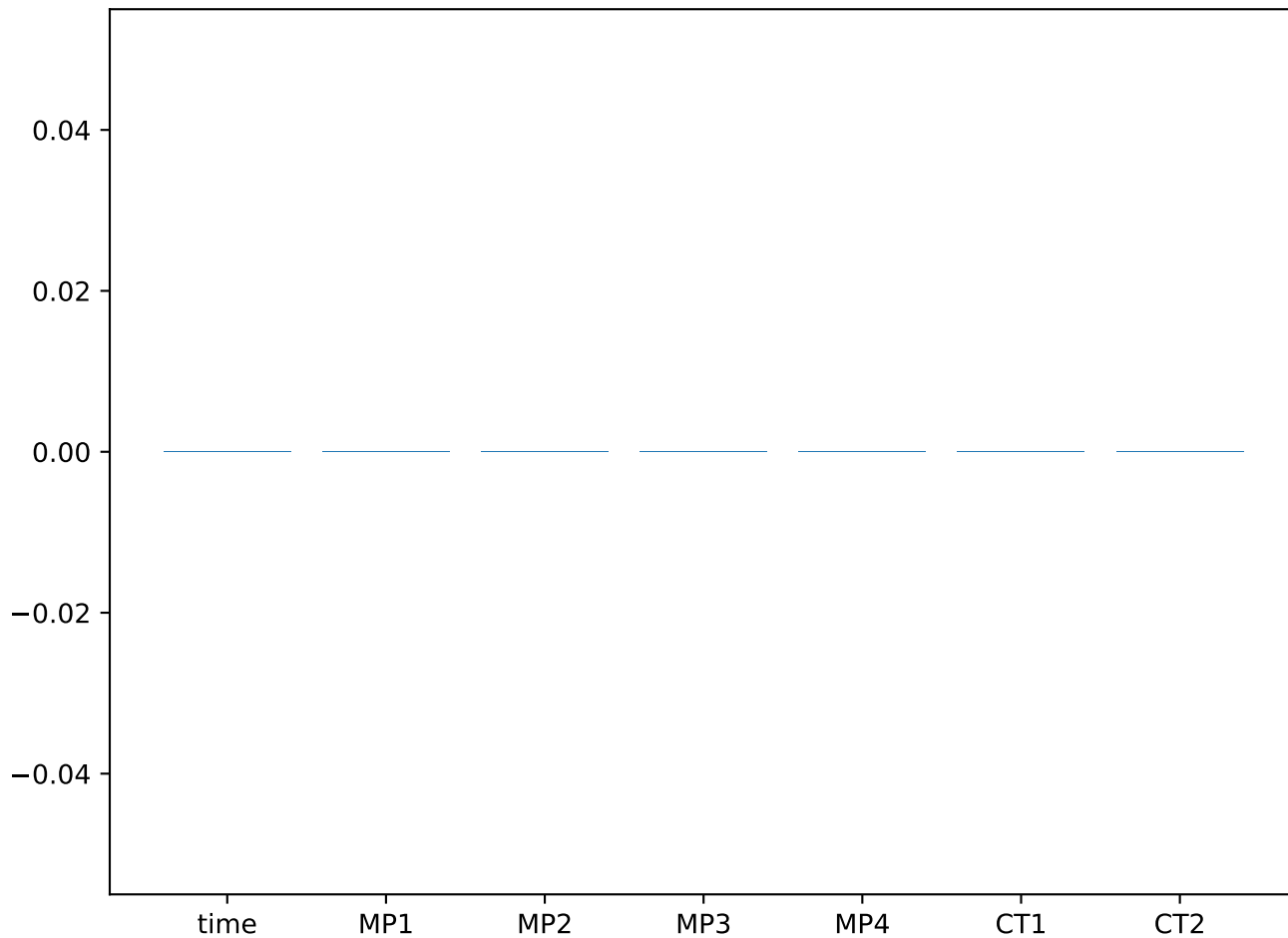S2: Berth Occupancy Simulation

Percent Missing Zeros in Each Column

S2: Berth Occupancy Simulation

No invalid entries in MP1

No invalid entries in MP2
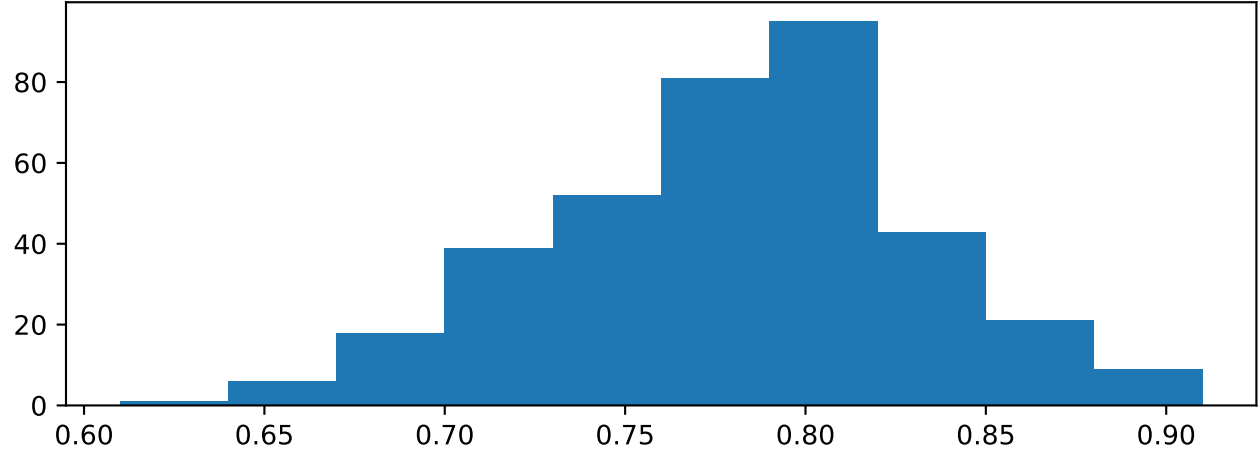
No invalid entries in MP3

No invalid entries in MP4

No invalid entries in CT1

No invalid entries in CT2

S2: Berth Occupancy Simulation

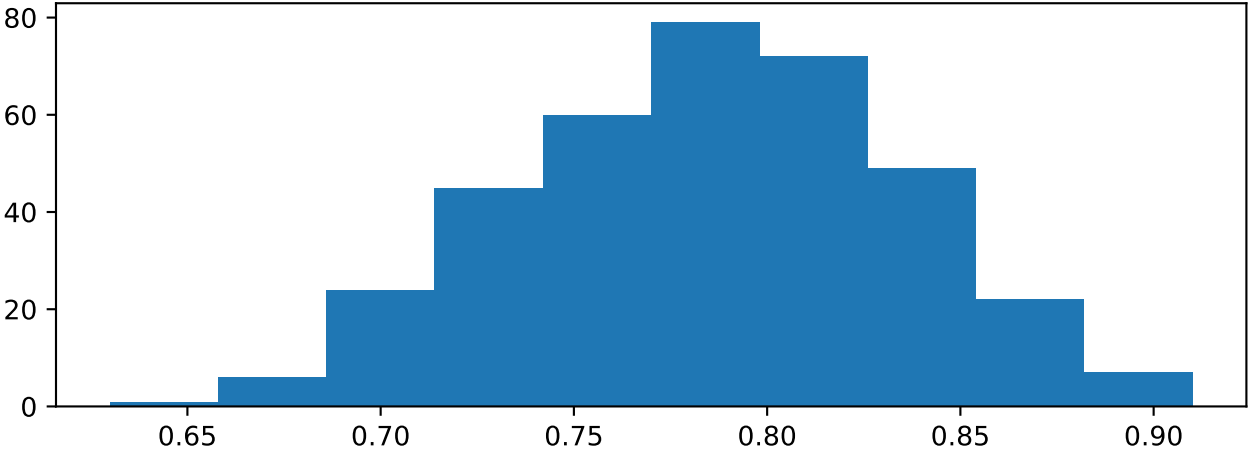## MP1 in S2: Berth Occupancy Simulation

1 outlier(s) detected

time	MP1	MP2	MP3	MP4	CT1	CT2
2025-09-25 00:00:00	0.61	0.67	0.74	0.78	0.76	0.72

S2: Berth Occupancy Simulation
MP2 in S2: Berth Occupancy Simulation

1 outlier(s) detected

time	MP1	MP2	MP3	MP4	CT1	CT2
2025-10-11 00:00:00	0.72	0.63	0.83	0.77	0.78	0.88

S2: Berth Occupancy Simulation

MP3 in S2: Berth Occupancy Simulation
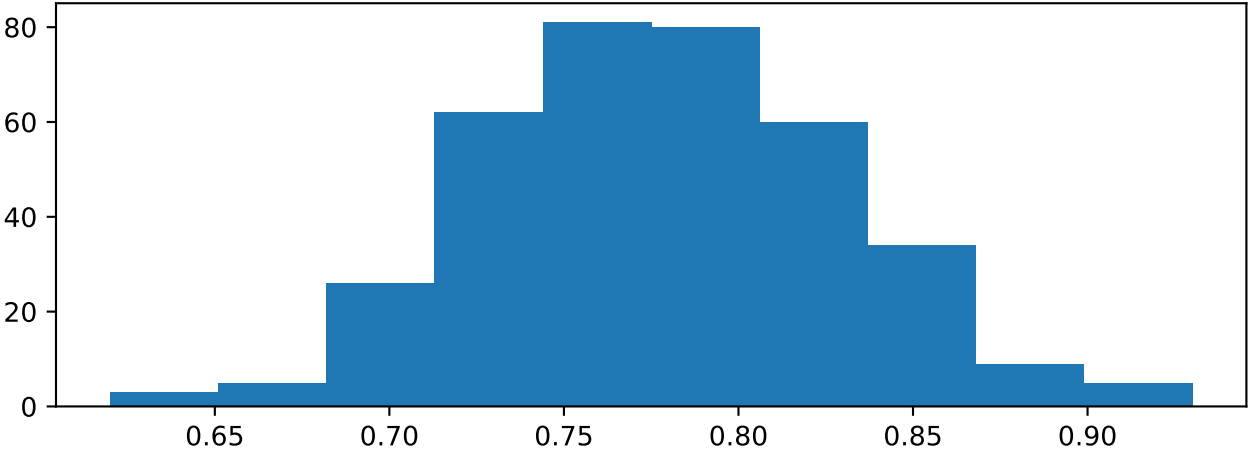
2 outlier(s) detected

time	MP1	MP2	MP3	MP4	CT1	CT2
2025-03-31 00:00:00	0.81	0.86	0.93	0.78	0.81	0.75
2025-08-18 00:00:00	0.8	0.76	0.62	0.83	0.81	0.77

S2: Berth Occupancy Simulation

MP4 in S2: Berth Occupancy Simulation
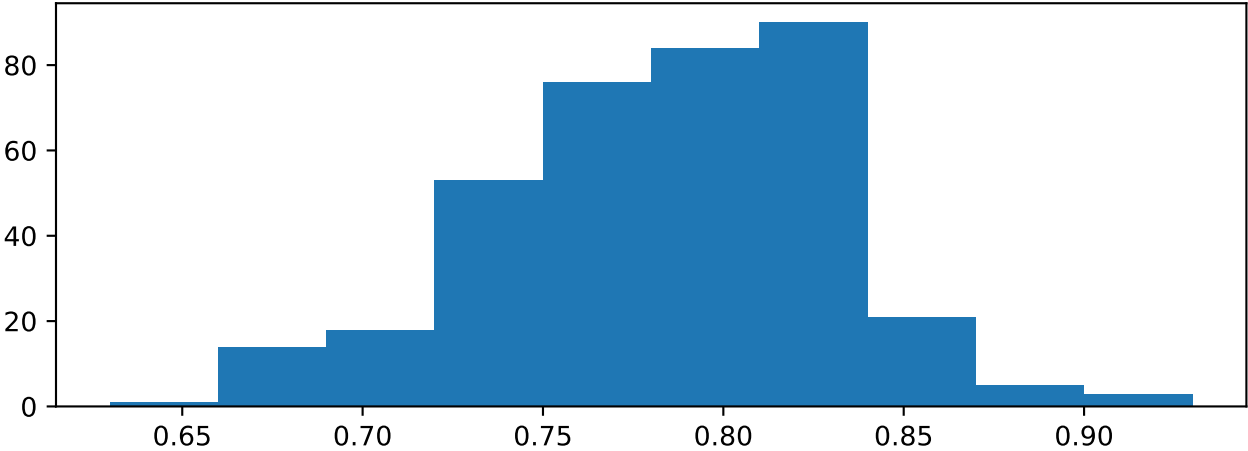
2 outlier(s) detected

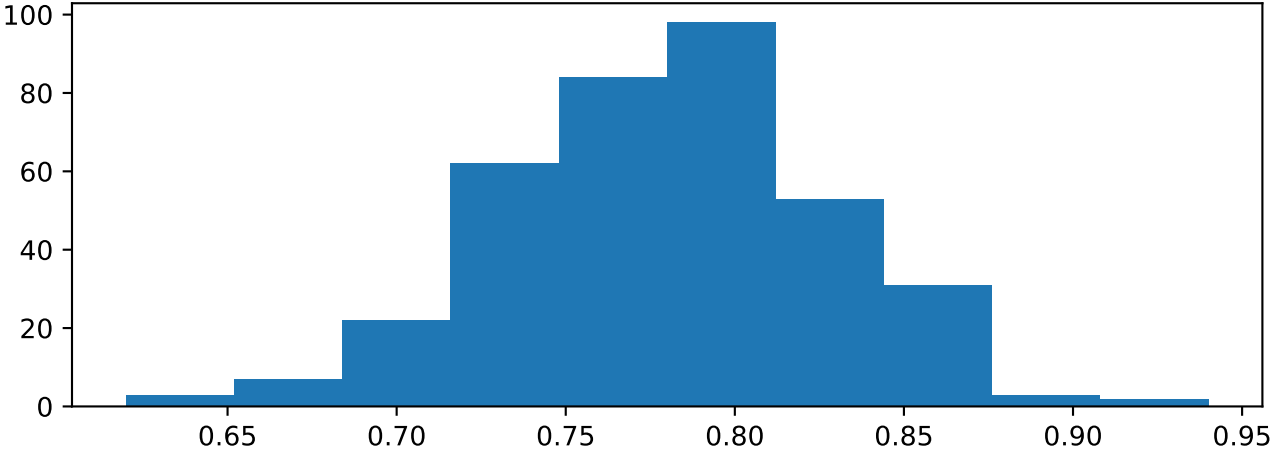| time	MP1	MP2	MP3	MP4	CT1	CT2
2025-09-05 00:00:00	0.79	0.81	0.83	0.63	0.85	0.75
2025-12-15 00:00:00	0.69	0.83	0.74	0.93	0.81	0.8

S2: Berth Occupancy Simulation
CT1 in S2: Berth Occupancy Simulation
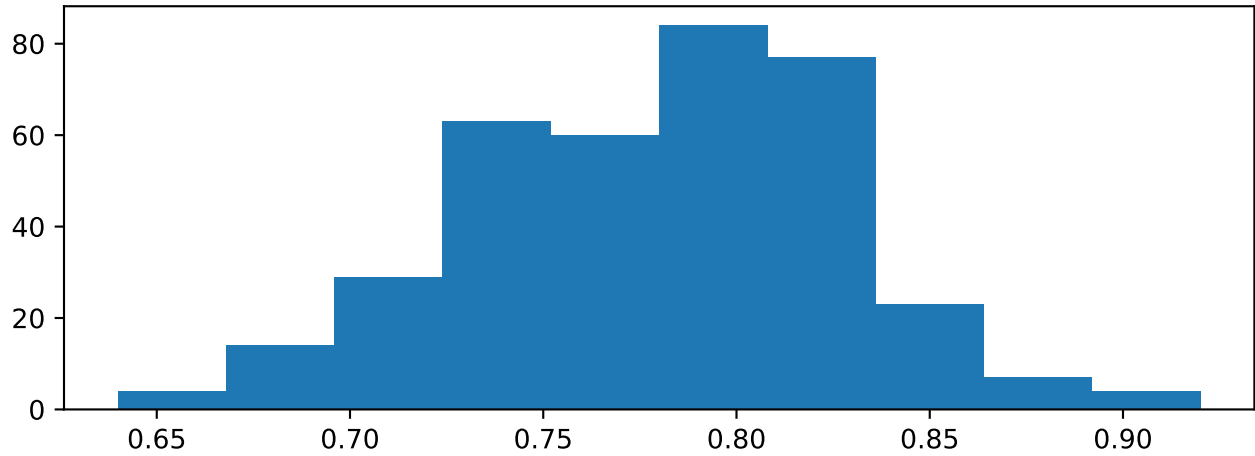
No outliers detected

S2: Berth Occupancy Simulation
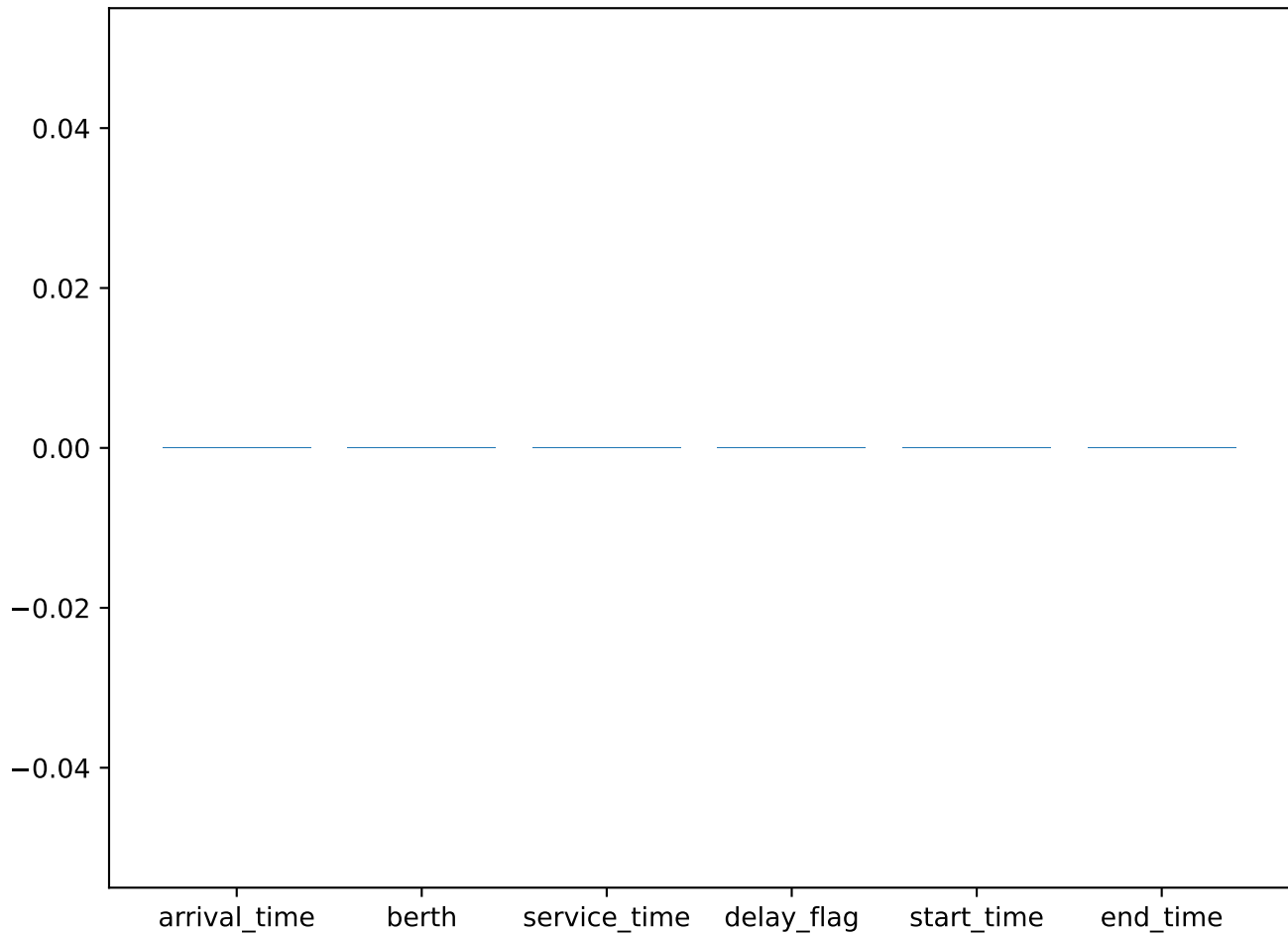
CT2 in S2: Berth Occupancy Simulation

2 outlier(s) detected

time	MP1	MP2	MP3	MP4	CT1	CT2
2025-10-06 00:00:00	0.82	0.77	0.74	0.8	0.76	0.62
2025-10-07 00:00:00	0.78	0.74	0.77	0.84	0.72	0.94

S3: Vessel Arrival & Turnaround
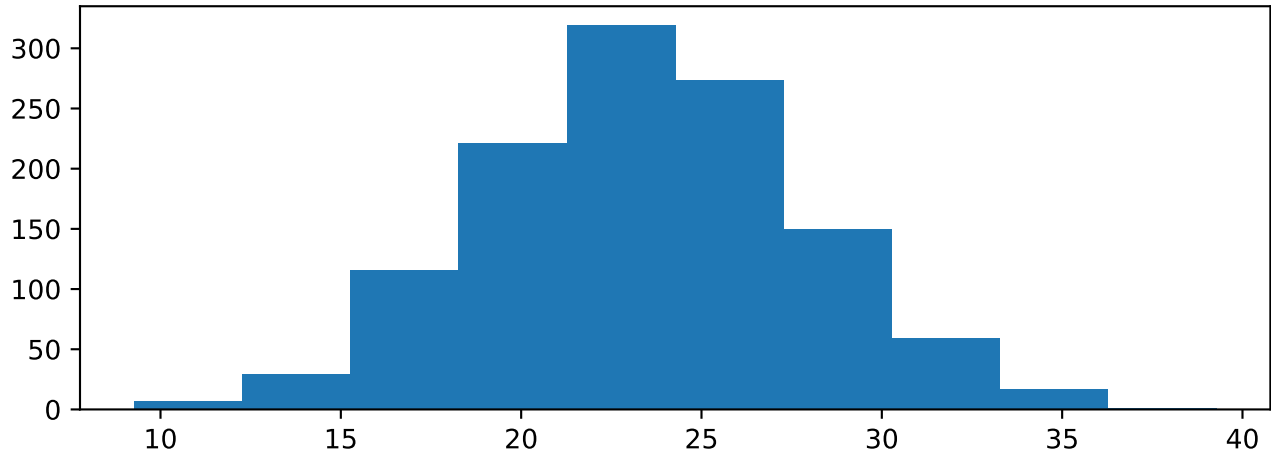Percent Missing Zeros in Each Column

S3: Vessel Arrival & Turnaround

No invalid entries in service_time

S3: Vessel Arrival & Turnaround
## service_time in S3: Vessel Arrival & Turnaround

4 outlier(s) detected

arrival_time	berth	service_time	delay_flag	start_time	end_time
2025-03-30 15:30:03	MP3	9.268055555555556	0	2025-03-30 15:30:03	2025-03-31 00:46:08
2025-07-21 00:56:31	MP1	10.043333333333333	0	2025-07-21 00:56:31	2025-07-21 10:59:07
2025-08-04 05:20:02	MP3	9.848055555555556	0	2025-08-04 05:20:02	2025-08-04 15:10:55
2025-08-12 05:19:58	MP3	39.27361111111111	1	2025-08-12 05:19:58	2025-08-13 20:36:23

S4: Container Move Simulation
Percent Missing Zeros in Each Column

container_arrival call_id teu_handles resource_assigned move_start move_end move_duration
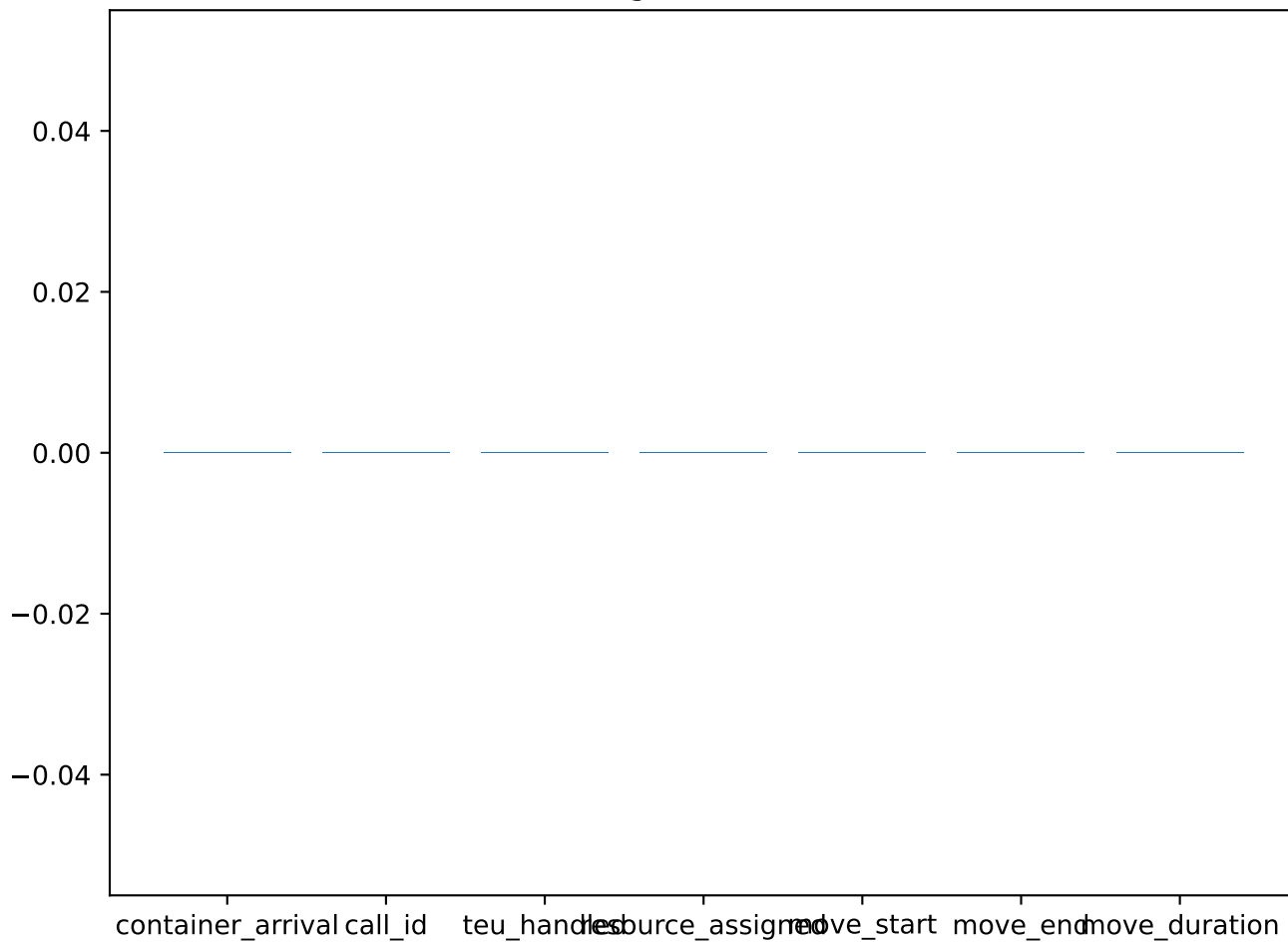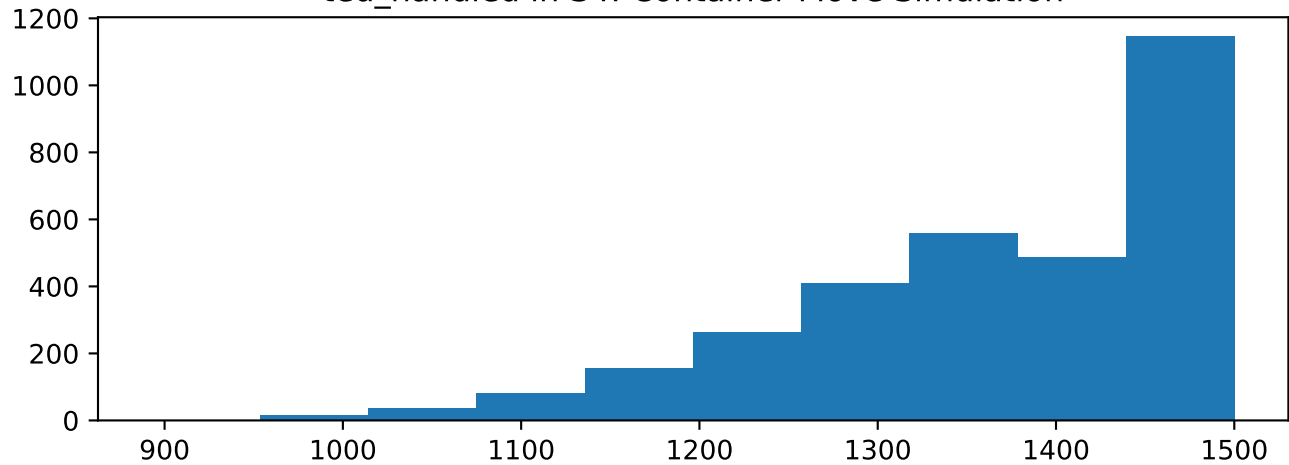
S4: Container Move Simulation

No invalid entries in teu_handled

No invalid entries in move_duration

S4: Container Move Simulation
## teu_handled in S4: Container Move Simulation

17 outlier(s) detected

| container_arrival	call_id	teu_handled	resource_assigned	move_start	move_end	move_duration
2025-05-11 23:49:15	414	968	Yard6	2025-05-11 23:49:15	2025-05-11 23:51:40	0.04027777777777778
2025-05-11 23:49:15	414	968	Yard3	2025-05-11 23:49:15	2025-05-11 23:51:42	0.04083333333333333
2025-05-19 07:59:30	451	962	Yard1	2025-05-19 07:59:30	2025-05-19 08:01:32	0.03388888888888889
2025-05-19 07:59:30	451	962	Yard2	2025-05-19 07:59:30	2025-05-19 08:01:54	0.04

S4: Container Move Simulation

move_duration in S4: Container Move Simulation
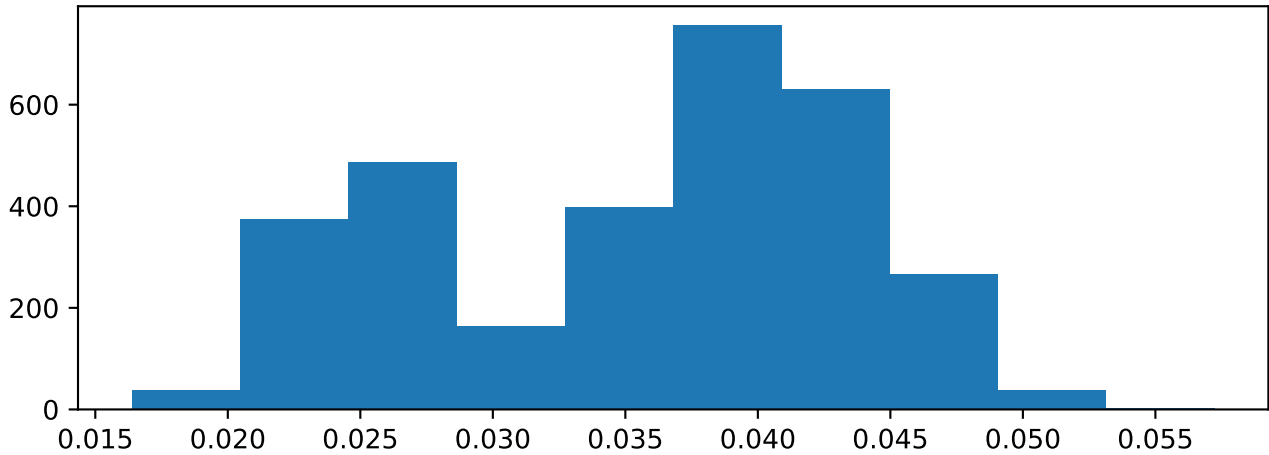
No outliers detected

S5: Crane & RTG Uptime & Downtime
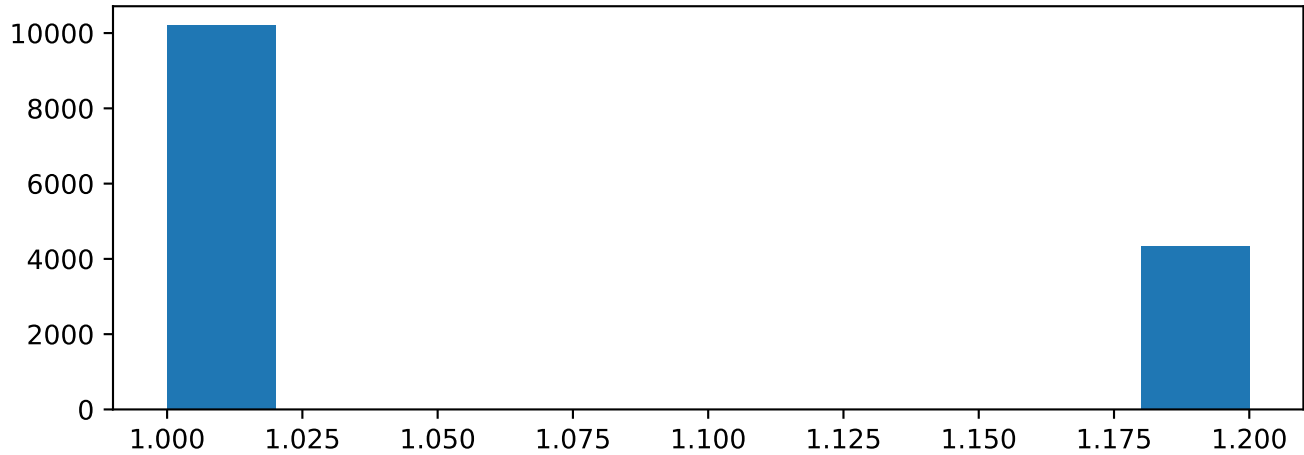Percent Missing Zeros in Each Column
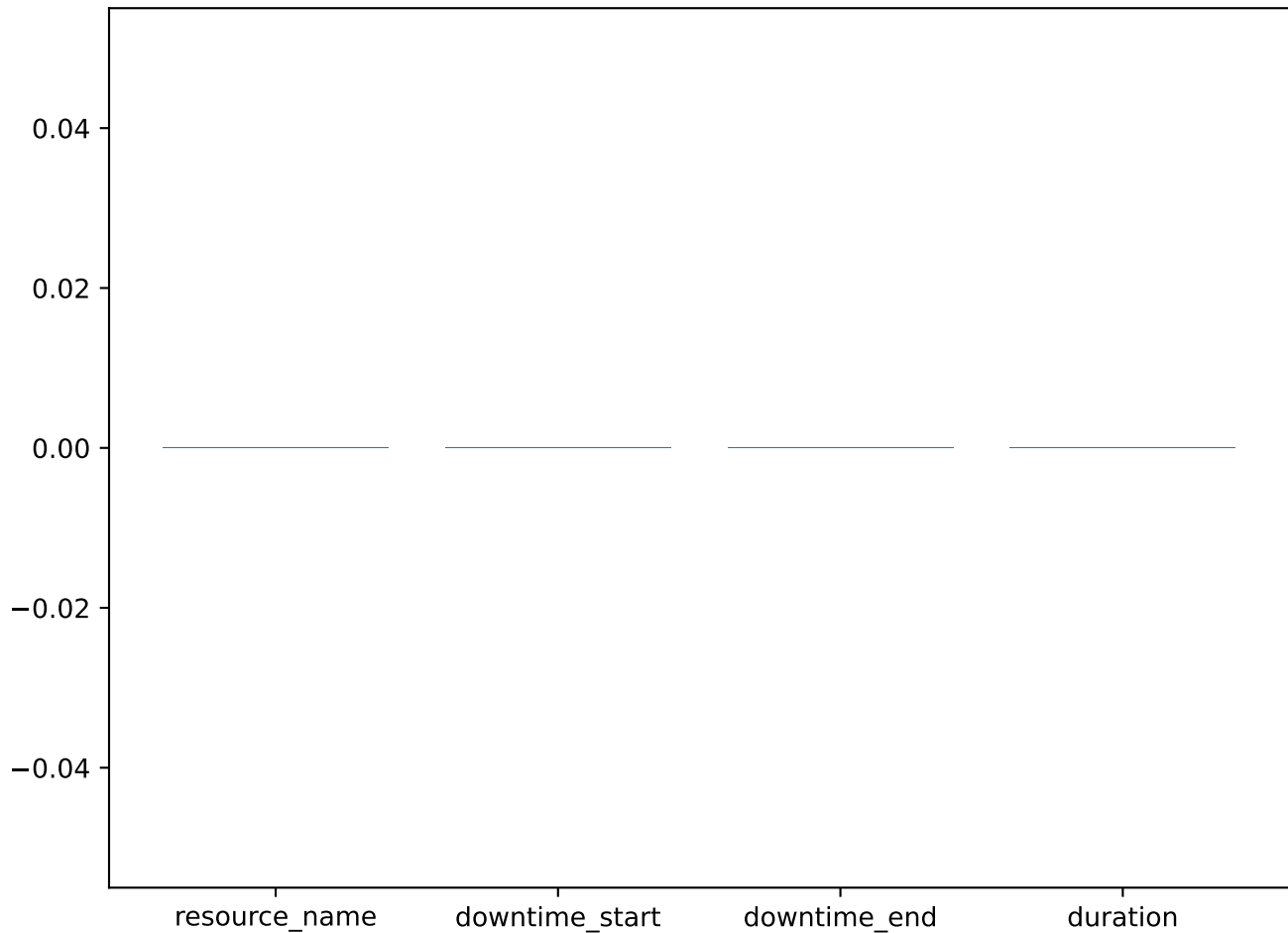
S5: Crane & RTG Uptime & Downtime

No invalid entries in duration
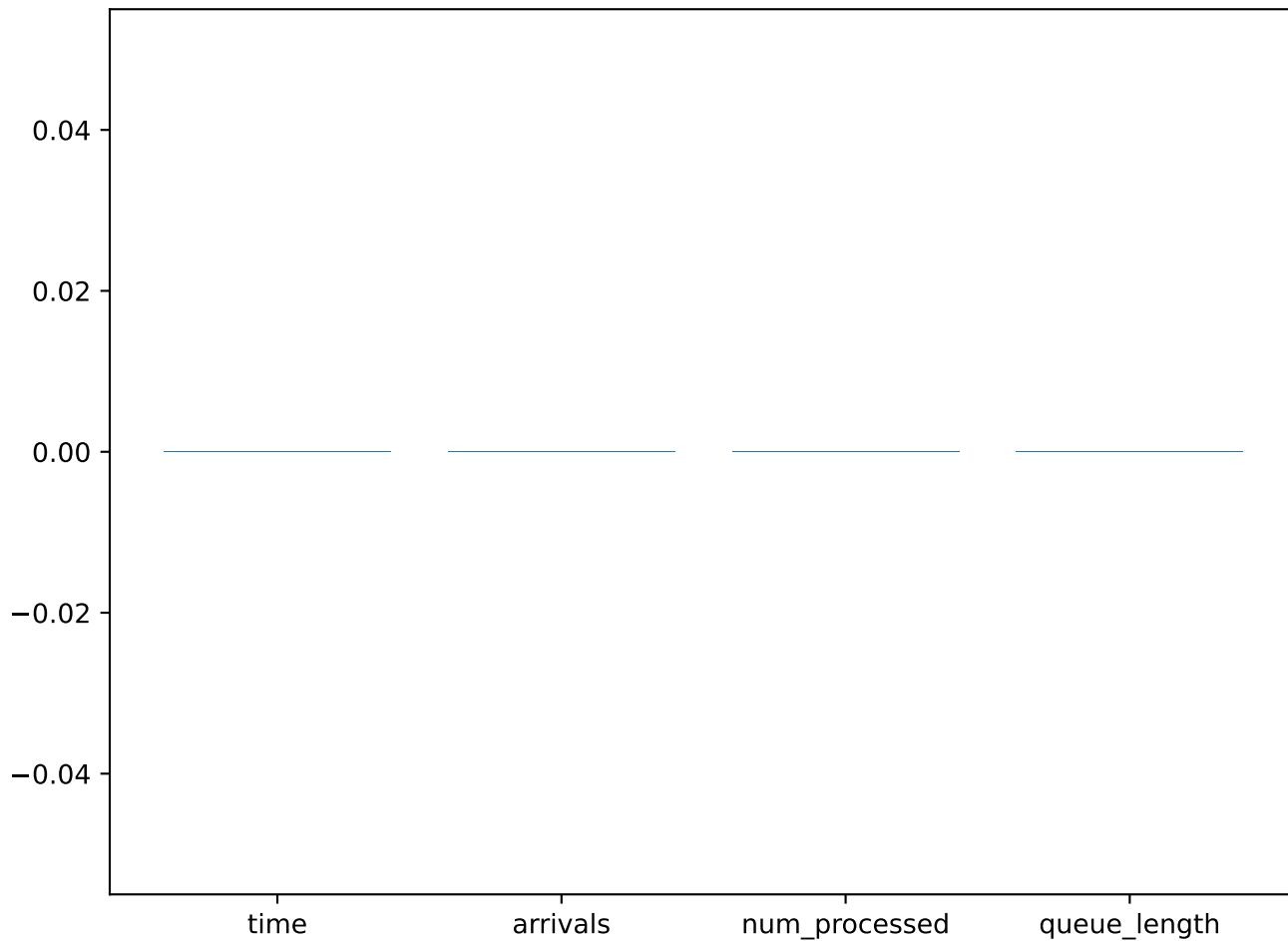
S5: Crane & RTG Uptime & Downtime
duration in S5: Crane & RTG Uptime & Downtime

No outliers detected

S6: Gate-Entry Traffic
Percent Missing Zeros in Each Column
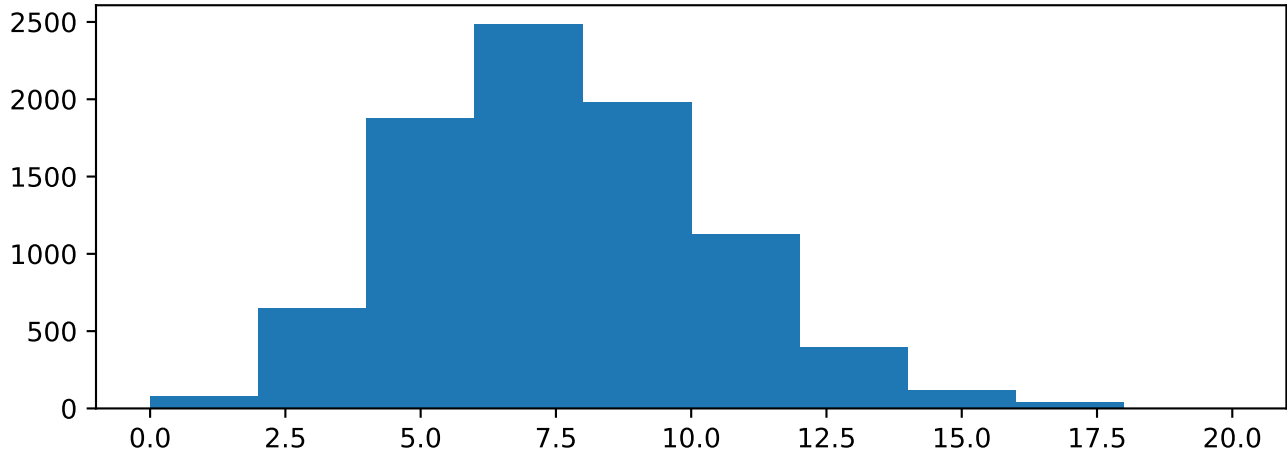
S6: Gate-Entry Traffic

No invalid entries in arrivals

No invalid entries in num_processed

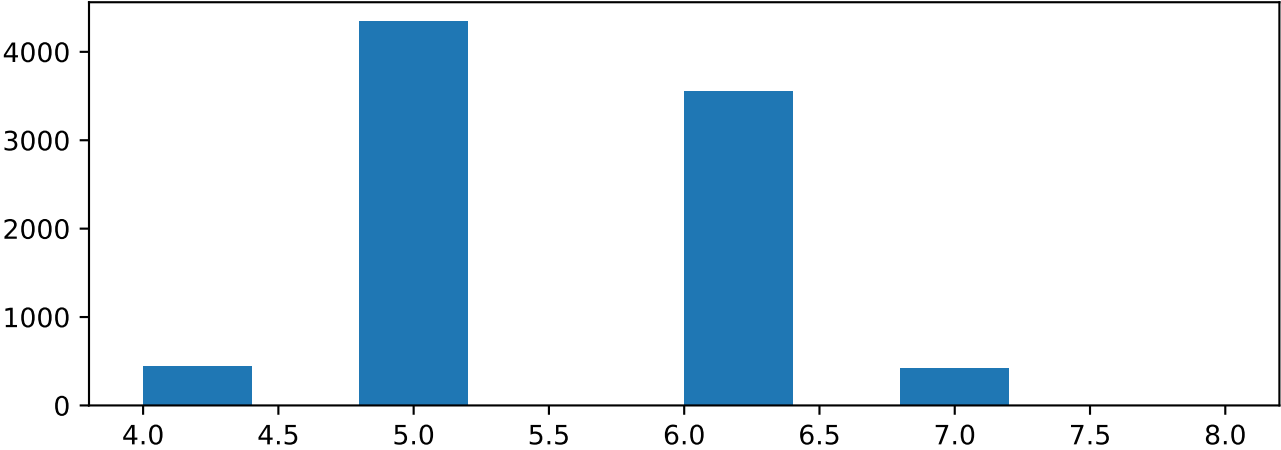No invalid entries in queue_length

S6: Gate-Entry Traffic
arrivals in S6: Gate-Entry Traffic

47 outlier(s) detected

time	arrivals	num_processed	queue_length
2025-01-04 09:00:00	16	6	180
2025-01-06 09:00:00	16	6	271
2025-01-11 19:00:00	16	6	528
2025-01-24 18:00:00	16	5	957

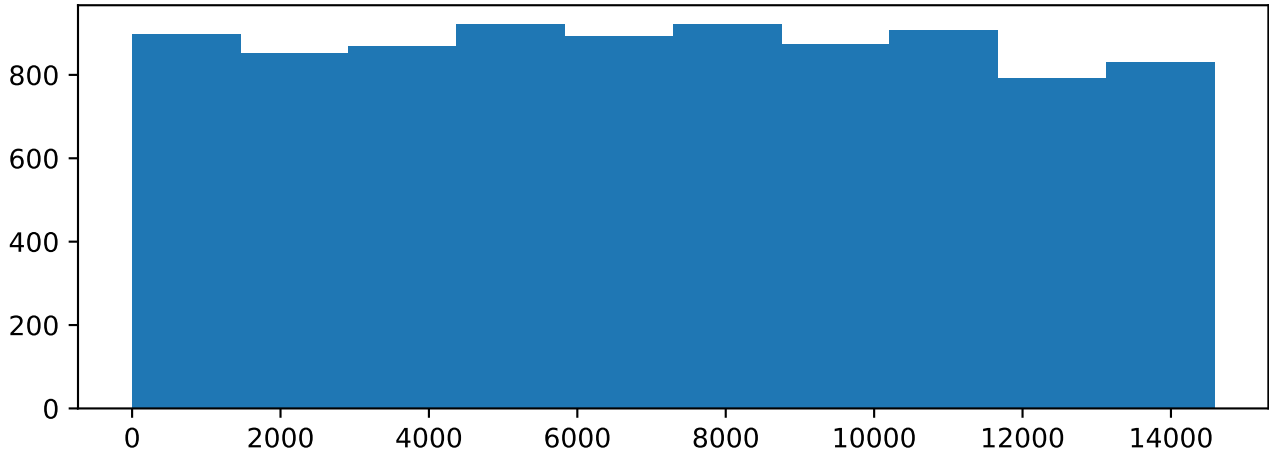# S6: Gate-Entry Traffic
num_processed in S6: Gate-Entry Traffic

2 outlier(s) detected

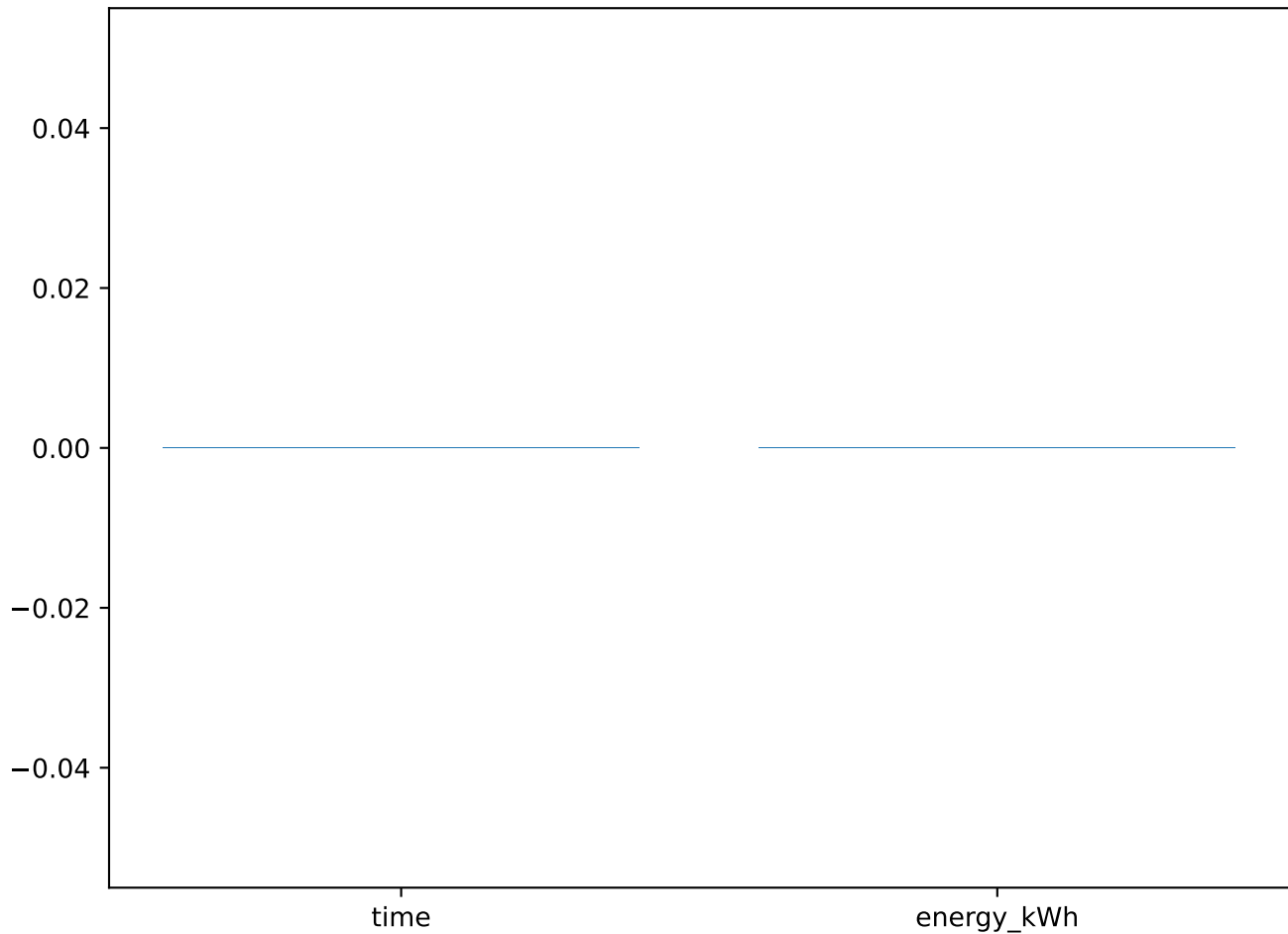| time	arrivals	num_processed	queue_length
2025-08-24 02:00:00	4	8	9243
2025-11-27 05:00:00	6	8	13117

S6: Gate-Entry Traffic

queue_length in S6: Gate-Entry Traffic

No outliers detected
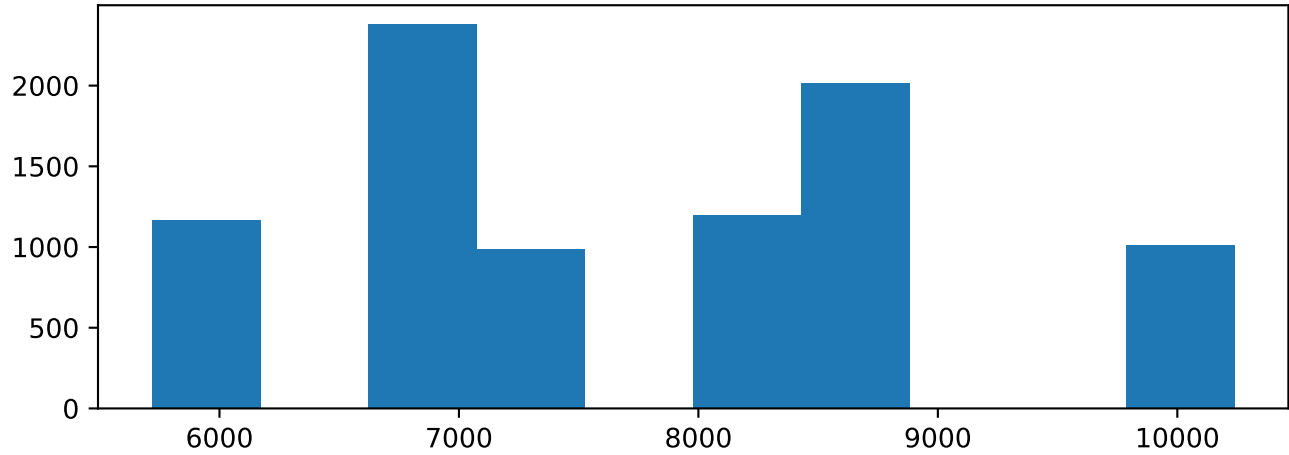
S7: Energy Consumption Profile
Percent Missing Zeros in Each Column

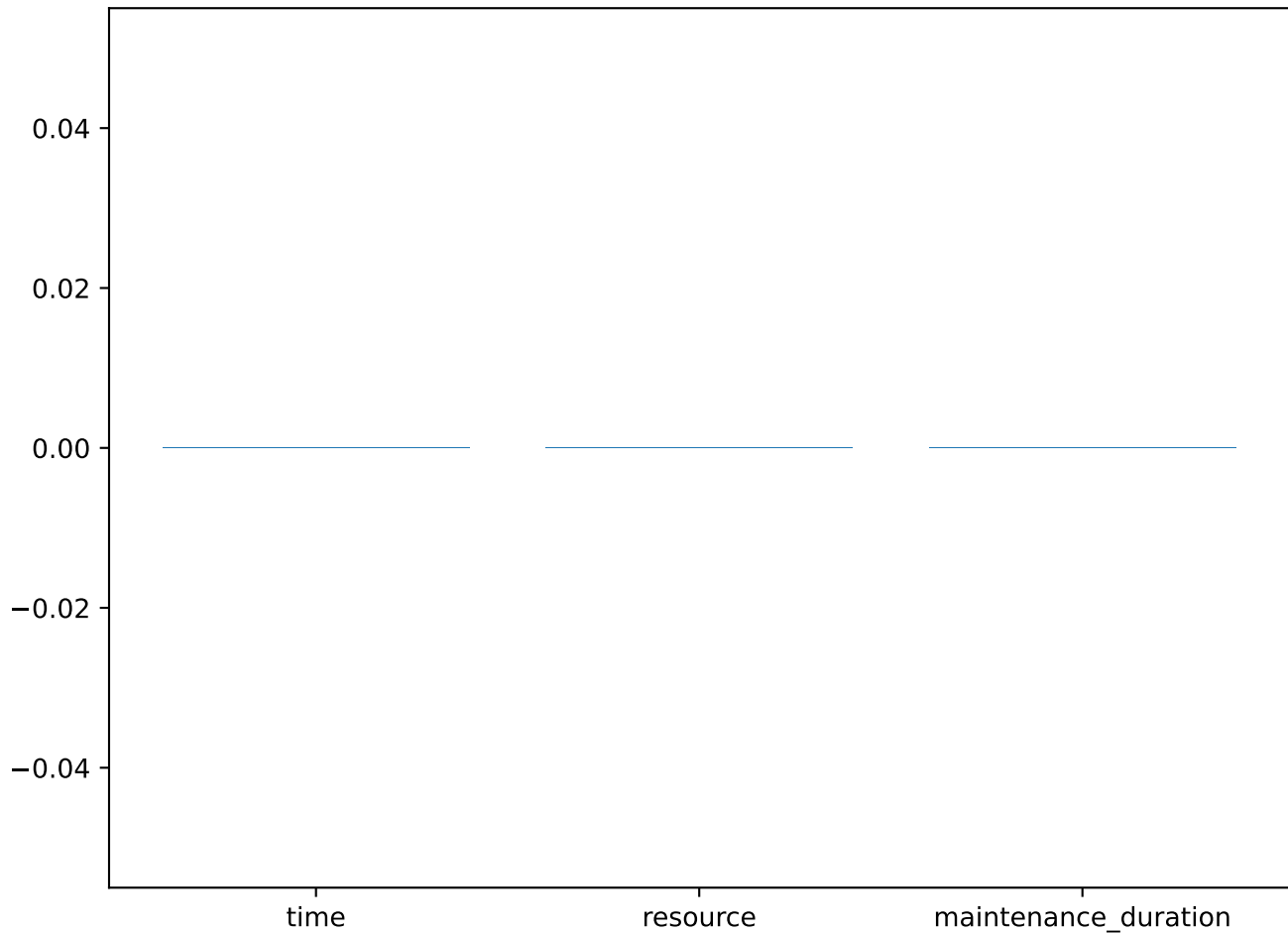# S7: Energy Consumption Profile

No invalid entries in energy_kWh

S7: Energy Consumption Profile

energy_kWh in S7: Energy Consumption Profile

No outliers detected

S8: Maintenance Event Simulation
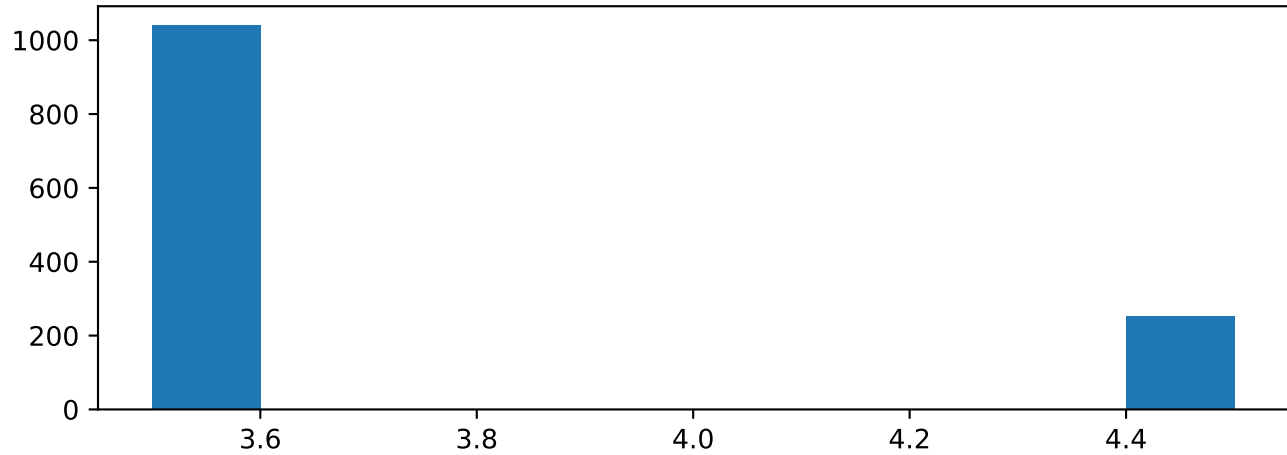Percent Missing Zeros in Each Column

S8: Maintenance Event Simulation

No invalid entries in maintenance_duration

S8: Maintenance Event Simulation
maintenance_duration in S8: Maintenance Event Simulation

No outliers detected