71,2); (957,74,6)  
Queue 5: (359,70,2); (333,74,6)  
Queue 6: (405,71,3); (214,74,6)  
Queue 7: (635,70,2); (59,73,1); (104,75,2); (244,76,8)  
Queue 8: (768,70,2); (548,73,2); (615,75,3); (879,76,5)  
Queue 9: (684,71,3); (694,73,4); (923,76,5)  
Queue 10: (872,73,4); (751,75,3); (944,76,7)  
Queue 11: (630,72,1); (216,74,6)  
Queue 12: (953,70,2); (229,74,6)  
Queue 13: (151,72,2); (2,74,1); (172,75,6)  
Queue 14: (433,70,1); (190,73,1); (657,74,6)  
Queue 15: (1,73,2); (783,74,2); (867,75,5)  
Queue 16: (10,73,4); (242,75,7)  
Queue 17: (486,73,1); (835,74,6)  
Queue 18: (50,73,1); (246,74,4); (355,76,8)  
Queue 19: (721,71,2); (154,74,2); (876,75,2); (396,76,3)  
Time 77  
Queue 0: (483,72,3); (978,75,1); (593,76,5)  
Queue 1: (732,71,2); (361,75,1); (374,76,6)  
Queue 2: (294,71,1); (938,74,1); (177,76,7)  
Queue 3: (702,72,1); (516,75,4); (194,77,7)  
Queue 4: (914,71,1); (957,74,5); (555,77,8)  
Queue 5: (359,70,1); (333,74,5); (822,77,6)  
Queue 6: (405,71,2); (214,74,5)  
Queue 7: (635,70,1); (104,75,1); (244,76,7)  
Queue 8: (768,70,1); (548,73,1); (615,75,2); (879,76,4)  
Queue 9: (684,71,2); (694,73,3); (923,76,4)  
Queue 10: (872,73,3); (751,75,2); (944,76,6)  
Queue 11: (216,74,5); (275,77,3)  
Queue 12: (953,70,1); (229,74,5); (954,77,4)  
Queue 13: (151,72,1); (172,75,5); (970,77,3)  
Queue 14: (657,74,5); (315,77,8)  
Queue 15: (1,73,1); (783,74,1); (867,75,4)  
Queue 16: (10,73,3); (242,75,6)  
Queue 17: (835,74,5); (354,77,3)  
Queue 18: (246,74,3); (355,76,7)  
Queue 19: (721,71,1); (154,74,1); (876,75,1); (396,76,2); (511,77,8)  
Time 78  
Queue 0: (483,72,2); (593,76,4); (758,78,3)  
Queue 1: (732,71,1); (374,76,5); (808,78,6)  
Queue 2: (177,76,6); (831,78,3)  
Queue 3: (516,75,3); (194,77,6)  
Queue 4: (957,74,4); (555,77,7)  
Queue 5: (333,74,4); (822,77,5)  
Queue 6: (405,71,1); (214,74,4); (575,78,7)  
Queue 7: (244,76,6)  
Queue 8: (615,75,1); (879,76,3); (213,78,5)  
Queue 9: (684,71,1); (694,73,2); (923,76,3)  
Queue 10: (872,73,2); (751,75,1); (944,76,5)  
Queue 11: (216,74,4); (275,77,2)  
Queue 12: (229,74,4); (954,77,3)  
Queue 13: (172,75,4); (970,77,2)  
Queue 14: (657,74,4); (315,77,7)  
Queue 15: (867,75,3); (139,78,8)  
Queue 16: (10,73,2); (242,75,5)  
Queue 17: (835,74,4); (354,77,2)  
Queue 18: (246,74,2); (355,76,6)  
Queue 19: (396,76,1); (511,77,7)  
Time 79  
Queue 0: (483,72,1); (593,76,3); (758,78,2)  
Queue 1: (374,76,4); (808,78,5)  
Queue 2: (177,76,5); (831,78,2)  
Queue 3: (516,75,2); (194,77,5)  
Queue 4: (957,74,3); (555,77,6)  
Queue 5: (333,74,3); (822,77,4)  
Queue 6: (214,74,3); (575,78,6)  
Queue 7: (244,76,5); (793,79,7)  
Queue 8: (879,76,2); (213,78,4)  
Queue 9: (694,73,1); (923,76,2); (123,79,5)  
Queue 10: (872,73,1); (944,76,4); (868,79,7)  
Queue 11: (216,74,3); (275,77,1); (204,79,8)  
Queue 12: (229,74,3); (954,77,2); (925,79,8)  
Queue 13: (172,75,3); (970,77,1); (283,79,5)  
Queue 14: (657,74,3); (315,77,6)  
Queue 15: (867,75,2); (139,78,7)  
Queue 16: (10,73,1); (242,75,4)  
Queue 17: (835,74,3); (354,77,1); (567,79,5)  
Queue 18: (246,74,1); (355,76,5)  
Queue 19: (511,77,6)  
Time 80  
Queue 0: (593,76,2); (758,78,1); (69,80,6)  
Queue 1: (374,76,3); (808,78,4)  
Queue 2: (177,76,4); (831,78,1); (386,80,8)  
Queue 3: (516,75,1); (194,77,4); (400,80,8)  
Queue 4: (957,74,2); (555,77,5)  
Queue 5: (333,74,2); (822,77,3); (428,80,5)  
Queue 6: (214,74,2); (575,78,5)  
Queue 7: (244,76,4); (793,79,6)  
Queue 8: (879,76,1); (213,78,3); (136,80,7)  
Queue 9: (923,76,1); (123,79,4); (525,80,4)  
Queue 10: (944,76,3); (868,79,6)  
Queue 11: (216,74,2); (204,79,7)  
Queue 12: (229,74,2); (954,77,1); (925,79,7)  
Queue 13: (172,75,2); (283,79,4); (636,80,7)  
Queue 14: (657,74,2); (315,77,5)  
Queue 15: (867,75,1); (139,78,6)  
Queue 16: (242,75,3); (78,80,6)  
Queue 17: (835,74,2); (567,79,4); (888,80,3)  
Queue 18: (355,76,4); (360,80,5)  
Queue 19: (511,77,5); (618,80,8)  
Time 81  
Queue 0: (593,76,1); (69,80,5); (349,81,8)  
Queue 1: (374,76,2); (808,78,3); (18,81,4)  
Queue 2: (177,76,3); (386,80,7)  
Queue 3: (194,77,3); (400,80,7)  
Queue 4: (957,74,1); (555,77,4); (24,81,3)  
Queue 5: (333,74,1); (822,77,2); (428,80,4); (723,81,8)  
Queue 6: (214,74,1); (575,78,4); (124,81,7)  
Queue 7: (244,76,3); (793,79,5)  
Queue 8: (213,78,2); (136,80,6)  
Queue 9: (123,79,3); (525,80,3); (446,81,8)  
Queue 10: (944,76,2); (868,79,5); (854,81,8)  
Queue 11: (216,74,1); (204,79,6); (858,81,7)  
Queue 12: (229,74,1); (925,79,6); (975,81,6)  
Queue 13: (172,75,1); (283,79,3); (636,80,6)  
Queue 14: (657,74,1); (315,77,4); (150,81,5)  
Queue 15: (139,78,5); (179,81,4)  
Queue 16: (242,75,2); (78,80,5)  
Queue 17: (835,74,1); (567,79,3); (888,80,2); (473,81,4)  
Queue 18: (355,76,3); (360,80,4)  
Queue 19: (511,77,4); (618,80,7)  
Time 82  
Queue 0: (69,80,4); (349,81,7)  
Queue 1: (374,76,1); (808,78,2); (18,81,3); (384,82,4)  
Queue 2: (177,76,2); (386,80,6); (827,82,3)  
Queue 3: (194,77,2); (400,80,6); (871,82,3)  
Queue 4: (555,77,3); (24,81,2); (13,82,3); (877,82,6)  
Queue 5: (822,77,1); (428,80,3); (723,81,7)  
Queue 6: (575,78,3); (124,81,6); (992,82,3)  
Queue 7: (244,76,2); (793,79,4); (432,82,7)  
Queue 8: (213,78,1); (136,80,5); (481,82,3)  
Queue 9: (123,79,2); (525,80,2); (446,81,7)  
Queue 10: (944,76,1); (868,79,4); (854,81,7)  
Queue 11: (204,79,5); (858,81,6)  
Queue 12: (925,79,5); (975,81,5)  
Queue 13: (283,79,2); (636,80,5); (573,82,8)  
Queue 14: (315,77,3); (150,81,4); (651,82,3)  
Queue 15: (139,78,4); (179,81,3); (707,82,6)  
Queue 16: (242,75,1); (78,80,4); (170,82,5)  
Queue 17: (567,79,2); (888,80,1); (473,81,3); (559,82,5)  
Queue 18: (355,76,2); (360,80,3); (207,82,7)  
Queue 19: (511,77,3); (618,80,6)  
Time 83  
Queue 0: (69,80,3); (349,81,6); (757,83,8)  
Queue 1: (808,78,1); (18,81,2); (384,82,3); (79,83,8)  
Queue 2: (177,76,1); (386,80,5); (827,82,2); (576,83,8)  
Queue 3: (194,77,1); (400,80,5); (871,82,2); (609,83,6)  
Queue 4: (555,77,2); (24,81,1); (13,82,2); (877,82,5)  
Queue 5: (428,80,2); (723,81,6); (625,83,5)  
Queue 6: (575,78,2); (124,81,5); (992,82,2); (804,83,4)  
Queue 7: (244,76,1); (793,79,3); (432,82,6)  
Queue 8: (136,80,4); (481,82,2); (238,83,8)  
Queue 9: (123,79,1); (525,80,1); (446,81,6); (665,83,8)  
Queue 10: (868,79,3); (854,81,6); (906,83,8)  
Queue 11: (204,79,4); (858,81,5); (936,83,7)  
Queue 12: (925,79,4); (975,81,4); (705,83,6)  
Queue 13: (283,79,1); (636,80,4); (573,82,7)  
Queue 14: (315,77,2); (150,81,3); (651,82,2); (284,83,6)  
Queue 15: (139,78,3); (179,81,2); (707,82,5)  
Queue 16: (78,80,3); (170,82,4); (305,83,3)  
Queue 17: (567,79,1); (473,81,2); (559,82,4); (452,83,5)  
Queue 18: (355,76,1); (360,80,2); (207,82,6); (960,83,6)  
Queue 19: (511,77,2); (618,80,5); (564,83,5)  
Time 84  
Queue 0: (69,80,2); (349,81,5); (757,83,7)  
Queue 1: (18,81,1); (384,82,2); (79,83,7)  
Queue 2: (386,80,4); (827,82,1); (576,83,7)  
Queue 3: (400,80,4); (871,82,1); (609,83,5)  
Queue 4: (555,77,1); (13,82,1); (877,82,4); (70,84,4)  
Queue 5: (428,80,1); (723,81,5); (625,83,4)  
Queue 6: (575,78,1); (124,81,4); (992,82,1); (804,83,3); (692,84,4)  
Queue 7: (793,79,2); (432,82,5); (164,84,3)  
Queue 8: (136,80,3); (481,82,1); (238,83,7)  
Queue 9: (446,81,5); (665,83,7)  
Queue 10: (868,79,2); (854,81,5); (906,83,7)  
Queue 11: (204,79,3); (858,81,4); (936,83,6)  
Queue 12: (925,79,3); (975,81,3); (705,83,5)  
Queue 13: (636,80,3); (573,82,6); (770,84,7)  
Queue 14: (315,77,1); (150,81,2); (651,82,1); (284,83,5); (834,84,6)  
Queue 15: (139,78,2); (179,81,1); (707,82,4); (376,84,8)  
Queue 16: (78,80,2); (170,82,3); (305,83,2); (412,84,4)  
Queue 17: (473,81,1); (559,82,3); (452,83,4); (427,84,3)  
Queue 18: (360,80,1); (207,82,5); (960,83,5)  
Queue 19: (511,77,1); (618,80,4); (564,83,4)  
Time 85  
Queue 0: (69,80,1); (349,81,4); (757,83,6)  
Queue 1: (384,82,1); (79,83,6); (53,85,8)  
Queue 2: (386,80,3); (576,83,6)  
Queue 3: (400,80,3); (609,83,4); (94,85,4)  
Queue 4: (877,82,3); (70,84,3); (34,85,8)  
Queue 5: (723,81,4); (625,83,3); (191,85,7)  
Queue 6: (124,81,3); (804,83,2); (692,84,3); (791,85,7)  
Queue 7: (793,79,1); (432,82,4); (164,84,2); (357,85,8)  
Queue 8: (136,80,2); (238,83,6); (935,85,6)  
Queue 9: (446,81,4); (665,83,6)  
Queue 10: (868,79,1); (854,81,4); (906,83,6)  
Queue 11: (204,79,2); (858,81,3); (936,83,5)  
Queue 12: (925,79,2); (975,81,2); (705,83,4); (950,85,4)  
Queue 13: (636,80,2); (573,82,5); (770,84,6)  
Queue 14: (150,81,1); (284,83,4); (834,84,5)  
Queue 15: (139,78,1); (707,82,3); (376,84,7)  
Queue 16: (78,80,1); (170,82,2); (305,83,1); (412,84,3); (381,85,6)  
Queue 17: (559,82,2); (452,83,3); (427,84,2); (478,85,4)  
Queue 18: (207,82,4); (960,83,4); (972,85,6)  
Queue 19: (618,80,3); (564,83,3); (52,85,5)  
Time 86  
Queue 0: (349,81,3); (757,83,5); (558,86,4)  
Queue 1: (79,83,5); (53,85,7)  
Queue 2: (386,80,2); (576,83,5); (228,86,6)  
Queue 3: (400,80,2); (609,83,3); (94,85,3); (774,86,6)  
Queue 4: (877,82,2); (70,84,2); (34,85,7)  
Queue 5: (723,81,3); (625,83,2); (191,85,6)  
Queue 6: (124,81,2); (804,83,1); (692,84,2); (791,85,6)  
Queue 7: (432,82,3); (164,84,1); (357,85,7)  
Queue 8: (136,80,1); (238,83,5); (935,85,5)  
Queue 9: (446,81,3); (665,83,5); (836,86,5)  
Queue 10: (854,81,3); (906,83,5); (855,86,5)  
Queue 11: (204,79,1); (858,81,2); (936,83,4); (431,86,6)  
Queue 12: (925,79,1); (975,81,1); (705,83,3); (950,85,3)  
Queue 13: (636,80,1); (573,82,4); (770,84,5)  
Queue 14: (284,83,3); (834,84,4); (533,86,3)  
Queue 15: (707,82,2); (376,84,6)  
Queue 16: (170,82,1); (412,84,2); (381,85,5)  
Queue 17: (559,82,1); (452,83,2); (427,84,1); (478,85,3); (551,86,8)  
Queue 18: (207,82,3); (960,83,3); (972,85,5)  
Queue 19: (618,80,2); (564,83,2); (52,85,4)  
Time 87  
Queue 0: (349,81,2); (757,83,4); (558,86,3)  
Queue 1: (79,83,4); (53,85,6)  
Queue 2: (386,80,1); (576,83,4); (228,86,5)  
Queue 3: (400,80,1); (609,83,2); (94,85,2); (774,86,5)  
Queue 4: (877,82,1); (70,84,1); (34,85,6)  
Queue 5: (723,81,2); (625,83,1); (191,85,5)  
Queue 6: (124,81,1); (692,84,1); (791,85,5); (809,87,3)  
Queue 7: (432,82,2); (357,85,6)  
Queue 8: (238,83,4); (935,85,4)  
Queue 9: (446,81,2); (665,83,4); (836,86,4)  
Queue 10: (854,81,2); (906,83,4); (855,86,4)  
Queue 11: (858,81,1); (936,83,3); (431,86,5)  
Queue 12: (705,83,2); (950,85,2); (309,87,6)  
Queue 13: (573,82,3); (770,84,4); (856,87,4)  
Queue 14: (284,83,2); (834,84,3); (533,86,2); (870,87,6)  
Queue 15: (707,82,1); (376,84,5); (540,87,4)  
Queue 16: (412,84,1); (381,85,4); (358,87,3)  
Queue 17: (452,83,1); (478,85,2); (551,86,7)  
Queue 18: (207,82,2); (960,83,2); (972,85,4)  
Queue 19: (618,80,1); (564,83,1); (52,85,3); (379,87,3)  
Time 88  
Queue 0: (349,81,1); (757,83,3); (558,86,2); (531,88,8)  
Queue 1: (79,83,3); (53,85,5)  
Queue 2: (576,83,3); (228,86,4); (986,88,3)  
Queue 3: (609,83,1); (94,85,1); (774,86,4); (592,88,4)  
Queue 4: (34,85,5); (210,88,5)  
Queue 5: (723,81,1); (191,85,4); (232,88,4)  
Queue 6: (791,85,4); (809,87,2); (718,88,3)  
Queue 7: (432,82,1); (357,85,5); (796,88,7)  
Queue 8: (238,83,3); (935,85,3); (816,88,7)  
Queue 9: (446,81,1); (665,83,3); (836,86,3)  
Queue 10: (854,81,1); (906,83,3); (855,86,3)  
Queue 11: (936,83,2); (431,86,4); (817,88,8)  
Queue 12: (705,83,1); (950,85,1); (309,87,5)  
Queue 13: (573,82,2); (770,84,3); (856,87,3)  
Queue 14: (284,83,1); (834,84,2); (533,86,1); (870,87,5)  
Queue 15: (376,84,4); (540,87,3)  
Queue 16: (381,85,3); (358,87,2); (450,88,3)  
Queue 17: (478,85,1); (551,86,6)  
Queue 18: (207,82,1); (960,83,1); (972,85,3); (521,88,7)  
Queue 19: (52,85,2); (379,87,2); (111,88,5)  
Time 89  
Queue 0: (757,83,2); (558,86,1); (531,88,7)  
Queue 1: (79,83,2); (53,85,4); (285,89,8)  
Queue 2: (576,83,2); (228,86,3); (986,88,2); (671,89,3)  
Queue 3: (774,86,3); (592,88,3); (362,89,4)  
Queue 4: (34,85,4); (210,88,4); (818,89,5)  
Queue 5: (191,85,3); (232,88,3); (425,89,3)  
Queue 6: (791,85,3); (809,87,1); (718,88,2); (477,89,3)  
Queue 7: (357,85,4); (796,88,6)  
Queue 8: (238,83,2); (935,85,2); (816,88,6)  
Queue 9: (665,83,2); (836,86,2); (8,89,4)  
Queue 10: (906,83,2); (855,86,2); (40,89,3); (725,89,8)  
Queue 11: (936,83,1); (431,86,3); (817,88,7)  
Queue 12: (309,87,4); (65,89,5)  
Queue 13: (573,82,1); (770,84,2); (856,87,2); (87,89,8)  
Queue 14: (834,84,1); (870,87,4); (114,89,3)  
Queue 15: (376,84,3); (540,87,2); (166,89,5)  
Queue 16: (381,85,2); (358,87,1); (450,88,2); (173,89,5)  
Queue 17: (551,86,5); (270,89,7)  
Queue 18: (972,85,2); (521,88,6)  
Queue 19: (52,85,1); (379,87,1); (111,88,4); (543,89,8)  
Time 90  
Queue 0: (757,83,1); (531,88,6); (407,90,3)  
Queue 1: (79,83,1); (53,85,3); (285,89,7)  
Queue 2: (576,83,1); (228,86,2); (986,88,1); (671,89,2); (252,90,8)  
Queue 3: (774,86,2); (592,88,2); (362,89,3); (451,90,3)  
Queue 4: (34,85,3); (210,88,3); (818,89,4)  
Queue 5: (191,85,2); (232,88,2); (425,89,2); (266,90,8)  
Queue 6: (791,85,2); (718,88,1); (477,89,2); (25,90,5)  
Queue 7: (357,85,3); (796,88,5); (968,90,4)  
Queue 8: (238,83,1); (935,85,1); (816,88,5); (500,90,4)  
Queue 9: (665,83,1); (836,86,1); (8,89,3); (92,90,4)  
Queue 10: (906,83,1); (855,86,1); (40,89,2); (725,89,7)  
Queue 11: (431,86,2); (817,88,6)  
Queue 12: (309,87,3); (65,89,4); (690,90,8)  
Queue 13: (770,84,1); (856,87,1); (87,89,7)  
Queue 14: (870,87,3); (114,89,2); (165,90,4)  
Queue 15: (376,84,2); (540,87,1); (166,89,4); (884,90,5)  
Queue 16: (381,85,1); (450,88,1); (173,89,4); (334,90,8)  
Queue 17: (551,86,4); (270,89,6)  
Queue 18: (972,85,1); (521,88,5); (387,90,6)  
Queue 19: (111,88,3); (543,89,7)  
Time 91  
Queue 0: (531,88,5); (407,90,2); (542,91,3)  
Queue 1: (53,85,2); (285,89,6)  
Queue 2: (228,86,1); (671,89,1); (252,90,7)  
Queue 3: (774,86,1); (592,88,1); (362,89,2); (451,90,2); (224,91,6)  
Queue 4: (34,85,2); (210,88,2); (818,89,3); (678,91,4)  
Queue 5: (191,85,1); (232,88,1); (425,89,1); (266,90,7)  
Queue 6: (791,85,1); (477,89,1); (25,90,4); (303,91,6)  
Queue 7: (357,85,2); (796,88,4); (968,90,3)  
Queue 8: (816,88,4); (500,90,3); (824,91,8)  
Queue 9: (8,89,2); (92,90,3); (211,91,5)  
Queue 10: (40,89,1); (725,89,6); (903,91,6)  
Queue 11: (431,86,1); (817,88,5); (372,91,7)  
Queue 12: (309,87,2); (65,89,3); (690,90,7)  
Queue 13: (87,89,6); (404,91,4)  
Queue 14: (870,87,2); (114,89,1); (165,90,3); (487,91,4)  
Queue 15: (376,84,1); (166,89,3); (884,90,4)  
Queue 16: (173,89,3); (334,90,7)  
Queue 17: (551,86,3); (270,89,5)  
Queue 18: (521,88,4); (387,90,5)  
Queue 19: (111,88,2); (543,89,6)  
Time 92  
Queue 0: (531,88,4); (407,90,1); (542,91,2)  
Queue 1: (53,85,1); (285,89,5); (155,92,3)  
Queue 2: (252,90,6); (249,92,6)  
Queue 3: (362,89,1); (451,90,1); (224,91,5)  
Queue 4: (34,85,1); (210,88,1); (818,89,2); (678,91,3)  
Queue 5: (266,90,6); (501,92,3)  
Queue 6: (25,90,3); (303,91,5)  
Queue 7: (357,85,1); (796,88,3); (968,90,2); (695,92,8)  
Queue 8: (816,88,3); (500,90,2); (824,91,7)  
Queue 9: (8,89,1); (92,90,2); (211,91,4)  
Queue 10: (725,89,5); (903,91,5)  
Queue 11: (817,88,4); (372,91,6)  
Queue 12: (309,87,1); (65,89,2); (690,90,6)  
Queue 13: (87,89,5); (404,91,3)  
Queue 14: (870,87,1); (165,90,2); (487,91,3); (863,92,4)  
Queue 15: (166,89,2); (884,90,3); (90,92,8)  
Queue 16: (173,89,2); (334,90,6)  
Queue 17: (551,86,2); (270,89,4); (873,92,4)  
Queue 18: (521,88,3); (387,90,4)  
Queue 19: (111,88,1); (543,89,5); (961,92,6)  
Time 93  
Queue 0: (531,88,3); (542,91,1); (99,93,3)  
Queue 1: (285,89,4); (155,92,2); (697,93,6)  
Queue 2: (252,90,5); (249,92,5)  
Queue 3: (224,91,4); (245,93,5)  
Queue 4: (818,89,1); (678,91,2); (6,93,3); (881,93,6)  
Queue 5: (266,90,5); (501,92,2)  
Queue 6: (25,90,2); (303,91,4)  
Queue 7: (796,88,2); (968,90,1); (695,92,7)  
Queue 8: (816,88,2); (500,90,1); (824,91,6)  
Queue 9: (92,90,1); (211,91,3); (458,93,4)  
Queue 10: (725,89,4); (903,91,4)  
Queue 11: (817,88,3); (372,91,5)  
Queue 12: (65,89,1); (690,90,5)  
Queue 13: (87,89,4); (404,91,2)  
Queue 14: (165,90,1); (487,91,2); (863,92,3)  
Queue 15: (166,89,1); (884,90,2); (90,92,7)  
Queue 16: (173,89,1); (334,90,5)  
Queue 17: (551,86,1); (270,89,3); (873,92,3)  
Queue 18: (521,88,2); (387,90,3); (584,93,6)  
Queue 19: (543,89,4); (961,92,5)  
Time 94  
Queue 0: (531,88,2); (99,93,2); (45,94,7)  
Queue 1: (285,89,3); (155,92,1); (697,93,5)  
Queue 2: (252,90,4); (249,92,4)  
Queue 3: (224,91,3); (245,93,4)  
Queue 4: (678,91,1); (6,93,2); (881,93,5)  
Queue 5: (266,90,4); (501,92,1); (929,94,4)  
Queue 6: (25,90,1); (303,91,3); (247,94,4)  
Queue 7: (796,88,1); (695,92,6)  
Queue 8: (816,88,1); (824,91,5)  
Queue 9: (211,91,2); (458,93,3)  
Queue 10: (725,89,3); (903,91,3)  
Queue 11: (817,88,2); (372,91,4)  
Queue 12: (690,90,4); (331,94,6)  
Queue 13: (87,89,3); (404,91,1); (438,94,5)  
Queue 14: (487,91,1); (863,92,2); (5,94,5)  
Queue 15: (884,90,1); (90,92,6)  
Queue 16: (334,90,4); (672,94,6)  
Queue 17: (270,89,2); (873,92,2); (743,94,4)  
Queue 18: (521,88,1); (387,90,2); (584,93,5)  
Queue 19: (543,89,3); (961,92,4)  
Time 95  
Queue 0: (531,88,1); (99,93,1); (45,94,6)  
Queue 1: (285,89,2); (697,93,4)  
Queue 2: (252,90,3); (249,92,3)  
Queue 3: (224,91,2); (245,93,3); (506,95,8)  
Queue 4: (6,93,1); (881,93,4); (507,95,5)  
Queue 5: (266,90,3); (929,94,3)  
Queue 6: (303,91,2); (247,94,3); (644,95,8)  
Queue 7: (695,92,5); (655,95,4)  
Queue 8: (824,91,4); (171,95,4)  
Queue 9: (211,91,1); (458,93,2); (58,95,8)  
Queue 10: (725,89,2); (903,91,2); (189,95,7)  
Queue 11: (817,88,1); (372,91,3); (390,95,3)  
Queue 12: (690,90,3); (331,94,5)  
Queue 13: (87,89,2); (438,94,4)  
Queue 14: (863,92,1); (5,94,4); (729,95,5)  
Queue 15: (90,92,5); (735,95,7)  
Queue 16: (334,90,3); (672,94,5)  
Queue 17: (270,89,1); (873,92,1); (743,94,3); (837,95,4)  
Queue 18: (387,90,1); (584,93,4); (941,95,7)  
Queue 19: (543,89,2); (961,92,3)  
Time 96  
Queue 0: (45,94,5); (462,96,7)  
Queue 1: (285,89,1); (697,93,3); (57,96,6)  
Queue 2: (252,90,2); (249,92,2); (71,96,6)  
Queue 3: (224,91,1); (245,93,2); (506,95,7)  
Queue 4: (881,93,3); (507,95,4); (832,96,4)  
Queue 5: (266,90,2); (929,94,2); (140,96,4)  
Queue 6: (303,91,1); (247,94,2); (644,95,7)  
Queue 7: (695,92,4); (655,95,3)  
Queue 8: (824,91,3); (171,95,3); (744,96,5)  
Queue 9: (458,93,1); (58,95,7)  
Queue 10: (725,89,1); (903,91,1); (189,95,6)  
Queue 11: (372,91,2); (390,95,2); (196,96,4)  
Queue 12: (690,90,2); (331,94,4); (765,96,5)  
Queue 13: (87,89,1); (438,94,3); (197,96,6)  
Queue 14: (5,94,3); (729,95,4)  
Queue 15: (90,92,4); (735,95,6)  
Queue 16: (334,90,2); (672,94,4); (792,96,3)  
Queue 17: (743,94,2); (837,95,3); (626,96,6)  
Queue 18: (584,93,3); (941,95,6)  
Queue 19: (543,89,1); (961,92,2); (37,96,4)  
Time 97  
Queue 0: (45,94,4); (462,96,6)  
Queue 1: (697,93,2); (57,96,5)  
Queue 2: (252,90,1); (249,92,1); (71,96,5)  
Queue 3: (245,93,1); (506,95,6)  
Queue 4: (881,93,2); (507,95,3); (832,96,3)  
Queue 5: (266,90,1); (929,94,1); (140,96,3); (347,97,4)  
Queue 6: (247,94,1); (644,95,6)  
Queue 7: (695,92,3); (655,95,2); (602,97,8)  
Queue 8: (824,91,2); (171,95,2); (744,96,4)  
Queue 9: (58,95,6)  
Queue 10: (189,95,5)  
Queue 11: (372,91,1); (390,95,1); (196,96,3)  
Queue 12: (690,90,1); (331,94,3); (765,96,4)  
Queue 13: (438,94,2); (197,96,5)  
Queue 14: (5,94,2); (729,95,3)  
Queue 15: (90,92,3); (735,95,5)  
Queue 16: (334,90,1); (672,94,3); (792,96,2)  
Queue 17: (743,94,1); (837,95,2); (626,96,5)  
Queue 18: (584,93,2); (941,95,5)  
Queue 19: (961,92,1); (37,96,3); (310,97,7)  
Time 98  
Queue 0: (45,94,3); (462,96,5)  
Queue 1: (697,93,1); (57,96,4); (320,98,3)  
Queue 2: (71,96,4); (298,98,4)  
Queue 3: (506,95,5); (380,98,6)  
Queue 4: (881,93,1); (507,95,2); (832,96,2); (419,98,6)  
Queue 5: (140,96,2); (347,97,3); (547,98,3)  
Queue 6: (644,95,5); (619,98,7)  
Queue 7: (695,92,2); (655,95,1); (602,97,7)  
Queue 8: (824,91,1); (171,95,1); (744,96,3); (698,98,5)  
Queue 9: (58,95,5); (726,98,5)  
Queue 10: (189,95,4); (300,98,7)  
Queue 11: (196,96,2); (127,98,3); (742,98,6)  
Queue 12: (331,94,2); (765,96,3); (805,98,4)  
Queue 13: (438,94,1); (197,96,4); (942,98,7)  
Queue 14: (5,94,1); (729,95,2); (181,98,8)  
Queue 15: (90,92,2); (735,95,4)  
Queue 16: (672,94,2); (792,96,1); (291,98,6)  
Queue 17: (837,95,1); (626,96,4); (955,98,6)  
Queue 18: (584,93,1); (941,95,4); (980,98,7)  
Queue 19: (37,96,2); (310,97,6)  
Time 99  
Queue 0: (45,94,2); (462,96,4); (281,99,8)  
Queue 1: (57,96,3); (320,98,2); (137,99,7)  
Queue 2: (71,96,3); (298,98,3); (289,99,5)  
Queue 3: (506,95,4); (380,98,5)  
Queue 4: (507,95,1); (832,96,1); (419,98,5); (760,99,3)  
Queue 5: (140,96,1); (347,97,2); (547,98,2); (161,99,3); (917,99,3)  
Queue 6: (644,95,4); (619,98,6)  
Queue 7: (695,92,1); (602,97,6); (764,99,7)  
Queue 8: (744,96,2); (698,98,4); (336,99,8)  
Queue 9: (58,95,4); (726,98,4); (967,99,7)  
Queue 10: (189,95,3); (300,98,6)  
Queue 11: (196,96,1); (127,98,2); (742,98,5)  
Queue 12: (331,94,1); (765,96,2); (805,98,3); (459,99,8)  
Queue 13: (197,96,3); (942,98,6)  
Queue 14: (729,95,1); (181,98,7)  
Queue 15: (90,92,1); (735,95,3); (36,99,3); (902,99,7)  
Queue 16: (672,94,1); (291,98,5); (662,99,8)  
Queue 17: (626,96,3); (955,98,5)  
Queue 18: (941,95,3); (980,98,6)  
Queue 19: (37,96,1); (310,97,5); (687,99,7)  
Time 100  
Queue 0: (45,94,1); (462,96,3); (281,99,7)  
Queue 1: (57,96,2); (320,98,1); (137,99,6)  
Queue 2: (71,96,2); (298,98,2); (289,99,4)  
Queue 3: (506,95,3); (380,98,4)  
Queue 4: (419,98,4); (760,99,2)  
Queue 5: (347,97,1); (547,98,1); (161,99,2); (917,99,2)  
Queue 6: (644,95,3); (619,98,5)  
Queue 7: (602,97,5); (764,99,6)  
Queue 8: (744,96,1); (698,98,3); (336,99,7)  
Queue 9: (58,95,3); (726,98,3); (967,99,6)  
Queue 10: (189,95,2); (300,98,5)  
Queue 11: (127,98,1); (742,98,4)  
Queue 12: (765,96,1); (805,98,2); (459,99,7)  
Queue 13: (197,96,2); (942,98,5)  
Queue 14: (181,98,6)  
Queue 15: (735,95,2); (36,99,2); (902,99,6)  
Queue 16: (291,98,4); (662,99,7)  
Queue 17: (626,96,2); (955,98,4)  
Queue 18: (941,95,2); (980,98,5)  
Queue 19: (310,97,4); (687,99,6)  
Time 101  
Queue 0: (462,96,2); (281,99,6)  
Queue 1: (57,96,1); (137,99,5)  
Queue 2: (71,96,1); (298,98,1); (289,99,3)  
Queue 3: (506,95,2); (380,98,3)  
Queue 4: (419,98,3); (760,99,1)  
Queue 5: (161,99,1); (917,99,1)  
Queue 6: (644,95,2); (619,98,4)  
Queue 7: (602,97,4); (764,99,5)  
Queue 8: (698,98,2); (336,99,6)  
Queue 9: (58,95,2); (726,98,2); (967,99,5)  
Queue 10: (189,95,1); (300,98,4)  
Queue 11: (742,98,3)  
Queue 12: (805,98,1); (459,99,6)  
Queue 13: (197,96,1); (942,98,4)  
Queue 14: (181,98,5)  
Queue 15: (735,95,1); (36,99,1); (902,99,5)  
Queue 16: (291,98,3); (662,99,6)  
Queue 17: (626,96,1); (955,98,3)  
Queue 18: (941,95,1); (980,98,4)  
Queue 19: (310,97,3); (687,99,5)  
Time 102  
Queue 0: (462,96,1); (281,99,5)  
Queue 1: (137,99,4)  
Queue 2: (289,99,2)  
Queue 3: (506,95,1); (380,98,2)  
Queue 4: (419,98,2)  
Queue 5: closed  
Queue 6: (644,95,1); (619,98,3)  
Queue 7: (602,97,3); (764,99,4)  
Queue 8: (698,98,1); (336,99,5)  
Queue 9: (58,95,1); (726,98,1); (967,99,4)  
Queue 10: (300,98,3)  
Queue 11: (742,98,2)  
Queue 12: (459,99,5)  
Queue 13: (942,98,3)  
Queue 14: (181,98,4)  
Queue 15: (902,99,4)  
Queue 16: (291,98,2); (662,99,5)  
Queue 17: (955,98,2)  
Queue 18: (980,98,3)  
Queue 19: (310,97,2); (687,99,4)  
Time 103  
Queue 0: (281,99,4)  
Queue 1: (137,99,3)  
Queue 2: (289,99,1)  
Queue 3: (380,98,1)  
Queue 4: (419,98,1)  
Queue 5: closed  
Queue 6: (619,98,2)  
Queue 7: (602,97,2); (764,99,3)  
Queue 8: (336,99,4)  
Queue 9: (967,99,3)  
Queue 10: (300,98,2)  
Queue 11: (742,98,1)  
Queue 12: (459,99,4)  
Queue 13: (942,98,2)  
Queue 14: (181,98,3)  
Queue 15: (902,99,3)  
Queue 16: (291,98,1); (662,99,4)  
Queue 17: (955,98,1)  
Queue 18: (980,98,2)  
Queue 19: (310,97,1); (687,99,3)  
Time 104  
Queue 0: (281,99,3)  
Queue 1: (137,99,2)  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Queue 5: closed  
Queue 6: (619,98,1)  
Queue 7: (602,97,1); (764,99,2)  
Queue 8: (336,99,3)  
Queue 9: (967,99,2)  
Queue 10: (300,98,1)  
Queue 11: closed  
Queue 12: (459,99,3)  
Queue 13: (942,98,1)  
Queue 14: (181,98,2)  
Queue 15: (902,99,2)  
Queue 16: (662,99,3)  
Queue 17: closed  
Queue 18: (980,98,1)  
Queue 19: (687,99,2)  
Time 105  
Queue 0: (281,99,2)  
Queue 1: (137,99,1)  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Queue 5: closed  
Queue 6: closed  
Queue 7: (764,99,1)  
Queue 8: (336,99,2)  
Queue 9: (967,99,1)  
Queue 10: closed  
Queue 11: closed  
Queue 12: (459,99,2)  
Queue 13: closed  
Queue 14: (181,98,1)  
Queue 15: (902,99,1)  
Queue 16: (662,99,2)  
Queue 17: closed  
Queue 18: closed  
Queue 19: (687,99,1)  
Time 106  
Queue 0: (281,99,1)  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Queue 5: closed  
Queue 6: closed  
Queue 7: closed  
Queue 8: (336,99,1)  
Queue 9: closed  
Queue 10: closed  
Queue 11: closed  
Queue 12: (459,99,1)  
Queue 13: closed  
Queue 14: closed  
Queue 15: closed  
Queue 16: (662,99,1)  
Queue 17: closed  
Queue 18: closed  
Queue 19: closed  
Time 107  
Queue 0: closed  
Queue 1: closed  
Queue 2: closed  
Queue 3: closed  
Queue 4: closed  
Queue 5: closed  
Queue 6: closed  
Queue 7: closed  
Queue 8: closed  
Queue 9: closed  
Queue 10: closed  
Queue 11: closed  
Queue 12: closed  
Queue 13: closed  
Queue 14: closed  
Queue 15: closed  
Queue 16: closed  
Queue 17: closed  
Queue 18: closed  
Queue 19: closed  
  
Peek hour 65  
Average waiting time 12.427  
Average service time 5.558

# **Conclusions**

I can affirm that during the development of this assignment I have got more familiar with some aspects about how classes should be implemented and organized in an application and how threads work.

Some future development ideas could be:

* A more interactive user interface, perhaps with animations
* More advanced strategies on the task distribution algorithm

# **Bibliography**

<https://openjfx.io/>

<https://mvnrepository.com/>