ASSIGNMENT PROBLEM

Customers arrive at a checkout counter at random from 1 to 10 minutes apart with equal probabilities . The service times have following distribution

Service Time	3	5	6	8
Probability	0.2	0.35	0.2	0.25

Simulate the checkout counter for 10 customers using the following data Random Digits for Inter Arrival Time

91	72	15	94	30	92	75	23	30

Random Digits for Service Time are given below

84	10	74	53	17	79	91	67	89	38

Solution :

1. INTER ARRIVAL TIME

INTER ARRIVAL TIME	PROBABILITY	CUMMULATIVE PROBABILITY	RANDOM DIGIT ASSIGNMENT
1	0.1	0.1	01-10
2	0.1	0.2	11-20
3	0.1	0.3	21-30
4	0.1	0.4	31-40
5	0.1	0.5	41-50
6	0.1	0.6	51-60
7	0.1	0.7	61-70
8	0.1	0.8	71-80
9	0.1	0.9	81-90
10	0.1	1.0	91-00

2. SERVICE TIME

SERVICE TIME	PROBABILITY	CUMULATIVE PROBABILITY	RANDOM DIGIT ASSIGNMENT
3	0.2	0.2	01-20
5	0.35	0.55	21-55
6	0.2	0.75	56-75
8	0.25	1.00	76-00

3. INTER ARRIVAL TIME DETERMINATION

CUSTOMER NUMBER	RANDOM DIGIT ASSIGNMENT	INTER ARRIVAL TIME	ARRIVAL TIME
1	-	-	0
2	91	10	10
3	72	8	18
4	15	2	20
5	94	10	30
6	30	3	33
7	92	10	43
8	75	8	51
9	23	3	54
10	30	3	57

4. SERVICE TIME DETERMINATION

CUSTOMER NUMBER	RANDOM DIGIT ASSIGNMENT	SERVICE TIME
1	84	8
2	10	3
3	74	6
4	53	5
5	17	3
6	79	8
7	91	8
8	67	6
9	89	8
10	38	5

5. SIMULATION

CUSTOMER NUMBER	INTER ARRIVAL TIME	ARRIVAL TIME	SERVICE TIME	TIME SERVICE BEGINS	WAITING TIME	TIME SERVICE ENDS	TIME SPENT IN SYSTEM	TIME CHANNEL WAS IDLE
1	-	0	8	0	0	8	8	0
2	10	10	3	10	0	13	3	2
3	8	18	6	18	0	24	6	5
4	2	20	5	24	4	29	9	0
5	10	30	3	30	0	33	3	1
6	3	33	8	33	0	41	8	0
7	10	43	8	43	0	51	8	2
8	8	51	6	51	0	57	6	0
9	3	54	8	57	3	65	11	0
10	3	57	5	65	8	70	13	0