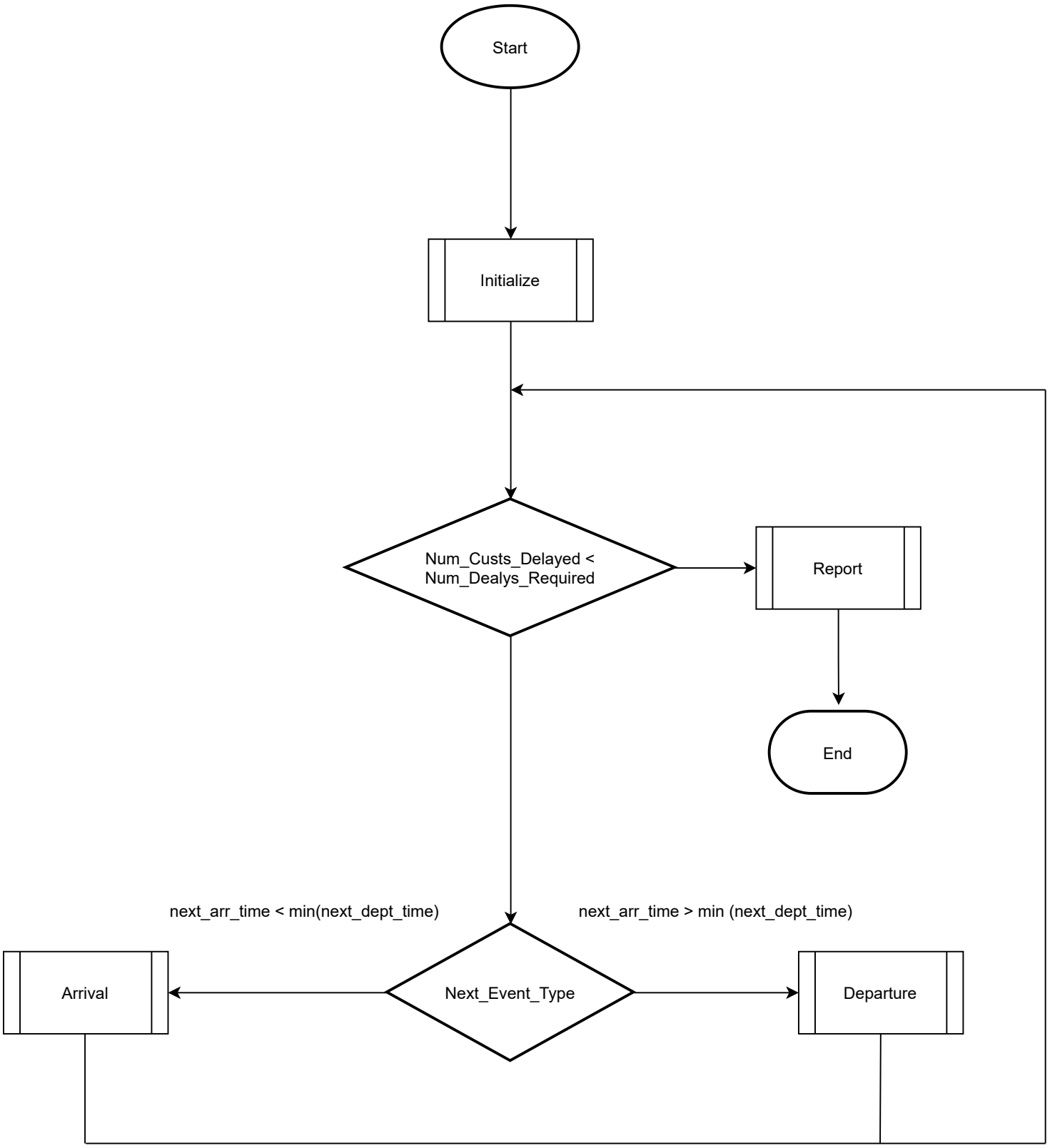
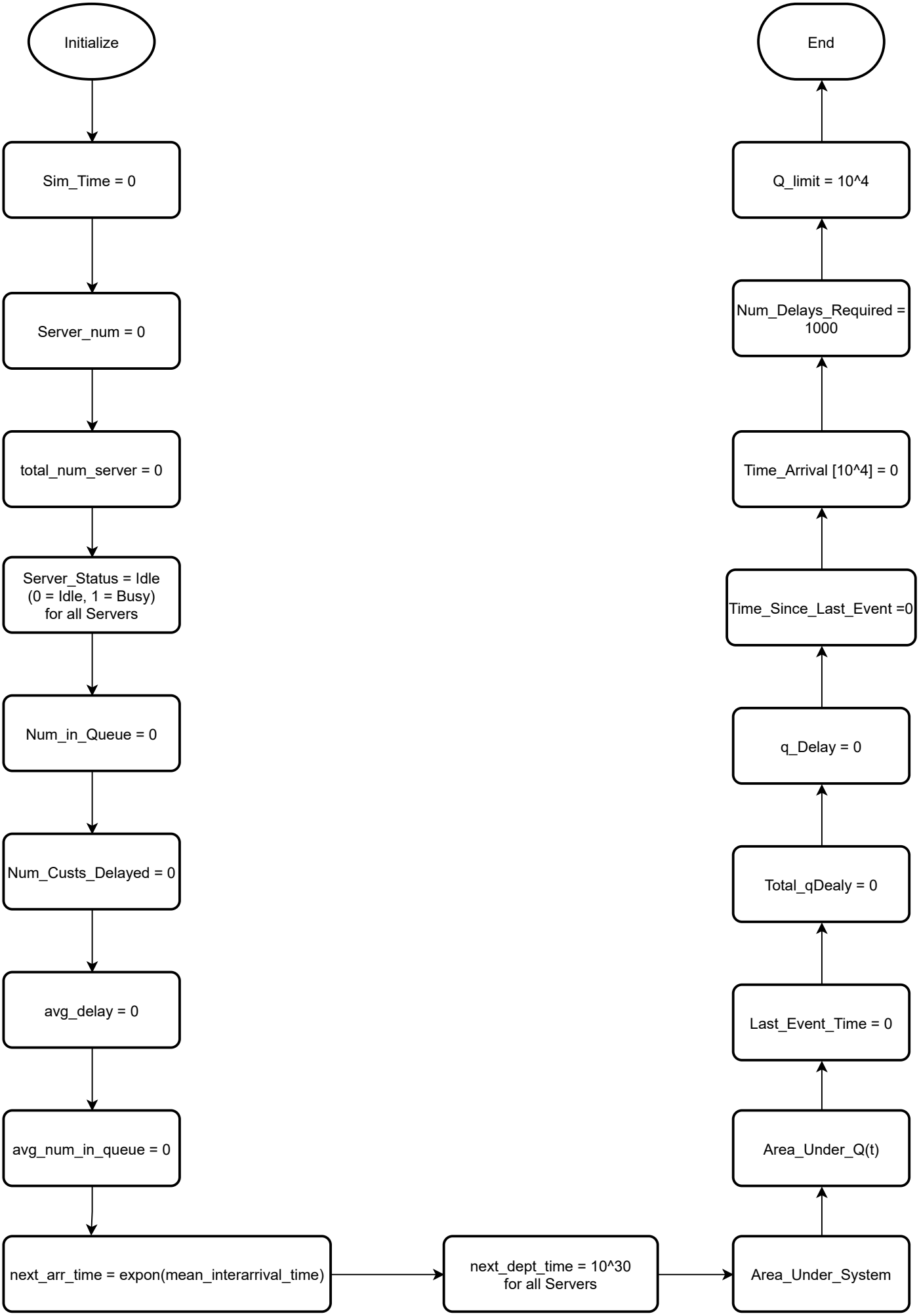
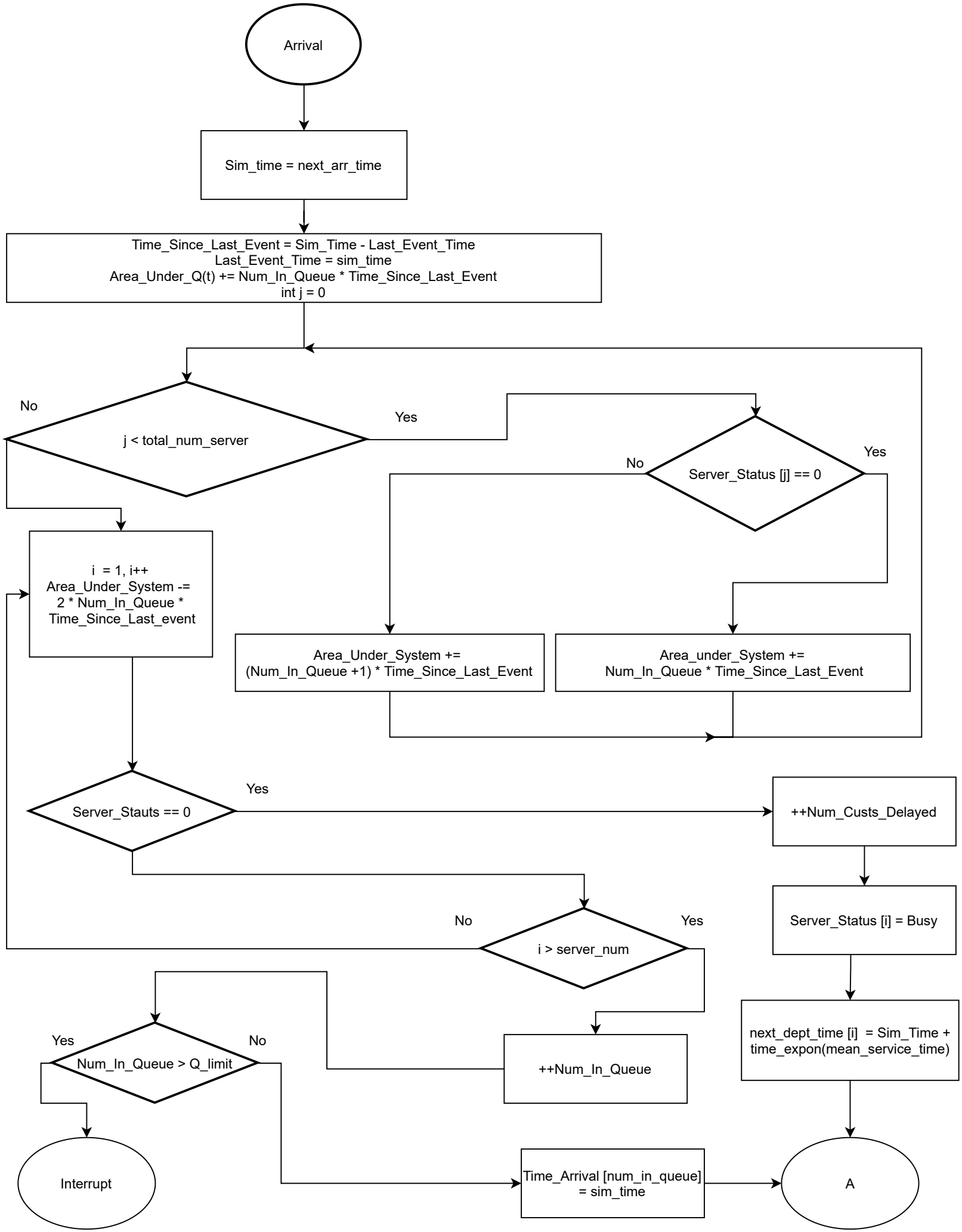
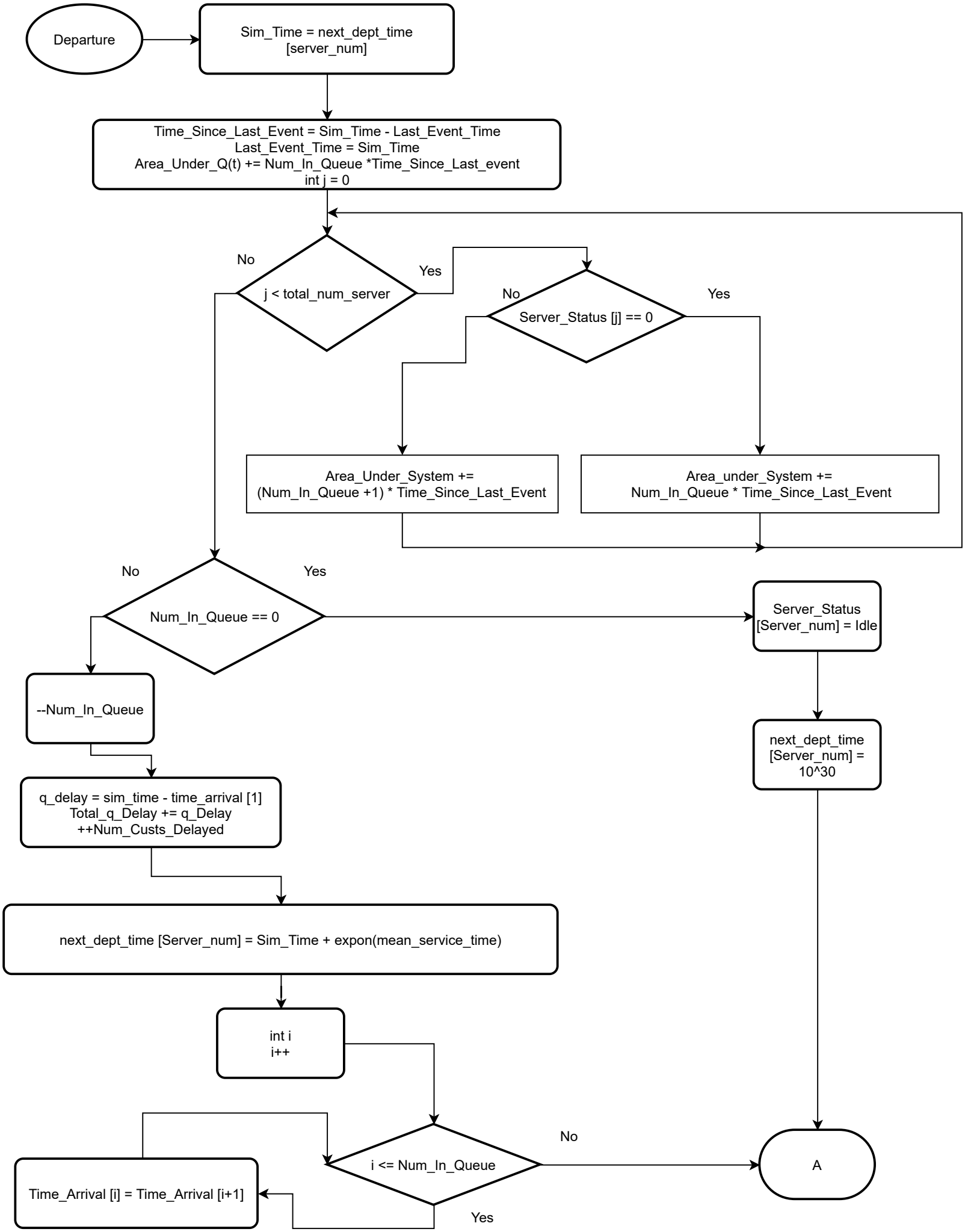

Start
Initialize
Num_Custs_Delayed <
Num_Dealys_Required
Report
End
next_arr_time < min(next_dept_time)
next_arr_time > min (next_dept_time)
Arrival
Next_Event_Type
Departure


Initialize
Sim_Time = 0
Server_num = 0
total_num_server = 0
Server_Status = Idle
(0 = Idle, 1 = Busy)
for all Servers
Num_in_Queue = 0
Num_Custs_Delayed = 0
avg_delay = 0
avg_num_in_queue = 0
next_arr_time = expon(mean_interarrival_time)
next_dept_time = 10^30
for all Servers
Area_Under_System
Area_Under_Q(t)
Last_Event_Time = 0
Total_qDealy = 0
q_Delay = 0
Time_Since_Last_Event =0
Time_Arrival [10^4] = 0
Num_Delays_Required =
1000
Q_limit = 10^4
End


Arrival
Sim_time = next_arr_time
Time_Since_Last_Event = Sim_Time - Last_Event_Time
Last_Event_Time = sim_time
Area_Under_Q(t) += Num_In_Queue * Time_Since_Last_Event
int j = 0
j < total_num_server
No
Yes
Server_Status [j] == 0
No
Yes
i = 1, i++
Area_Under_System -=
2 * Num_In_Queue *
Time_Since_Last_event
Area_Under_System +=
(Num_In_Queue +1) * Time_Since_Last_Event
Area_under_System +=
Num_In_Queue * Time_Since_Last_Event
Server_Stauts == 0
Yes
++Num_Custs_Delayed
Server_Status [i] = Busy
No
Yes
i > server_num
Yes
No
Num_In_Queue > Q_limit
++Num_In_Queue
next_dept_time [i] = Sim_Time +
time_expon(mean_service_time)
Interrupt
Time_Arrival [num_in_queue]
= sim_time
A


Departure
Sim_Time = next_dept_time [server_num]
Time_Since_Last_Event = Sim_Time - Last_Event_Time
Last_Event_Time = Sim_Time
Area_Under_Q(t) += Num_In_Queue *Time_Since_Last_event
int j = 0
j < total_num_server
No
Yes
Server_Status [j] == 0
No
Yes
Area_Under_System += (Num_In_Queue +1) * Time_Since_Last_Event
Area_under_System += Num_In_Queue * Time_Since_Last_Event
Num_In_Queue == 0
No
Yes
Server_Status [Server_num] = Idle
--Num_In_Queue
next_dept_time [Server_num] = 10^30
q_delay = sim_time - time_arrival [1]
Total_q_Delay += q_Delay
++Num_Custs_Delayed
next_dept_time [Server_num] = Sim_Time + expon(mean_service_time)
int i
i++
i <= Num_In_Queue
No
Yes
A
Time_Arrival [i] = Time_Arrival [i+1]