

# SELECT Block

- It is used to find a GPSS entity (queue, facility, storage, ect) that satisfies a specific condition.
- Three types of operations can be used:

Logical:

U – facility in use, NU – facility not in use

SE – storage empty, SNE – storage not empty

SF – storage full SNF – storage not full

Conditional: L, LE, E, NE, GE, G


Maximum and Minimum: MIN, MAX



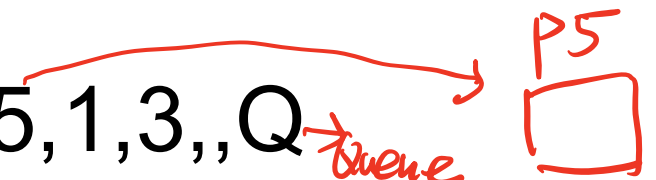
# SELECT Block – Example 1

- SELECT NU 5,1,3,,,NEXT <sup>PS</sup>
  - facilities 1 to 3 are tested and the address of the first not in use facility is stored in P5.
  - the transaction is moved to the next sequential block.
  - if all facilities are used, the transaction is moved to NEXT block.

# SELECT Block – Example 2

- SELECT E 5,1,3,X1,Q,NEXT 
- length of queues 1 to 3 are tested and the address of the first queue with length equal to X1 is stored in P5.
- the transaction is moved to the next sequential block.
- if no queue with length=X1 is found, the transaction is moved to NEXT block.

# SELECT Block – Example 3

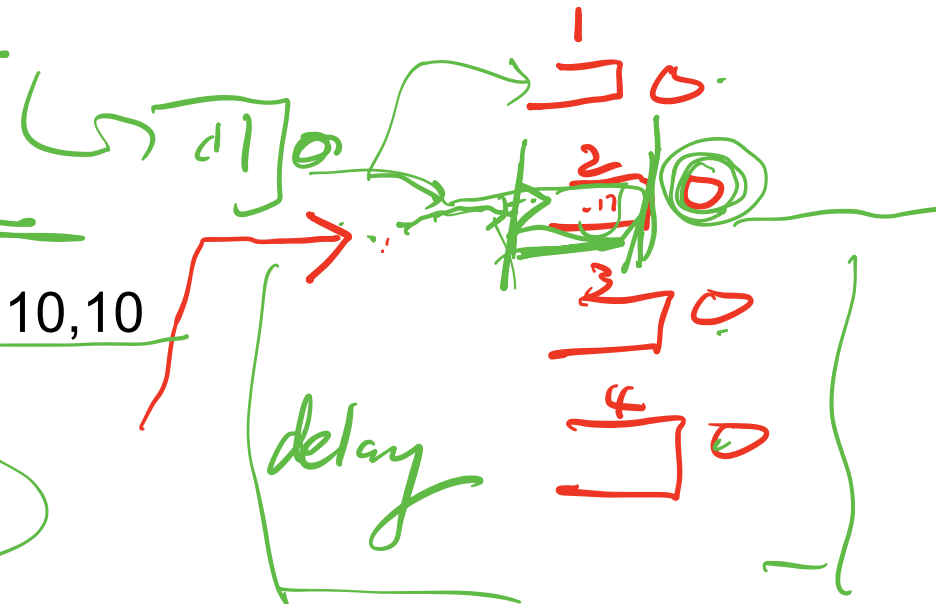
- SELECT MIN 5,1,3,,Q   
- queues 1 to 3 are examined and the address of the queue with minimum length is stored in P5.

# Applying SELECT

	SIMULATE	
	GENERATE	10,5
	SELECT MIN	3,1,4,,Q
	QUEUE	*3
	SEIZE	*3
	DEPART	*3
	ADVANCE	15,3
	RELEASE	*3
RES	TABULATE	RES
	TABLE	M1,10,10,10
	TERMINATE	1
	START	1000
	END	

$P_3$   
 1 6  
 \*3  
 Queue 1, 2, 3, 4

P3: queue with min length  
\*3 = P3



# More Control Statements

- START 1000,,100
  - data statistics to be printed each time the termination count is reduced by 100.
- RESET
  - initialize all internal variables for data collection.
- CLEAR
  - initializes the status of queues, facilities, storages, etc. as well as variables for data collection.

# Input/Output

- GETLIST/PUTPIC
  - read directly from external sources (terminal)
  - PUTPIC is used to write customized report and/or support dialog with the interactive user.
- BGETLIST/BPUTPIC
  - read directly from external sources (files)
  - BPUTPIC is used to write customized report to a file.
- Example:
  - BPUTPIC FILE=OUT, LINES=2, (P2,X1)  
Transaction Parameter 2 = \*\*\*.\*\*  
Savevalue 1 = \*\*\*.\*\*
  - print out variables from within GPSS into file OUT.

# DO/ENDDO

- Allows a loop to be executed (rerun the simulation)
- Example:

```
DO  
START  
CLEAR  
ENDDO  
END
```

&I=1, 5, 1

&LIMIT

TC  
1000

I=1 to 5 step 1

for {i=1, i<6, i++}

&Limit = 1000



# MM1 Simulation – 5 times

SIMULATE  
INTEGER  
GENERATE  
QUEUE  
SEIZE  
ADVANCE  
RELEASE  
DEPART  
TERMINATE

&I

10,5

LINE

CHECKOUT

7,5

CHECKOUT

LINE

1

$RVEXP0(1, 10)$

$RVEXP0(2, 7)$

\*

DO

START

CLEAR

ENDDO

END

&I=1, 5, 1

&LIMIT

I=1 to 5 step 1

# Internal Structure of GPSS

Cost  
→ arrival

Two Chains:

- Future Event Chain (**FEC**)
  - contains transactions whose scheduled departure time from a block is greater than the current clock.
  - ordered in ascending values of event time.
  - Usually as a result of GENERATE and ADVANCE.
- Current Event Chain (**CEC**)
  - contains transactions that are scheduled to move at the current time and as well, transactions that are blocked.

