

OMSI 2

Praktikum #2

Aufgabe 2 - Einstieg in GPSS

- Gegebenes GPSS-Programm verstehen
- Simulation mit GPSS-IDE durchführen
- Ergebnisse auswerten
- Informales Wort-Bild-Modell ableiten
- Präsentation in nächster PR-Veranstaltung
(inkl. GPSS-Programm zeilenweise erklären
und Ergebnisse interpretieren)
- Zeit: 1 Woche

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(inkl. GPSS-Programm zeilenweise erklären und Ergebnisse interpretieren)
- Zeit: 1 Woche
 - Keine elektronische Abgabe
 - Erscheinen ist Pflicht
 - Bearbeitung in 2er-Gruppen

Aufgabe 2 - Einstieg in GPSS

```

; GPSS World Sample File - MANUFACT.GPS, by Gerard F. Cummings
*****
* Manufacturing Company *
*****
* Time Unit is one hour *
Sizeorder FUNCTION RN1,D7 ;Order size
.10,.6/.35,12/.65,18/.80,24/.92,30/.97,36/1.0,48
Transit TABLE M1,.015,.015,20 ;Transit time
Number TABLE X1,100,100,20 ;No. packed each day
Ptime VARIABLE .0028#P1+0.0334 ;Packing time
Amount EQU 1000 ;Initial stock amount
Stock STORAGE 4000 ;Warehouse holds
; 4000 units
*****
GENERATE (Exponential(1,0,0.25)) ;Order arrives
ASSIGN 1,1,Sizeorder ;P1=order size
TEST GE S$Stock,P1,Stockout ;Is stock sufficient?
LEAVE Stock,P1 ;Remove P1 from stock
QUEUE Packing
SEIZE Machine ;Get a machine
DEPART Packing
ADVANCE V$Ptime ;Packing time
RELEASE Machine ;Free the machine
SAVEVALUE 1+,P1 ;Accumulate no. packed
TABULATE Transit ;Record transit time
TERMINATE
Stockout TERMINATE
*****
GENERATE 0.75,0.08334,1 ;Xact every 40+-5 mins
ENTER Stock,60 ;Make 60, Stock
increased by 60
*
Stockad TERMINATE
*****
GENERATE 8 ;Xact every day
TABULATE Number
SAVEVALUE 1,0
TERMINATE 1
*****
GENERATE ,,,1,10 ;Initial stock xact
ENTER Stock,Amount ;Set initial stock
TERMINATE
*****

```

```

; GPSS World Sample File - QCONTROL.GPS, by Gerard F. Cummings
*****
* Quality Control Program *
* Time units are in minutes *
*****
RMULT 93211
* Definitions
Transit TABLE M1,100,100,20 ;Transit Time
Process FUNCTION RN1,D7
0,0/.05,10/.18,14/.34,21/.56,32/.85,38/1.0,45
*****
GENERATE (Exponential(1,0,30))
ASSIGN 1,FN$Process ;Process time in P1
Stage1 SEIZE Machine1
ADVANCE P1 ;Process 1
RELEASE Machine1
ADVANCE 2 ;Inspection
TRANSFER .200,,Rework1 ;20% Need rework
*****
Stage2 SEIZE Machine2
ADVANCE 15,6 ;Process 2
RELEASE Machine2
ADVANCE 2 ;Inspection
TRANSFER .150,,Rework2 ;15% Need rework
*****
Stage3 SEIZE Machine3
ADVANCE (Normal(1,24,4)) ;Process 3
RELEASE Machine3
ADVANCE 2 ;Inspection 3
TRANSFER .050,,Rework3 ;5% need rework
TABULATE Transit ;Record transit time
TERMINATE 1
*****
Rework1 TRANSFER .400,,Stage1
TERMINATE
Rework2 TRANSFER .400,,Stage2
TERMINATE
Rework3 TRANSFER .400,,Stage3
TERMINATE

```

Aufgabe 2 - Einstieg in GPSS

Verteilungsfunktionen müssen
nicht erklärt werden

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*****
SEIZE Machine2
ADVANCE 15,6 ;Process 2
RELEASE Machine2
ADVANCE 2 ;Inspection
TRANSFER .150,,Rework2 ;15% Need rework
*****
SEIZE Machine3
ADVANCE (Normal(1,24,4)) ;Process 3
RELEASE Machine3
ADVANCE 2 ;Inspection 3
TRANSFER .050,,Rework3 ;5% need rework
TABULATE Transit ;Record transit time
TERMINATE 1
*****
Rework1 TRANSFER .400,,Stage1
TERMINATE
Rework2 TRANSFER .400,,Stage2
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RELEASE Machine2
ADVANCE 2 ;Inspection
TRANSFER .150,,Rework2 ;15% Need rework
*****
SEIZE Machine3
ADVANCE (Normal(1,24,4)) ;Process 3
RELEASE Machine3
ADVANCE 2 ;Inspection 3
TRANSFER .050,,Rework3 ;5% need rework
TABULATE Transit ;Record transit time
*****

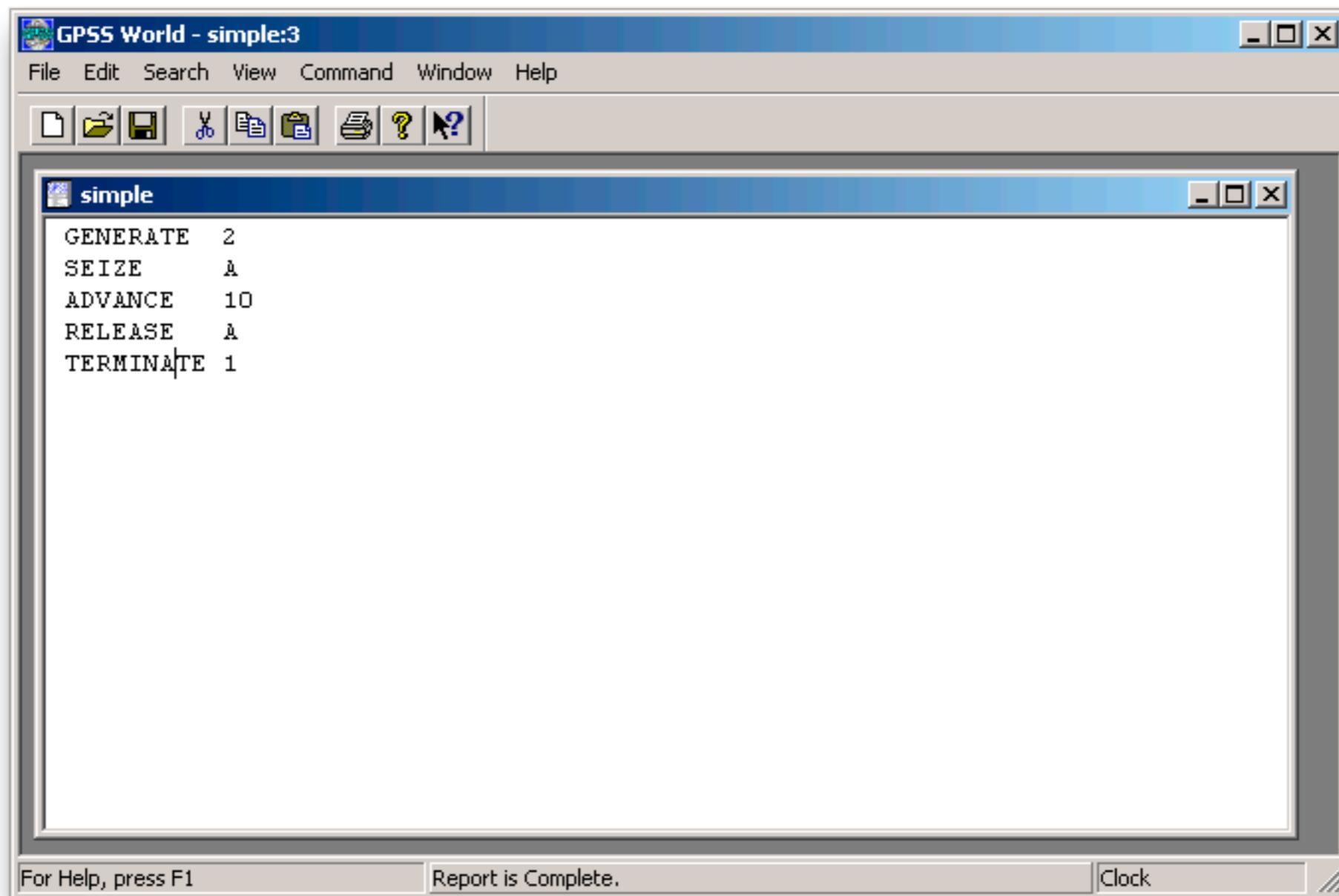
```

Weitere Informationen auf
Praktikumsseite

REWORKS TRANSFER .400,,Stage3
TERMINATE

Stage1
Stage2
Stage3

GPSS-Entwicklungsumgebung

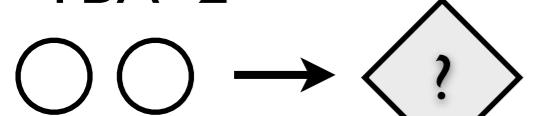


Beispiel: Two-Equal-Barbers

Beispiel: Two-Equal-Barbers

Wort-Bild-Modell

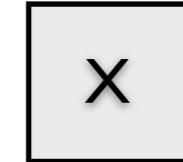
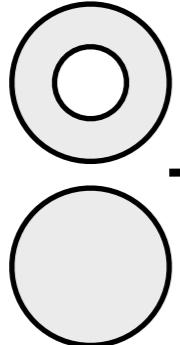
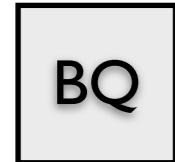
Kunden mit
TBA=2



Ungeduldige
gehen

[BQ < Max]

[else]

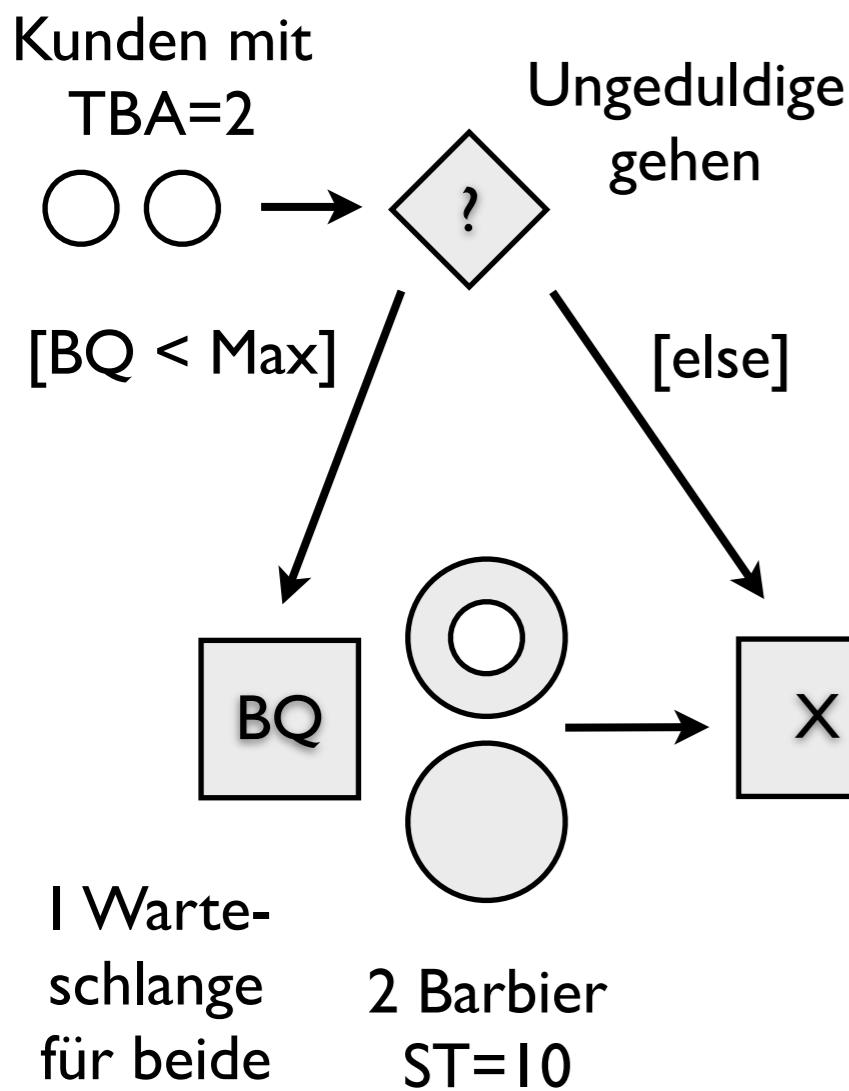


I Warte-
schlange
für beide

2 Barbier
ST=10

Beispiel: Two-Equal-Barbers

Wort-Bild-Modell



[Label]	Block/ Command	Op, Params	GPSS- Programm
MaxQLen	EQU	2	
	GENERATE	2	
	TEST L	Q\$BarbersQ,MaxQLen,Impatient	
	QUEUE	BarbersQ	
	TRANSFER	BOTH,Barb1,Barb2	
Barb1	SEIZE	Barber1	
	DEPART	BarbersQ	
	ADVANCE	10	
	RELEASE	Barber1	
	TRANSFER	,LeaveS	
Barb2	SEIZE	Barber2	
	DEPART	BarbersQ	
	ADVANCE	10	
	RELEASE	Barber2	
	TRANSFER	,LeaveS	
Impatient	SAVEVALUE	ICount+,1	
LeaveS	TERMINATE	1	

GPSS

GPSS World - two-equal-barbers

File Edit Search View Command Window Help

two-equal-barbers

```
*****  
* Two-Equal-Barbers-System  
*  
* - one queue for two barbers  
* - new customers leave if queue count has reached a  
*   others wait until one barbers becomes free  
  
* queue count at which customers leave immediately  
MaxQLen EQU 2  
  
GENERATE 2  
TEST L Q$BarbersQ,MaxQLen,Impatient  
QUEUE BarbersQ  
TRANSFER BOTH,Barb1,Barb2  
  
Barb1 SEIZE Barber1  
DEPART BarbersQ  
ADVANCE 10  
RELEASE Barber1  
TRANSFER ,LeaveS  
  
Barb2 SEIZE Barber2  
DEPART BarbersQ  
ADVANCE 10  
RELEASE Barber2  
TRANSFER ,LeaveS  
  
Impatient SAVEVALUE ICount+,1  
LeaveS TERMINATE 1
```

New Page 1 http://www.minutemansoftware.com/reference/r7.htm#GENERATE

GENERATE

A GENERATE Block creates Transactions for future entry into the simulation.

GENERATE A,B,C,D,E

Operands

A - Mean inter generation time. Optional. The operand must be Null, Name, Number, String, ParenthesizedExpression, or DirectSNA. You may not use Transaction Parameters.

B - Inter generation time half-range or Function Modifier. Optional. The operand must be Null, Name, Number, String, ParenthesizedExpression, or DirectSNA. You may not use Transaction Parameters.

C - Start delay time. Time increment for the first Transaction. Optional. The operand must be Null, Name, Number, String, ParenthesizedExpression, or DirectSNA. You may not use Transaction Parameters.

D - Creation limit. The default is no limit. Optional. The operand must be Null, Name, PosInteger, String, ParenthesizedExpression, or DirectSNA. You may not use Transaction Parameters.

E - Priority level. Optional. Zero is the default. The operand must be Null, Name, integer, String, ParenthesizedExpression, or DirectSNA. You may not use Transaction Parameters.

Example

GENERATE 0.1

This is the simplest way to use the GENERATE Block. This Block causes a priority zero Transaction to enter the simulation every tenth of a time unit.

Action

When a simulation is begun, or an interactive Command is performed, any GENERATE Block which has not been "primed" is called upon to schedule its first Transaction. Such Transactions are scheduled to enter the GENERATE Block and placed on the Future Events Chain if they have a positive time increment. Operand C can be used to specify a positive time increment for the first Transaction. Otherwise, the first time increment is calculated from

Bezugsquelle:
<http://www.minutemansoftware.com>
GPSS-Studentenversion (max. 180 Blöcke),
Sprachreferenz, Tutorials

GPSS

The screenshot shows two tabs open in a web browser. The left tab is titled 'Tutorial Manual' and lists 'Chapter 2 - Applications' with 12 numbered examples from 1. TURNSTILE.GPS to 12. BICYCLE.GPS. The right tab is titled 'GENERATE' and provides detailed documentation for the GENERATE command, including syntax like 'GENERATE A,B,C,D,E' and descriptions of parameters.

http://www.minutemansoftware.com/tutorial/tutorial_manual.htm

The screenshot shows the GPSS software interface. On the left, a script window displays a GPSS program for a barber shop simulation. On the right, a results window shows the output of the simulation, including a clock value of 10. A callout box points to the results window with the text: 'Bezugsquelle: http://www.minutemansoftware.com GPSS-Studentenversion (max. 180 Blöcke), Sprachreferenz, Tutorials'.

```
TRANSFER ,LeaveS
Barb2   SEIZE| Barber2
        DEPART BarbersQ
        ADVANCE 10
        RELEASE Barber2
        TRANSFER ,LeaveS
Impatient SAVEVALUE ICount+,1
LeaveS    TERMINATE 1
```

For Help, press F1 Results Clock