	Current State										Nex	t Sta	te				Next Lig Dura	ght					
Line No	mode	plateIn	Time	remainingTime	greenForA	greenForB	rushHourWarning	numOfCarsA	numOfCarsB	blackListDisplay	action	양	Time	remainingTime	greenForA	greenForB	rushHourWarning	numOfCarsA	numOfCarsB	blackListDisplay	A	В	Explanation
1	-	-	-	-	-	-	-	-	-	-	-	-	06:00:00 AM	50		0	0	0	0	0	40	50	Initial state
2	3'b0xx	х	06:00:00 AM	50	1	0	0	0	0	0	*	<u></u>	06:00:01 AM	49		0	0	0	0	0	40	50	
3	3'b0xx	х	06:00:01 AM	49	1	0	0	0	0	0	*		06:00:02 AM	48		0	0	0	0	0	40	50	
4	3'b0xx	х	06:00:02 AM	48	1	0	0	0	0	0	*	<u> </u>	06:00:03 AM	47	1	0	0	0	0	0	40	50	An example of switching lights.
5											÷												All example of switching lightes.
6	3'b0xx	х	06:00:49 AM	1	1	0	0	0	0	0	*	1	06:00:50 AM	0	0	0	0	0	0	0	40	50	
7	3'b0xx	х	06:00:50 AM	0	0	0	0	0	0	0	*	1	06:00:51 AM	40	0	1	0	0	0	0	40	55	Just before LightB turns green, it updates its next red light duration. Since there are no cars in RoadB (0 <= C <= 10) the next red light duration of B will be: current_turn(50) + 5 = 55
8	3'b0xx	х	06:00:51 AM	40	0	1	0	0	0	0	*	1	06:00:52 AM	39	0	1	0	0	0	0	40	55	
9											:												
10	3'b0xx	х	06:01:30 AM	1	0	1	0	0	0	0	*	1	06:01:31 AM	0	0	0	0	0	0	0	40	55	
11	3'b0xx	х	06:01:31 AM	0	0	0	0	0	0	0	*	1	06:01:32 AM	55	1	0	0	0	0	0	45	55	Just before LightA turns green, it updates its next red light duration. Since there are no cars in RoadA (0 <= C <= 10) the next red light duration of A will be: current_turn(40) + 5 = 45
12	3'b0xx	х	06:01:32 AM	55	1	0	0	0	0	0	*	1	06:01:33 AM	54	1	0	0	0	0	0	45	55	
13											:												~ 1 hour is passed. Up until this point both RoadA and RoadB did not have any cars waiting. Thus their maximum wait durations are reached. (RoadA 70, RoadB 80).
14	3'b0xx	х	06:59:49 AM	0	0	0	0	0	0	0	*	1	06:59:50 AM	80	1	0	0	0	0	0	70	80	Just before LightA turns green, it updates its next red light duration. Since there are no cars in RoadA (0 <= C <= 10) the next red light duration of A will be: current_turn(70) + 5 = 70, as maximum red light duration of LightA during regular time is 70.
15											<u>:</u>												

16	3'b0xx	х	06:59:58 AM	72	1	0	0	0	0	0	*	1	06:59:59 AM	71	1	0	0	0	0	0	70	80	
17	3'b0xx	X	06:59:59 AM	71	1	0	0	0	0	0	*	<u></u>	07:00:00 AM	70	1	0	1	0	0	0	70	80	Rush hour is set. From now on, duration
18	3'b0xx	X	07:00:00 AM	70	1	0	1	0	0	0	*	_ <u></u>	07:00:01 AM	69	1	0	1	0	0	0	70	80	calculations will be based on Rush Hour limits.
19											:												The red light duration of LightB becomes 70 during this time period.
20	3'b0xx	х	07:02:21 AM	0	0	0	1	0	0	0	*	↑	07:02:22 AM	70	1	0	1	0	0	0	60	70	Just before LightA turns green, it updates its next red light duration. Since we are at rush hour, limits are changed to min: 30 and max: 60 for LightA. current_turn(70) + 5 = 75, but it is set to 60.
21											:												
22	3'b010	1	07:03:35 AM	58	0	1	1	0	0	0		*	07:03:35 AM	58	0	1	_1	1	0	0	60	70	
23	3'b010	2	07:03:35 AM	58	0	1	1	1	0	0	1	*	07:03:35 AM	58	0	1	1	2	0	0	60	70	
24	3'b010	3	07:03:35 AM	58	0	1	1	2	0	0	1	1	07:03:36 AM	57	0	1	_1	3	0	0	60	70	In more 2 seconds 11 sers are added to Dood A
25	3'b010	4	07:03:36 AM	57	0	1	1	3	0	0	1	*	07:03:36 AM	57	0	1	1	4	0	0	60	70	In mere 3 seconds, 11 cars are added to RoadA
26	3'b010	5	07:03:36 AM	57	0	1	1	4	0	0	↑	*	07:03:36 AM	57	0	1	1	5	0	0	60	70	by the detector. Please notice that detector works asynchronously, it is triggered by the positive edge of action . In RoadA there are 11 cars. Plates of those cars are: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.
27	3'b010	6	07:03:36 AM	57	0	1	1	5	0	0	\uparrow	*	07:03:36 AM	57	0	1	1	6	0	0	60	70	
28	3'b010	7	07:03:36 AM	57	0	1	1	6	0	0	1	*	07:03:36 AM	57	0	1	1	7	0	0	60	70	
29	3'b010	8	07:03:36 AM	57	0	1	1	7	0	0	\uparrow	\uparrow	07:03:37 AM	56	0	1	1	8	0	0	60	70	
30	3'b010	9	07:03:37 AM	56	0	1	1	8	0	0	\uparrow	*	07:03:37 AM	56	0	1	1	9	0	0	60	70	
31	3'b010	10	07:03:37 AM	56	0	1	1	9	0	0	\uparrow	*	07:03:37 AM	56	0	1	1	10	0	0	60	70	
32	3'b010	11	07:03:37 AM	56	0	1	1	10	0	0	<u> </u>	*	07:03:37 AM	56	0	1	1	11	0	0	60	70	
33											:												
																							Car with plate number 1 (which was the first
34	3'b000	х	07:03:47 AM	46	0	1	1	11	0	0	1	*	07:03:47 AM	46	0	1	1	10	0	0	60	70	car on RoadA) got bored and passed the intersection during the red light. That plate number is added to the blacklist .
35											:												
36	3'b011	29	07:04:36 AM	68	1	0	1	10	0	0	1	*	07:04:36 AM	68	1	0	1	10	1	0	60	70	After some time, cars with plate numbers 29
37	3'b011	17	07:04:36 AM	68	1	0	1	10	1	0	\uparrow	*	07:04:36 AM	68	1	0	1	10	2	0	60	70	and 17 are stopped on RoadB.
																							Car with plate number 29 (which was the first
38	3'b001	х	07:04:36 AM	68	1	0	1	10	2	0	↑	*	07:04:36 AM	68	1	0	1	10	1	0	60	70	car on RoadB) got bored passed the intersection during the red light. That plate number is added to the blacklist .
39	3'b1xx	х	07:04:36 AM	68	1	0	1	10	1	0	*	\uparrow	07:04:36 AM	68	1	0	1	10	1	1	60	70	System is in display mode now. Time update
40	3'b1xx	Х	07:04:36 AM	68	1	0	1	10	1	1	*	↑	07:04:36 AM	68	1	0	1	10	1	29	60	70	operations are paused. blacklistDisplay prints
41	3'b1xx	х	07:04:36 AM	68	1	0	1	10	1	29	*	\uparrow	07:04:36 AM	68	1	0	1	10	1	1	60	70	the plate numbers that are available on the
42	3'b1xx	Х	07:04:36 AM	68	1	0	1	10	1	1	*	1	07:04:36 AM	68	1	0	1	10	1	29	60	70	blacklist.

	42											•												Many hours have passed. It is now about to be
Ľ	43											:												midnight. There are no cars on the roads.
		011-0		44 50 50 00 4	75	4)))	_	29	*		40.00.00.414	74		•		,)	•	70	00	Blacklist should be reset. blacklistDisplay
Ľ	44	3'b0xx	Х	11:59:59 PM	/5	1	U	U	U	U	29		ľ	12:00:00 AM	/4	1	U	U	U	U	U	70	80	should also be reset.

In this table, " \uparrow " represents the rising edge, " \ast " represents otherwise.