

I SRTN - Shortest Return Time Next

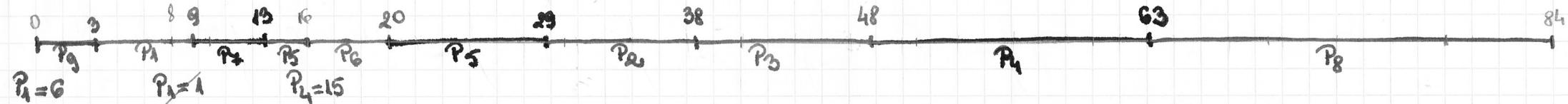
$$0 : P_1 = 6, P_4 = 15, P_9 = 3$$

$$T = C - A$$

$$8 : P_5 = 12, P_7 = 4, P_8 = 21$$

$$W = T - B$$

$$16 : P_2 = 9, P_3 = 10, P_6 = 4$$



$$P_4 = 15 \quad P_4 = 15 \quad P_5 = 9$$

$$P_9 = 3 \quad P_5 = 12 \quad P_8 = 21$$

$$P_7 = 4 \quad P_2 = 9$$

$$P_8 = 21 \quad P_3 = 10$$

$$P_6 = 4$$

SRTN

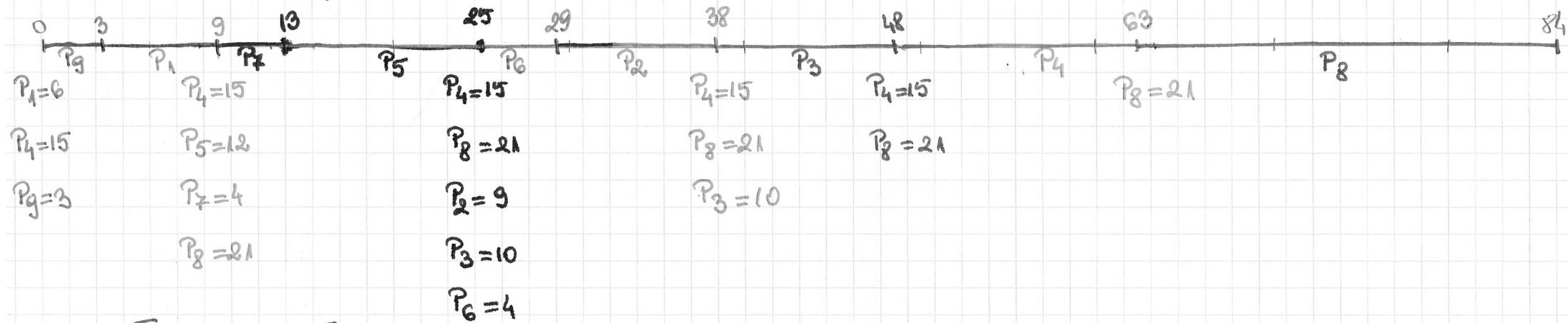
	TW	TR		TW	TR	
P ₁	9-6=3	9-0=9		P ₉	3-3=0	3-0=3
P ₂	22-9=13	38-16=22	Average	151/9	235/9	
P ₃	32-10=22	48-16=32		=16, 77	=26, 11	
P ₄	63-15=48	63-0=63				
P ₅	21-12=9	29-8=21				
P ₆	4-4=0	20-16=4	..			
P ₇	5-4=1	13-8=5				
P ₈	76-21=55	84-8=76				

SJF - Shortest Job First

$$0: P_1 = 6, P_4 = 15, P_9 = 3$$

$$8: P_5 = 12, P_7 = 4, P_8 = 21$$

$$16: P_2 = 9, P_3 = 10, P_6 = 4$$



	T_w	T_R
P1	3	9
P2	$29 - 16 = 13$	22
P3	$38 - 16 = 22$	32
P4	$48 - 0 = 48$	63
P5	$13 - 8 = 5$	14
P6	$25 - 16 = 9$	13
P7	$9 - 8 = 1$	5
P8	$63 - 8 = 55$	76
P9	0	3
Avg.	$153/9$	$231/9$
	$= 17$	$= 25,67$

RR - Round Robin

$$0: P_1 = 6, P_4 = 15, P_9 = 3$$

$$8: P_5 = 12, P_7 = 4, P_8 = 21$$

$$16: P_2 = 9, P_3 = 10, P_6 = 4$$

 T_{w_i}

$$P_1: 0$$

 TR

$$P_2: 49 - 16 = 33$$

6

$$P_3: 58 - 16 = 42$$

42

$$P_4: 6 + 72 - 18 = 6 + 54 = 60$$

52

$$P_5: 21 - 8 = 13$$

13

$$P_6: 68 - 16 = 52$$

52

$$P_7: 33 - 8 = 25$$

25

$$P_8: 37 + 75 - 49 - 8 = 29 + 26 = 55$$

55

$$P_9: 18$$

18

33, 1

42, 4

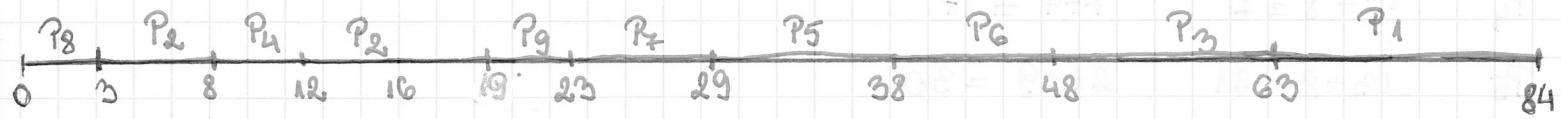
I Planificación

$$0: P_2 = 12, P_3 = 15, P_8 = 3$$

SRTN

$$8: P_1 = 21, P_4 = 4, P_5 = 9$$

$$16: P_6 = 10, P_7 = 6, P_9 = 4$$



$$\begin{aligned} P_2 &= 12 \\ P_3 &= 15 \\ P_8 &= 3 \end{aligned}$$

$$\begin{aligned} P_2 &= 7 \\ P_3 &= 15 \\ P_1 &= 21 \\ P_4 &= 4 \\ P_5 &= 9 \\ P_6 &= 10 \\ P_7 &= 6 \\ P_9 &= 4 \end{aligned}$$

T_w

$$P_1 \quad 76 - 21 = 55 \quad 84 - 8 = 76$$

$$P_2 \quad 19 - 12 = 7 \quad 19 - 0 = 19$$

$$P_3 \quad 63 - 15 = 48 \quad 63 - 0 = 63$$

$$P_4 \quad 4 - 4 = 0 \quad 12 - 8 = 4$$

$$P_5 \quad 30 - 9 = 21 \quad 38 - 8 = 30$$

$$P_6 \quad 32 - 10 = 22 \quad 48 - 16 = 32$$

$$P_7 \quad 13 - 6 = 7 \quad 29 - 16 = 13$$

$$P_8 \quad 3 - 3 = 0 \quad 3 - 0 = 3$$

$$P_9 \quad 7 - 4 = 3 \quad 23 - 16 = 7$$

Average

$$\begin{aligned} &163/9 \\ &= 18,11 \end{aligned}$$

$$\begin{aligned} &247/9 \\ &= 27,44 \end{aligned}$$

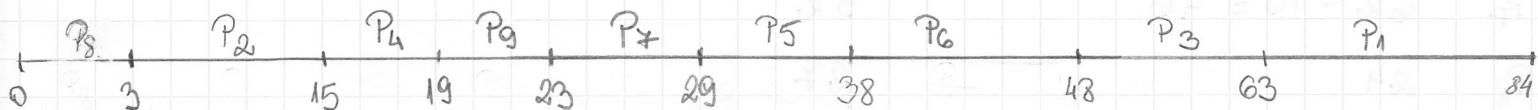
FIFO

$$\text{Average} \quad 321/9 = 35,67$$

T_w

$$405/9 = 45$$

SJF



T_w

TR

$$P_1 \quad 63 - 8 = 55 \quad 55 + 21 = 76$$

$$P_2 \quad 3 - 0 = 3 \quad 15$$

$$P_3 \quad 32 + 16 = 48 \quad 48 + 15 = 63$$

$$P_4 \quad 15 - 8 = 7 \quad 7 + 4 = 11$$

$$P_5 \quad 13 + 8 = 21 \quad 21 + 9 = 30$$

$$P_6 \quad 30 - 8 = 22 \quad 32$$

$$P_7 \quad 4 \quad 13$$

$$P_8 \quad 0 \quad 3$$

$$P_9 \quad 11 - 8 = 3 \quad 3 + 4 = 7$$

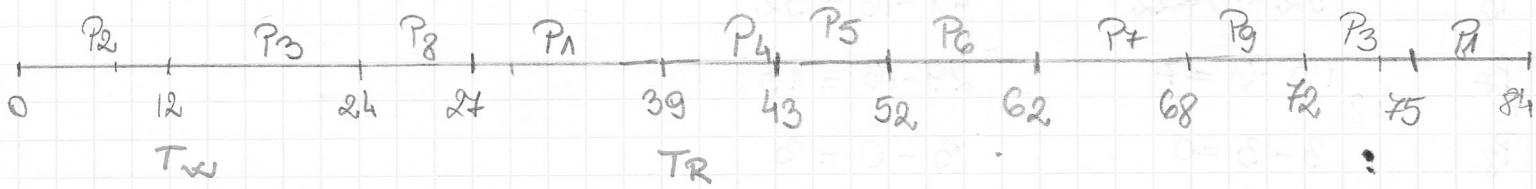
Average $166/9 = 18,44$ $250/9 = 27,78$

RR

$$0: P_2 = 12, P_3 = 15, P_8 = 3$$

$$8: P_1 = 21, P_4 = 4, P_5 = 9$$

$$16: P_6 = 10, P_7 = 6, P_9 = 4$$



T_w

TR

$$P_1 \quad 27 + 75 - 39 - 8 = 55 \quad 76$$

$$P_2 \quad 0 \quad 12$$

$$P_3 \quad 12 + 42 - 24 = 60 \quad 75$$

$$P_4 \quad 39 - 8 = 31 \quad 35$$

$$P_5 \quad 43 - 8 = 35 \quad 44$$

$$P_6 \quad 52 - 16 = 36 \quad 46$$

$$P_7 \quad 62 - 16 = 46 \quad 52$$

$$P_8 \quad 24 \quad 27$$

$$P_9 \quad 68 - 16 = 52 \quad 56$$

Average $339/9 = 37,66$ $423/9 = 47$

SR,TN

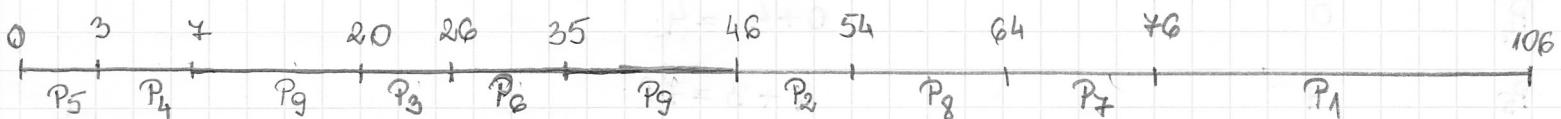
$$0: P_4 = 4, P_5 = 3, P_9 = 24$$

$$T = C - A$$

$$20: P_3 = 6, P_6 = 9, P_7 = 12$$

$$W = T - B$$

$$40: P_1 = 30, P_2 = 8, P_8 = 10$$



$$P_9 = 11$$

$$P_7 = 12$$

$$P_3 = 6$$

$$P_1 = 30$$

$$P_6 = 9$$

$$P_2 = 8$$

$$P_7 = 12$$

$$P_8 = 10$$

T_W

T_R

P_1

$$66 - 30 = 36$$

$$106 - 40 = 66$$

P_2

$$14 - 8 = 6$$

$$54 - 40 = 14$$

P_3

$$6 - 6 = 0$$

$$26 - 20 = 6$$

P_4

$$7 - 4 = 3$$

$$7 - 0 = 7$$

P_5

$$3 - 3 = 0$$

$$3 - 0 = 3$$

P_6

$$15 - 9 = 6$$

$$35 - 20 = 15$$

P_7

$$56 - 12 = 44$$

$$76 - 20 = 56$$

P_8

$$24 - 10 = 14$$

$$64 - 40 = 24$$

P_9

$$46 - 24 = 22$$

$$46 - 0 = 46$$

Average

$$195 / 9 = 21,66$$

$$237 / 9 = 26,33$$

FIFO

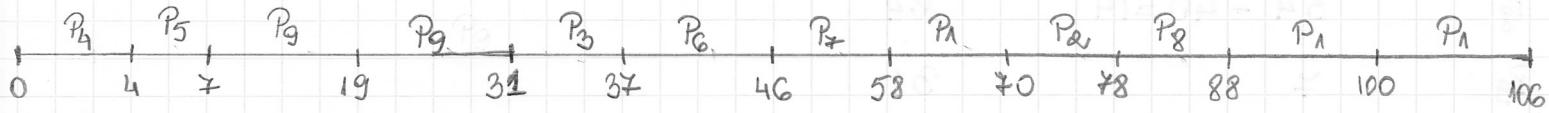
T_W T_R

Average

$$187 / 9 = 20,78$$

$$293 / 9 = 32,55$$

RR



T_w

$$P_1 \quad 58 + 38 - 40 - 40 = 36$$

$$P_2 \quad 70 - 40 = 30$$

$$P_3 \quad 31 - 20 = 11$$

$$P_4 \quad 0$$

$$P_5 \quad 4$$

$$P_6 \quad 37 - 20 = 17$$

$$P_7 \quad 46 - 20 = 26$$

$$P_8 \quad 78 - 40 = 38$$

$$P_9 \quad 7$$

$$\text{Average} \quad 169 / 9 = 18, \bar{4}$$

 $\overline{T_R}$

$$36 + 30 = 66$$

$$30 + 8 = 38$$

$$11 + 6 = 17$$

$$0 + 4 = 4$$

$$4 + 3 = 7$$

$$17 + 9 = 26$$

$$26 + 12 = 38$$

$$38 + 10 = 48$$

$$7 + 24 = 31$$

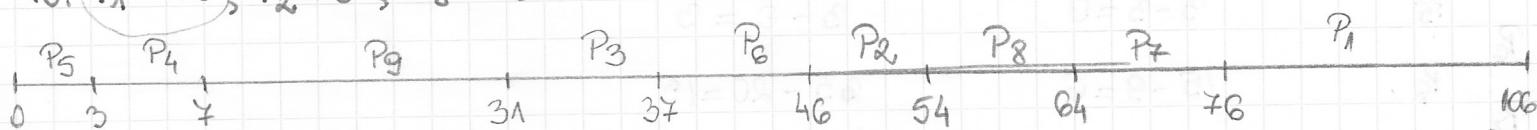
$$275 / 9 = 30, \bar{5}$$

S/F

$$0: P_4 = 4, P_5 = 3, P_9 = 24$$

$$20: P_3 = 6, P_6 = 9, P_7 = 12$$

$$40: P_1 = 30, P_2 = 8, P_8 = 10$$

 T_w

$$P_1 \quad 76 - 40 = 36$$

$$P_2 \quad 46 - 40 = 6$$

$$P_3 \quad 31 - 20 = 11$$

$$P_4 \quad 3$$

$$P_5 \quad 0$$

$$P_6 \quad 37 - 20 = 17$$

$$P_7 \quad 64 - 20 = 44$$

$$P_8 \quad 54 - 40 = 14$$

$$P_9 \quad 7$$

$$\text{Average} \quad 138 / 9 = 15, \bar{3}$$

 $\overline{T_R}$

$$66$$

$$14$$

$$17$$

$$7$$

$$3$$

$$26$$

$$56$$

$$24$$

$$31$$

$$244 / 9 = 27, \bar{1}$$

FIFO

Average	T _w 266/9	T _R 350/9
	= 29,55	= 38,89

II Impas

I	MAX	HAS	NEC
P ₁	50	19	31
P ₂	92	38	54
P ₃	48	11	37
P ₄	24	12	12
P ₅	43	15	28
P ₆	77	12	65
	334	104	227

Alocare minima $104 + 12 = 116$

II	MAX	HAS	NEC
P ₁	50	31	19
P ₂	92	44	48
P ₃	48	21	27
P ₄	24	16	8
P ₅	43	19	24
P ₆	77	23	54
	334	154	180

Alocare minima $154 + 8 = 162$

	MAX	HAS	NEC
P ₁	50	21	29
P ₂	92	35	57
P ₃	48	12	36
P ₄	24	6	18
P ₅	43	9	34
P ₆	77	24	53
	334	107	227

Grafuri

$\frac{21}{50} \cdot 100 = 42\%$

$\frac{35}{92} \cdot 100 = 38\%$

$\frac{12}{48} \cdot 100 = 25\%$

$\frac{6}{24} \cdot 100 = 25\%$

$\frac{9}{43} \cdot 100 = 21\%$

$\frac{24}{77} \cdot 100 = 31\%$

Disponibile 125

$$125 - 107 = 18$$

	HAS	MAX
P ₁	21	50
P ₂	35	92
P ₃	12	48
P ₄	6	24
P ₅	9	43
P ₆	24	77

	HAS	MAX
P ₁	21	50
P ₂	35	92
P ₃	12	48
P ₄	24	24
P ₅	9	43
P ₆	24	77

	HAS	MAX
P ₁	21	50
P ₂	35	92
P ₃	12	48
P ₄ elib.	24	-
P ₅	9	43
P ₆	24	77

$$\Delta : 18$$

$$\Delta : 0$$

$$\Delta : 24$$

P₅
refuzat?

24 resurse disponibile
29 resurse necesare \Rightarrow 5 resurse suplimentare

II Impas

	MAX	HAS	NEC
P ₁	50	9	41
P ₂	92	24	68
P ₃	48	24	24
P ₄	24	12	(12)
P ₅	43	8	35
P ₆	47	35	42
TOTAL	334	112	222

$$112 + 12 = 124$$

	MAX	HAS	NEC
P ₁	50	14	36
P ₂	92	38	54
P ₃	48	29	19
P ₄	24	18	(6)
P ₅	43	12	31
P ₆	47	42	35
TOTAL	334	153	181

$$153 + 6 = 159$$

	HAS	MAX	NEC
P ₁	21	50	29
P ₂	24	92	68
P ₃	9	48	39
P ₄	6	24	18
P ₅	35	43	(8)
P ₆	12	47	65
TOTAL	107	334	227

$$\text{disponibile } 122 - 107 = 15$$

						NECESAR
P ₁	21	50	21	50	21	50
P ₂	24	92	24	92	24	92
P ₃	9	48	9	48	9	48
P ₄	6	24	6	24	6	24
		8		43	6	18
P ₅	35	43	43	43	0	-
P ₆	12	77	12	77	12	77
						65
D:15			D: 4		D: 50	

P₆ refuzat

P₁ resurse necesar 29

disponibile

32
2

1	3	6	①(3) 2	6	7	
1	1	1	1 1 1	1	1	
3	3	3	3 3 3	3	3	
6	6	6	6 6	6	7	
2				2	2	

II Impaus

	MAX	HAS	NEC
P ₁	50	9	41
P ₂	80	29	51
P ₃	50	8	42
P ₄	25	6	19
P ₅	40	21	19
P ₆	90	35	55
	335	108	227

$$108 + 19 = 127$$

	MAX	HAS	NEC
P ₁	50	14	36
P ₂	80	39	41
P ₃	50	13	37
P ₄	25	9	16
P ₅	40	25	15
P ₆	90	45	45
	335	145	190

$$145 + 15 = 160$$

	MAX	HAS	NEC				
P ₁	50	9	41	9	50	9	50
P ₂	80	29	51	29	80	29	80
P ₃	50	8	42	8	50	8	50
P ₄	25	6	19	25	25	0	-
P ₅	40	21	19	21	40	21	40
P ₆	90	35	55	35	90	35	90

$P_{alloc} \Rightarrow$

$$\Delta = 160 - 108 = 22$$

$$\Delta : 3$$

$$\Delta : 28$$