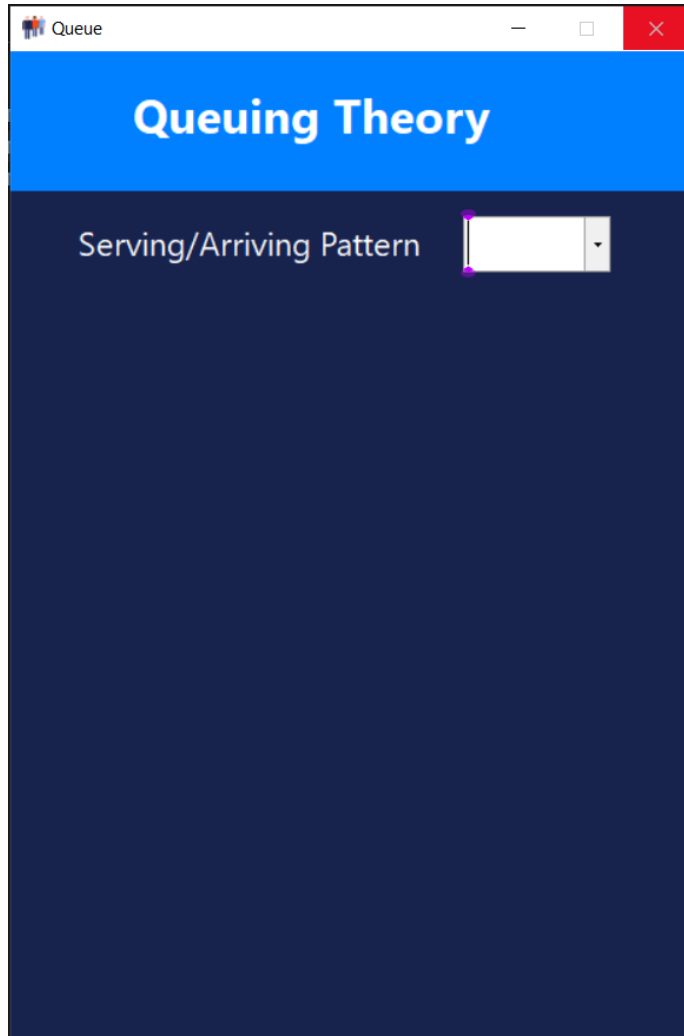


QUEUING SYSTEM



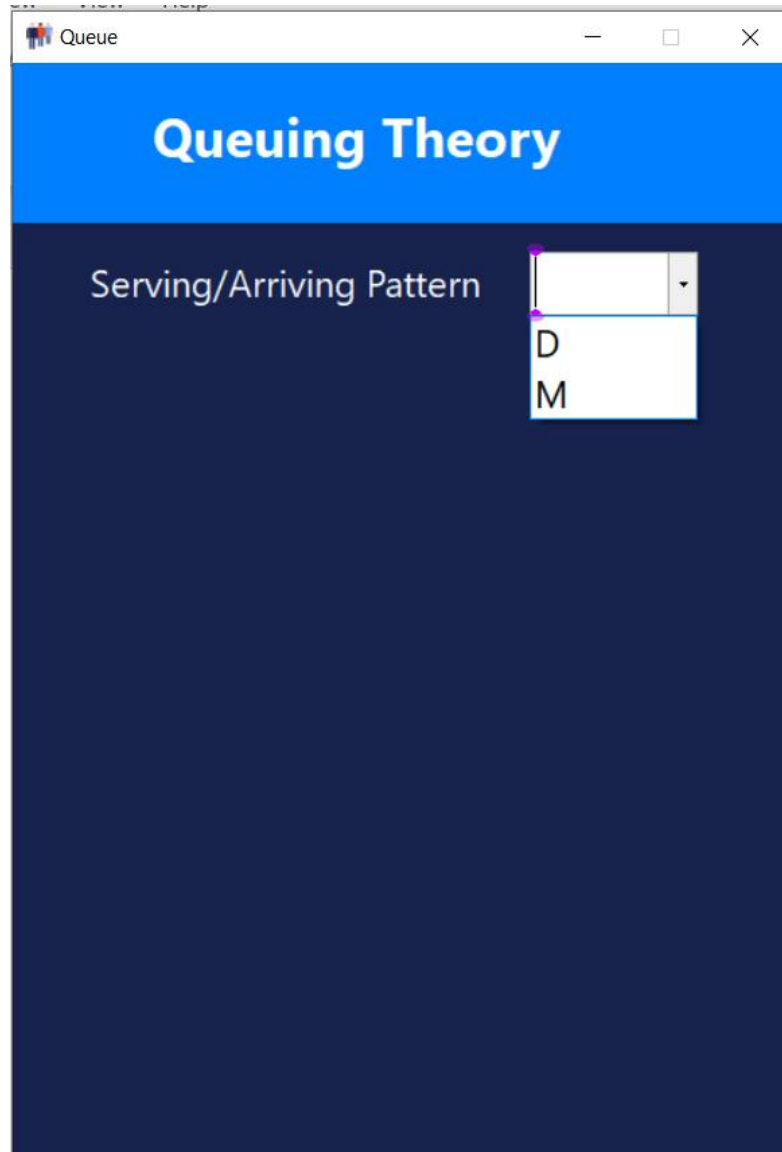


Welcome To System Queue Project

User Guide

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First of all, You
have you
determine the
system pattern

Queueing Theory

Serving/Arriving Pattern

Serving Time

Arriving Time

System Capacity ☒ infinite

Queueing Theory

Serving/Arriving Pattern

Serving Rate

Arriving Rate

System Capacity ☒ infinite

Number of Servers

Depending on your system pattern you will find the needed system properties to emulate your system

For Deterministic Systems

You must fill all the system properties so the emulation can be start

The screenshot shows a web application titled 'Queuing Theory' with a dark blue background. It contains several input fields and a 'Go' button. Numbered arrows point to the following elements:

- 1. Points to the 'Serving/Arriving Pattern' dropdown menu, which is set to 'D'.
- 2. Points to the 'Serving Time' input field, which contains the value '5'.
- 3. Points to the 'Arriving Time' input field, which contains the value '3'.
- 4. Points to the 'System Capacity' input field, which has a checkbox labeled 'infinite' checked and a value of '5'.
- 5. Points to the 'Go' button.



1. The serving time is the full time the system takes to serve a client



2. The arriving time is the time between every arriving clients



3. The capacity of your system which is may be infinite or not,

4. if not you have to set the limited capacity of your system.



5. After completing all system properties with a numbers(note: all fields do not accept any character except numbers and dot sign) go will run system.

Queuing Theory

Serving/Arriving Pattern:

[back](#)

1 t

2 [Calc \$n\(t\)\$](#)

3 $n(t)$

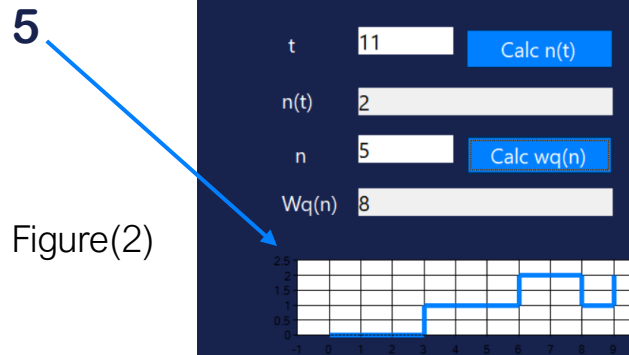
4 n [Calc \$wq\(n\)\$](#)

$Wq(n)$

Figure(1)

On pressing go the program will determine the module of your Deterministic system and run it.

1. To know the number of clients in the system fill the t field.
2. Then press [Calc \$n\(t\)\$](#) the value of $n(t)$ will be calculated.
3. To know the number of waiting clients in a specific time. fill the field n .
4. Then press [Calc \$Wq\(n\)\$](#) . The value of $Wq(n)$ will be calculated as shown in figure(2).



5. The graph shows the number of the clients during the period

For Markov model Systems

You must fill all the system properties so the emulation can be start

The screenshot shows a window titled 'Queueing Theory' with a dark blue background. It contains several input fields and a 'Go' button. Four blue numbers (1, 2, 3, 4) are placed to the left of the interface, with black arrows pointing to specific elements: 1 points to the 'Serving/Arriving Pattern' dropdown menu, 2 points to the 'Arriving Rate' input field, 3 points to the 'System Capacity' input field, and 4 points to the 'Go' button. The 'Serving/Arriving Pattern' is set to 'M'. The 'Serving Rate' is set to 3. The 'Arriving Rate' is set to 6. The 'System Capacity' has a checked checkbox labeled 'infinite'. The 'Number of Servers' is set to 3.

Annotation	Field	Value
1	Serving/Arriving Pattern	M
2	Arriving Rate	6
3	System Capacity	infinite
4	Go Button	Go

1. The serving rate is the number of successfully served clients in the period of time unit.
2. The arriving rate is the number of arrived clients per time unit.
3. The system capacity may be infinity or not. If not you must specify the limited capacity.
4. Number of parallel servers.
5. On pressing "Go" button the program will determine which Markov module:
M/M/1 , M/M/1/k , M/M/C or M/M/C/k.

After pressing go the program shows the system properties and provide you with the $P(n)$

1

Queueing Theory

Serving/Arriving Pattern M

back

L 2.89

Lq 0.89

p0 0.11

W 0.48

Wq 0.15

Ci 1.00

n

Calc p(n)

p(n)

Queueing Theory

Serving/Arriving Pattern M

back

L 2.89

Lq 0.89

p0 0.11

W 0.48

Wq 0.15

Ci 1.00

n 4

Calc p(n)

p(n) 0.10

1.Set the number of the clients then press Calc P(n).