

## แบ่งกลุ่ม

1

## กำหนดหัวข้อ

กระบวนการจัดซื้อ

2

สายการผลิต

3

เคาเตอร์บริการ

4

การขนส่ง

5

คลังสินค้า

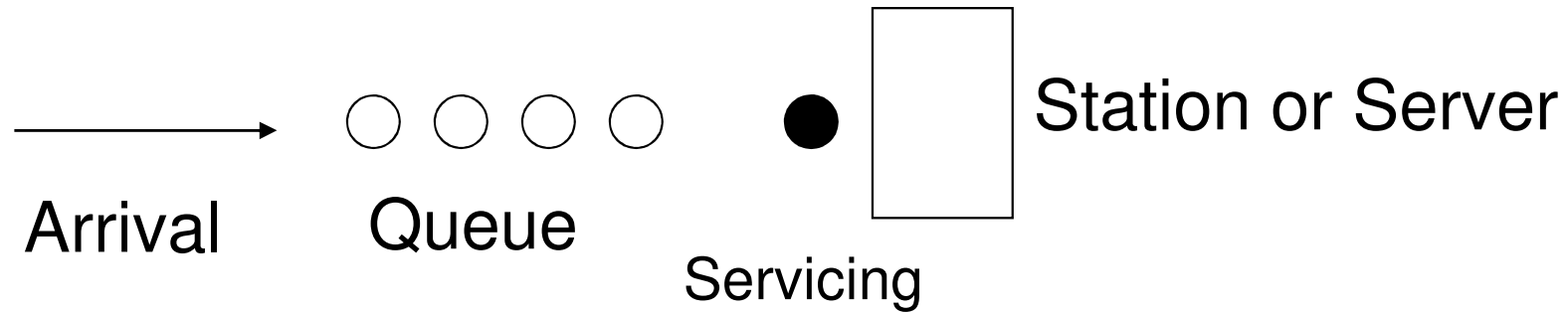
6

โรงพยาบาล

7

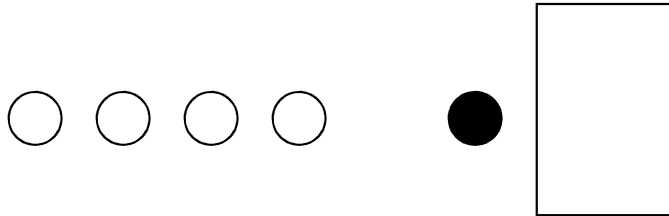
ร้านค้าปลีก

# Single Queue Single Server : Basic Model



Cashier Counter  
Machine  
Ticket Counter  
Fast Food  
Hospital  
Airport Run Way  
ETC.

# What are components of single queue single server service operation.



## Customer Arrival

1. Inter-arrival Time
2. Number per Arrival
3. Types of entities
4. Entity Attributes

## Queue

1. Max. Queue Length
2. Max. Desired Time in Queue

## Running Conditions

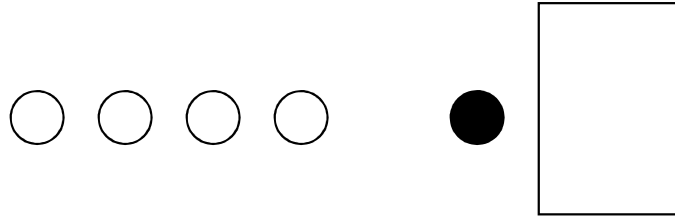
1. Run Length
2. Replications

## Server

1. Service Disciplinary (FIFO,LIFO,PRIORITY,RANDOM)
2. Service Time
3. Down Time and Setup Time
4. Period Time (per day)
5. Probability of Defect (Rework)

## Considered Results

1. Total Output (pieces per period)
2. Max. Time in Queue
3. Avg. Time in Queue
4. Avg. Number in Queue
5. Server Utilization
6. Max. Time in System



Entities Number	Arrive Time	Inter Arrival Time	Service Time
1	0.0	1.3	2.2
2	1.3	0.3	1.0
3	1.6	1.6	1.9
4	3.2	0.9	0.9
5	4.1	....	1.4

## Event In Model

Time	Event
0.0	E1 <b>Arrive</b> in Queue
	E1 <b>Move</b> to Server
1.3	E2 <b>Arrive</b> in Queue
1.6	E3 <b>Arrive</b> in Queue
2.2	E1 <b>Depart</b>
	E2 <b>Move</b> to Server
3.2	E4 <b>Arrive</b> in Queue
	E2 <b>Depart</b>
	E3 <b>Move</b> to Server
4.1	E5 <b>Arrive</b> in Queue
5.1	E3 <b>Depart</b>
	E4 <b>Move</b> to Server
6.0	E4 <b>Depart</b>
	E5 <b>Move</b> to Server
7.4	E5 <b>Depart</b>

\*\*En mean Entity number n\*\*

## Event In Model

Time	Event	Entities in Queue	Avg. Entities in Queue	Max. Entities in Queue
0.0	E1 <b>Arrive</b> in Queue			
	E1 <b>Move</b> to Server	0	0	
1.3	E2 <b>Arrive</b> in Queue	1	1.9	
1.6	E3 <b>Arrive</b> in Queue	2	0.68	2
2.2	E1 <b>Depart</b>			
	E2 <b>Move</b> to Server	1	0.78	
3.2	E4 <b>Arrive</b> in Queue			
	E2 <b>Depart</b>			
	E3 <b>Move</b> to Server	1	0.83	
4.1	E5 <b>Arrive</b> in Queue	2	1.06	2
5.1	E3 <b>Depart</b>			
	E4 <b>Move</b> to Server	1	1.05	
6.0	E4 <b>Depart</b>			
	E5 <b>Move</b> to Server	0	0.85	
7.4	E5 <b>Depart</b>	0	0.85	

# Complex System

