



Ain Shams University

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CPU Scheduler Project

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Section: 2

Contents:

- **User Manual**
- **Snapshots for different scheduling techniques**

• User Manual

- Enter Basic Information

CPU Scheduler

Num of Processes: 4 Type of Scheduler: First Come First Served

Buttons: OK, RESET, How to Use!

Annotations:

- Enter number of processes (points to Num of Processes)
- Select type of scheduler (points to Type of Scheduler)
- Press to enter to process information (points to OK)

- Enter Processes information and drawing the Gantt Chart

Num of Processes: 4 Type of Scheduler: First Come First Served

Buttons: OK, RESET, How to Use!

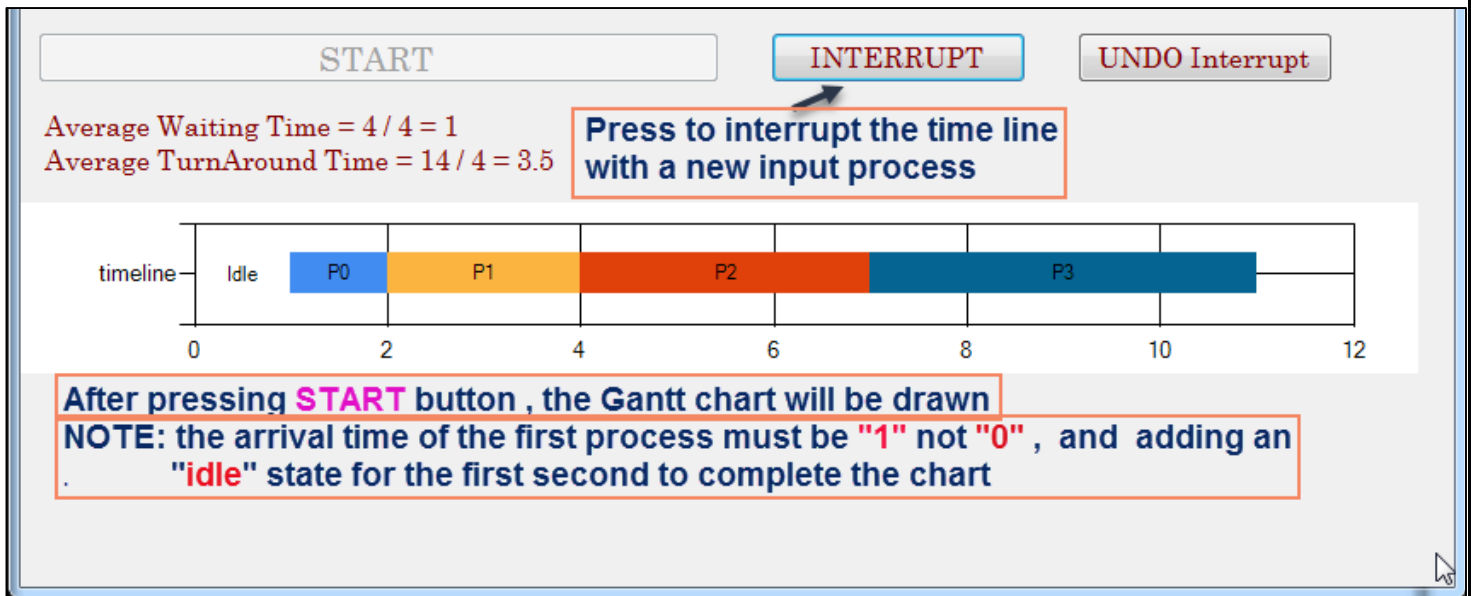
Name	Arrival Time	Burst Time
P0	1	1
P1	2	2
P2	3	3
P3	4	4

Buttons: START, INTERRUPT, UNDO Interrupt

Annotations:

- Enter the information of each process (points to process table)
- Press START to draw the Gantt chart of the processes scheduler (points to START)

- Gantt Chart properties and INTERRUPT option



- In case of using Interrupt

START INTERRUPT UNDO Interrupt

Process Name Arrival Time Burst Time

New 3 5 ADD Process

ADD Process

Press in case if you want to **UNDO** the Interrupt decision

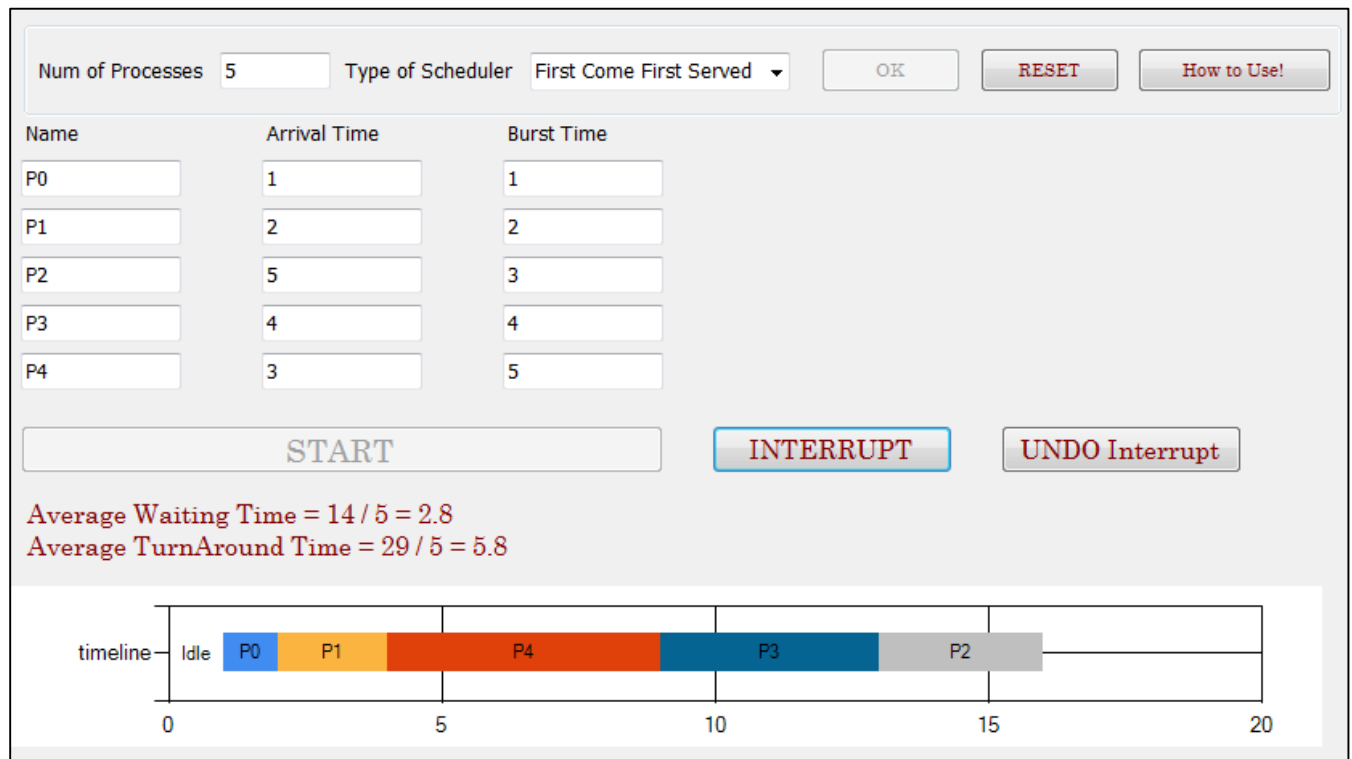
In case of you want to add an interrupt process , you should enter the new process information like: Name , Arrival Time , and Burst time

NOTE: Priority box will appear in case of choosing Priority Scheduler

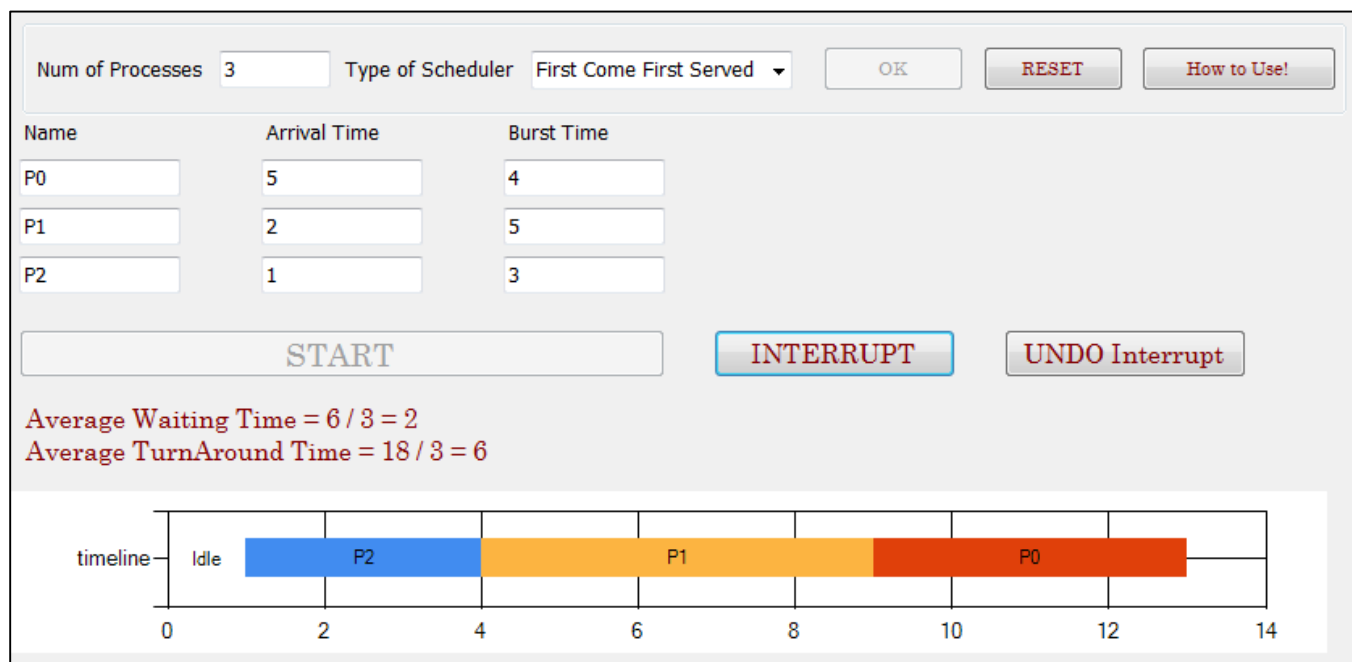
- Snapshots for different scheduling techniques

1- FCFS:

Case 1:

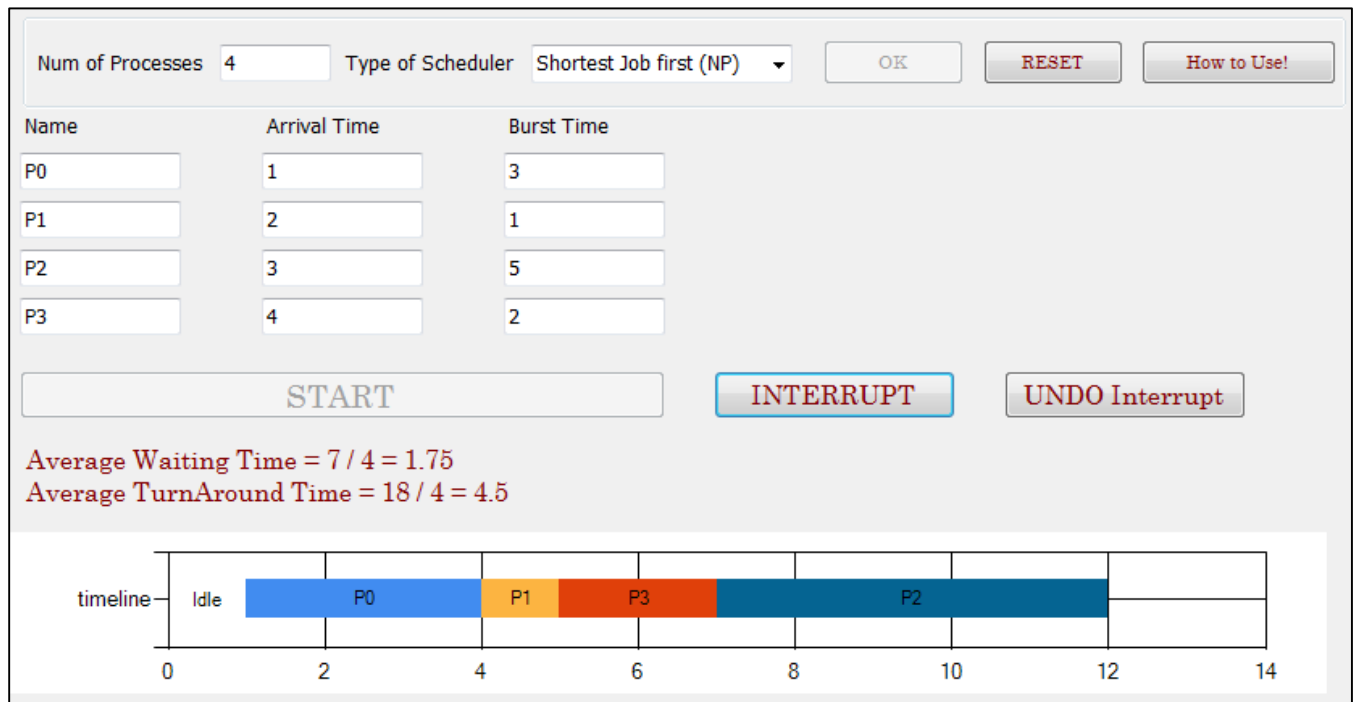


Case 2:

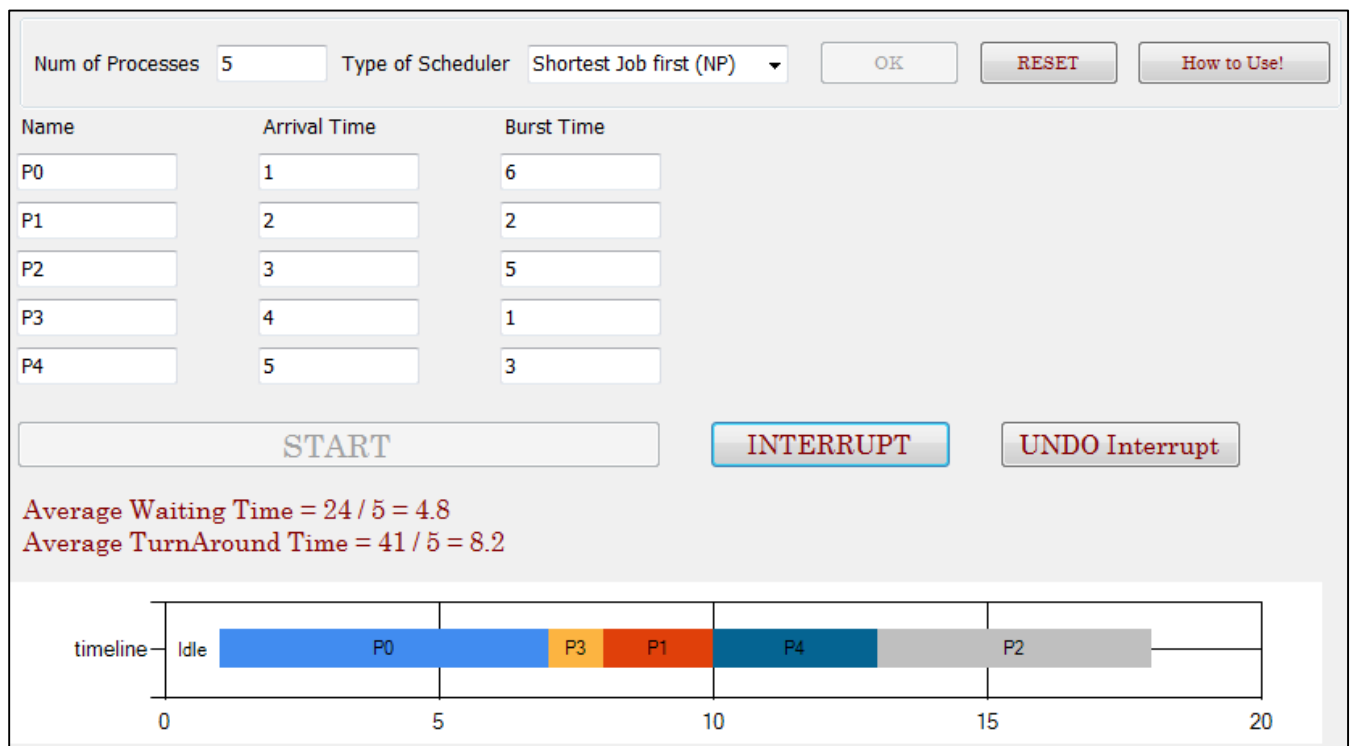


2- SJF (NP):

Case 1:



Case 2:



Case 3:

Num of Processes	7	Type of Scheduler	Shortest Job first (NP)	OK	RESET	How to Use!
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Name	Arrival Time	Burst Time
P0	1	1
P1	2	2
P2	3	3
P3	4	4
P4	5	5
P5	6	6
P6	7	2

START INTERRUPT UNDO Interrupt

Average Waiting Time = $26 / 7 = 3.71428571428571$
Average TurnAround Time = $49 / 7 = 7$

Timeline: 0 5 10 15 20 25

Idle P0 P1 P2 P6 P3 P4 P5

Case 4:

Num of Processes	6	Type of Scheduler	Shortest Job first (NP)	OK	RESET	How to Use!
------------------	---	-------------------	-------------------------	----	-------	-------------

Name	Arrival Time	Burst Time
P0	1	3
P1	2	2
P2	3	5
P3	4	2
P4	5	1
P5	6	4

START INTERRUPT UNDO Interrupt

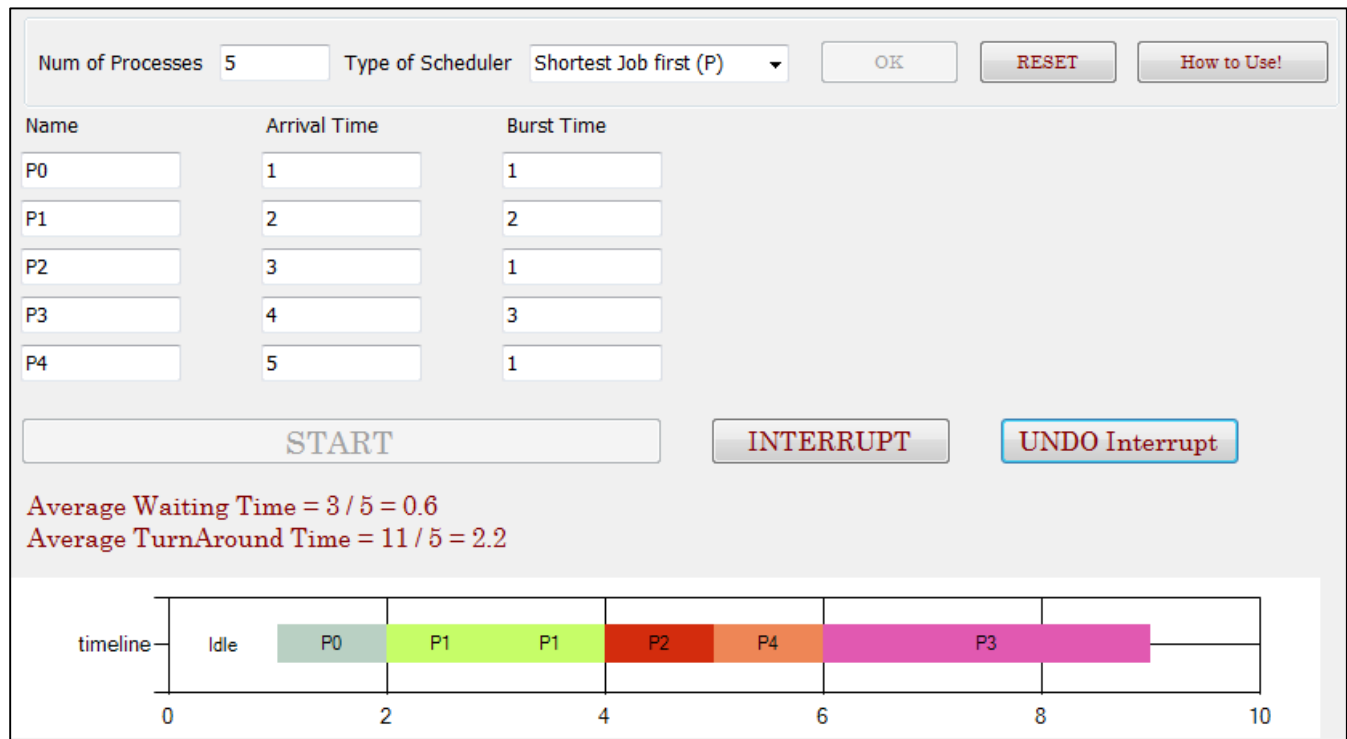
Average Waiting Time = $19 / 6 = 3.16666666666667$
Average TurnAround Time = $36 / 6 = 6$

Timeline: 0 5 10 15 20

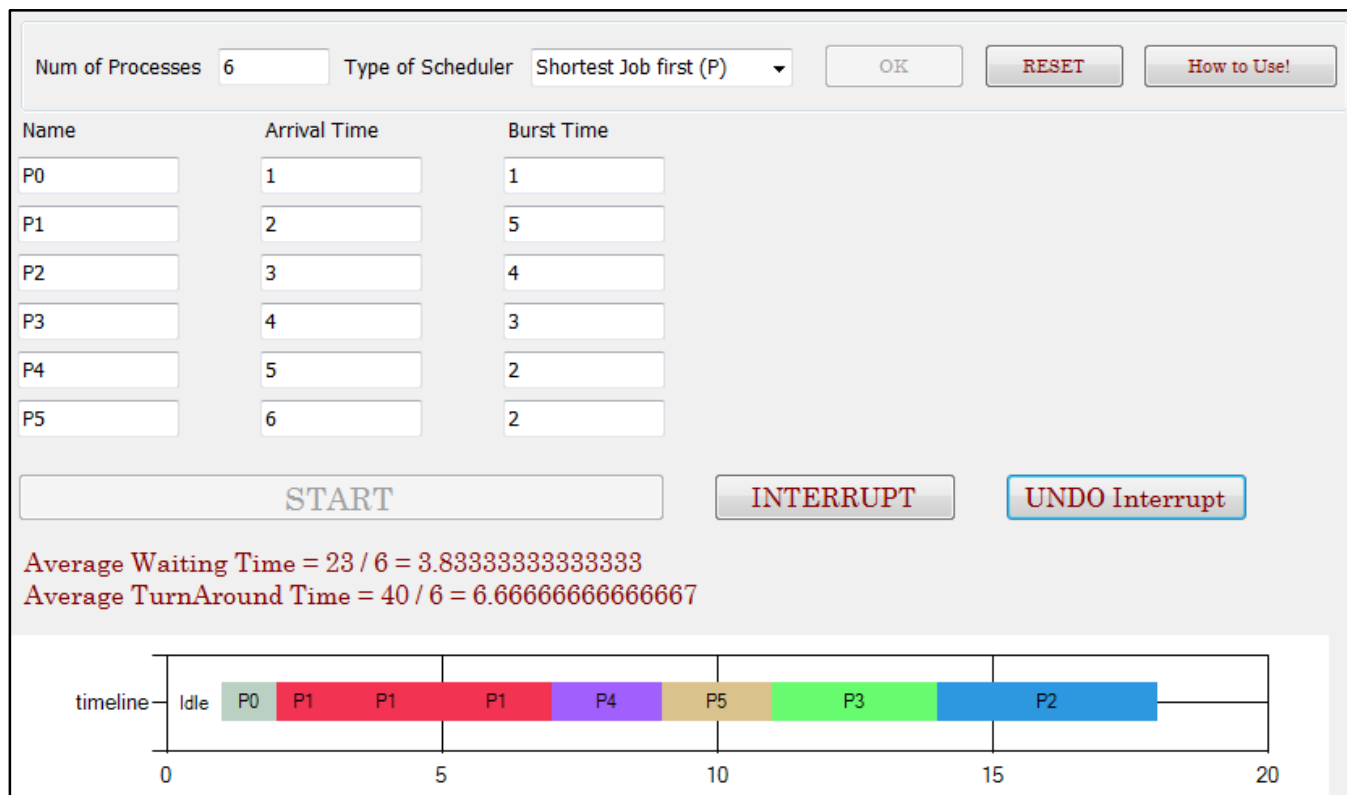
Idle P0 P1 P4 P3 P5 P2

3- SJF (P):

Case 1:



Case 2:



Case 3:

Num of Processes	7	Type of Scheduler	Shortest Job first (P)	OK	RESET	How to Use!
------------------	---	-------------------	------------------------	----	-------	-------------

Name	Arrival Time	Burst Time
P0	1	3
P1	2	2
P2	3	2
P3	4	5
P4	5	1
P5	6	2
P6	7	3

START INTERRUPT UNDO Interrupt

Average Waiting Time = $24 / 7 = 3.42857142857143$
Average TurnAround Time = $42 / 7 = 6$

Timeline diagram showing process execution order: Idle, P0, P0, P1, P4, P2, P5, P6, P3. The timeline is marked from 0 to 20.

Case 4:

Num of Processes	3	Type of Scheduler	Shortest Job first (P)	OK	RESET	How to Use!
------------------	---	-------------------	------------------------	----	-------	-------------

Name	Arrival Time	Burst Time
P0	1	7
P1	3	4
P2	5	3

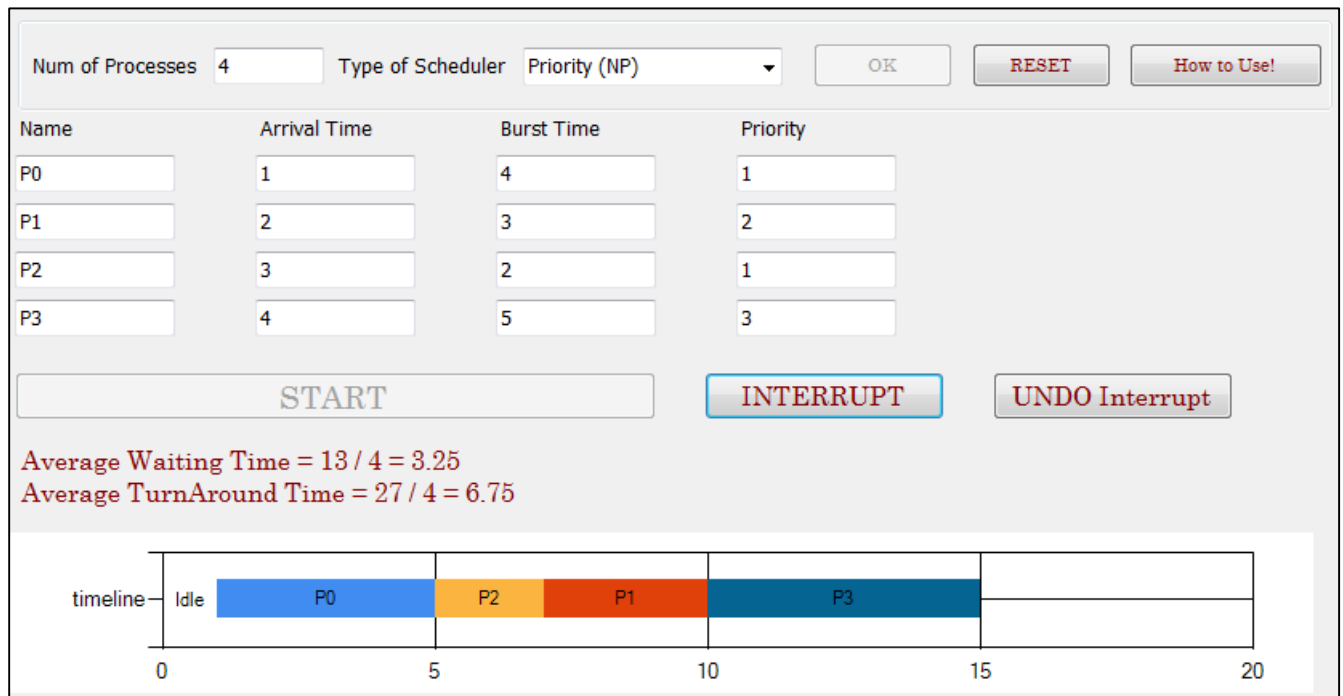
START INTERRUPT UNDO Interrupt

Average Waiting Time = $9 / 3 = 3$
Average TurnAround Time = $23 / 3 = 7.66666666666667$

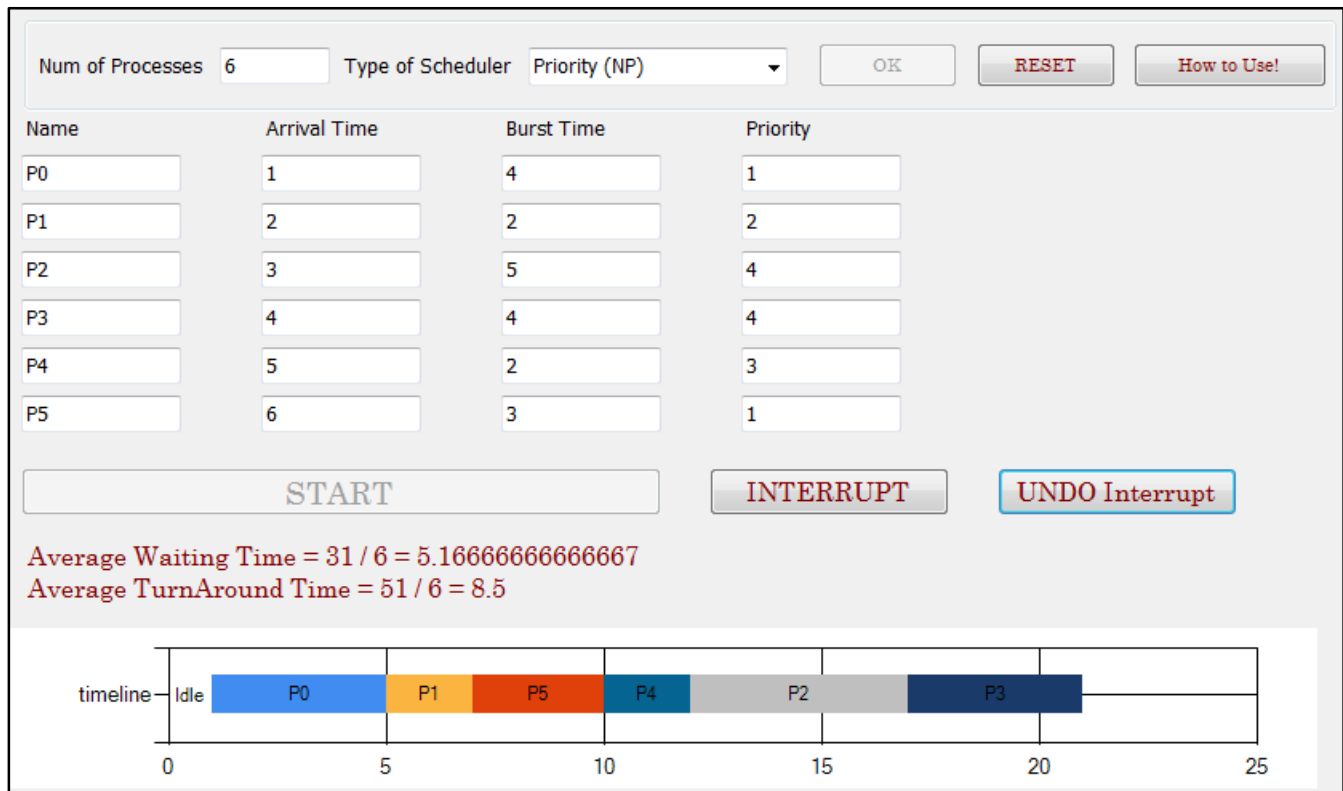
Timeline diagram showing process execution order: Idle, P0, P1, P1, P2, P0. The timeline is marked from 0 to 20.

4- Priority (NP):

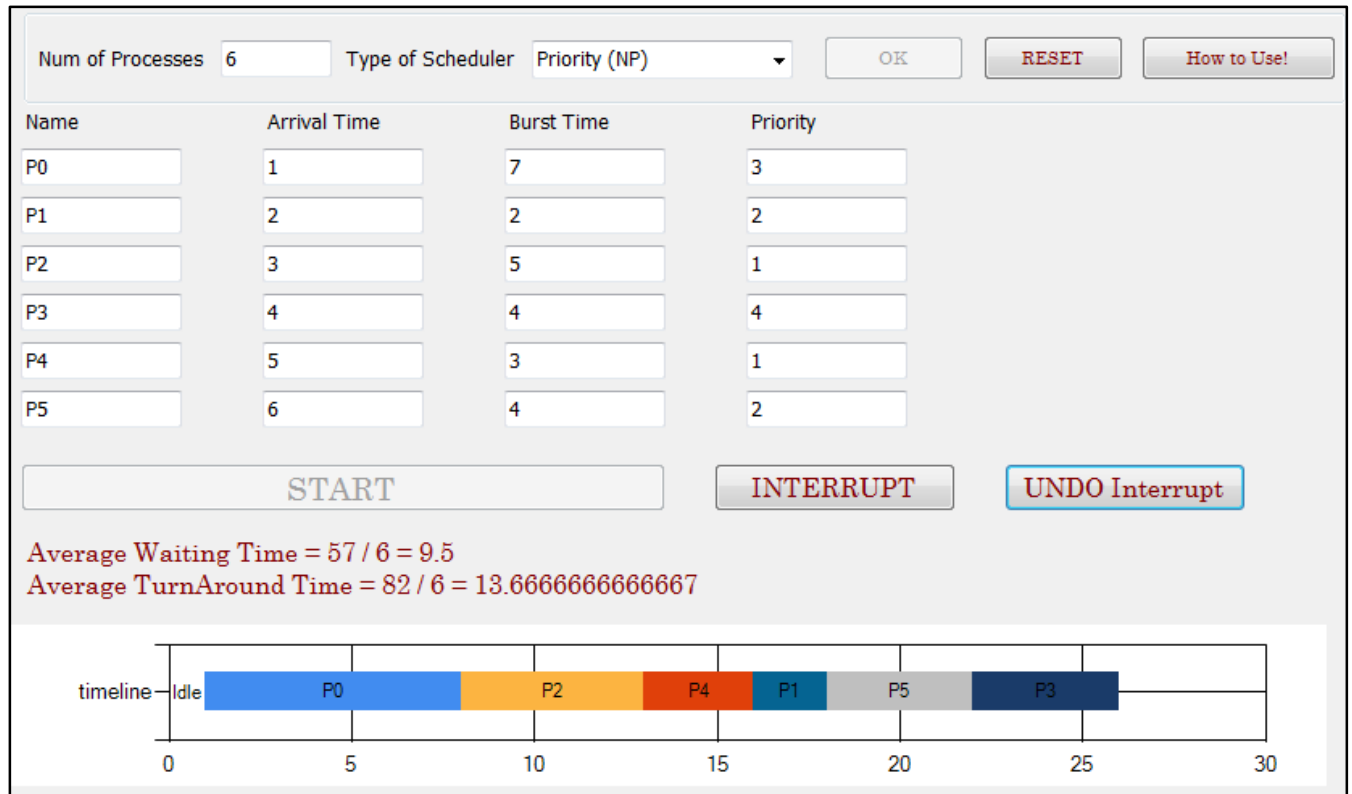
Case 1:



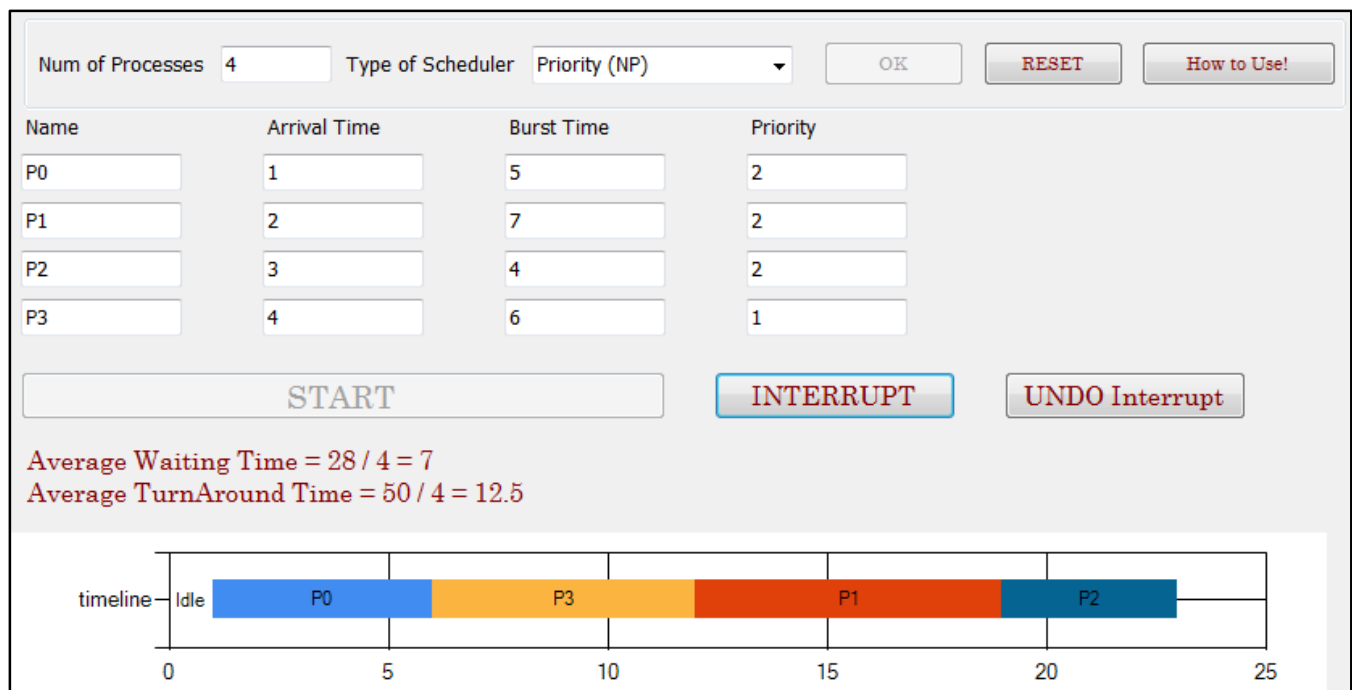
Case 2:



Case 3:

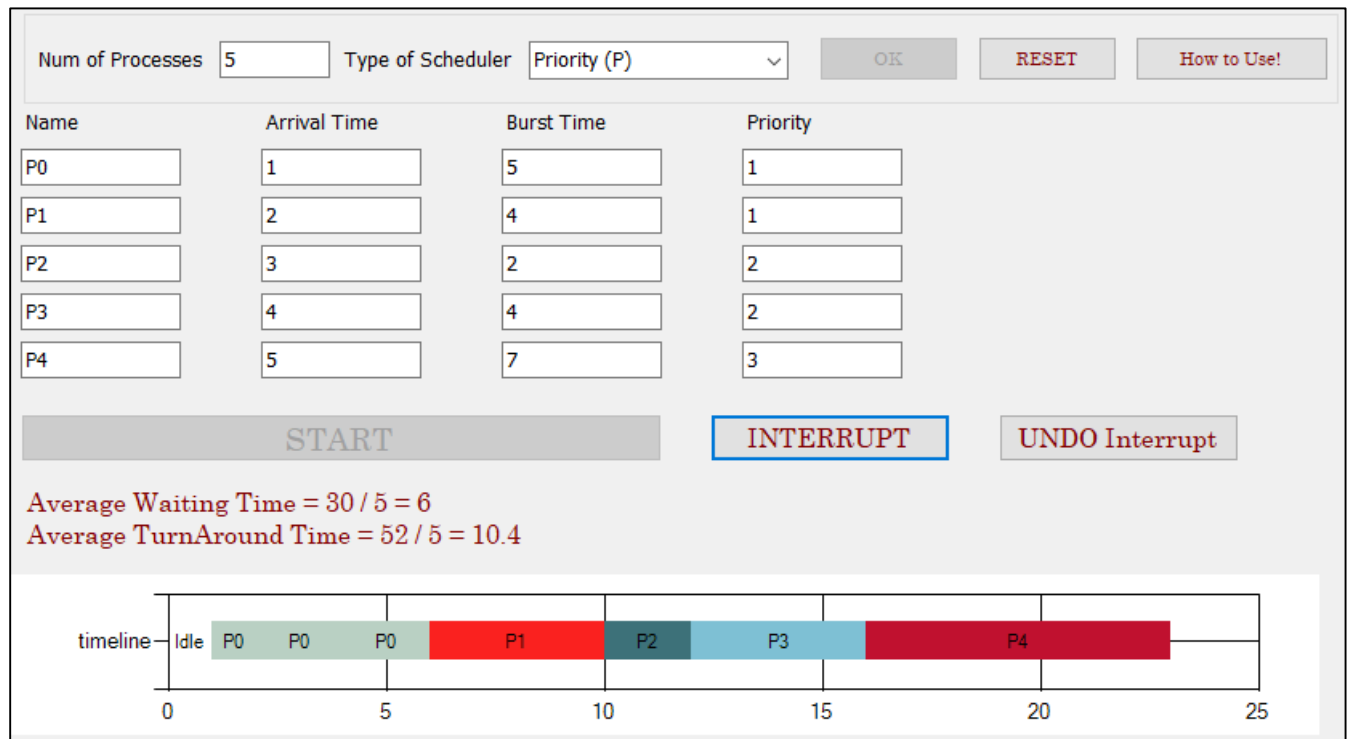


Case 4:

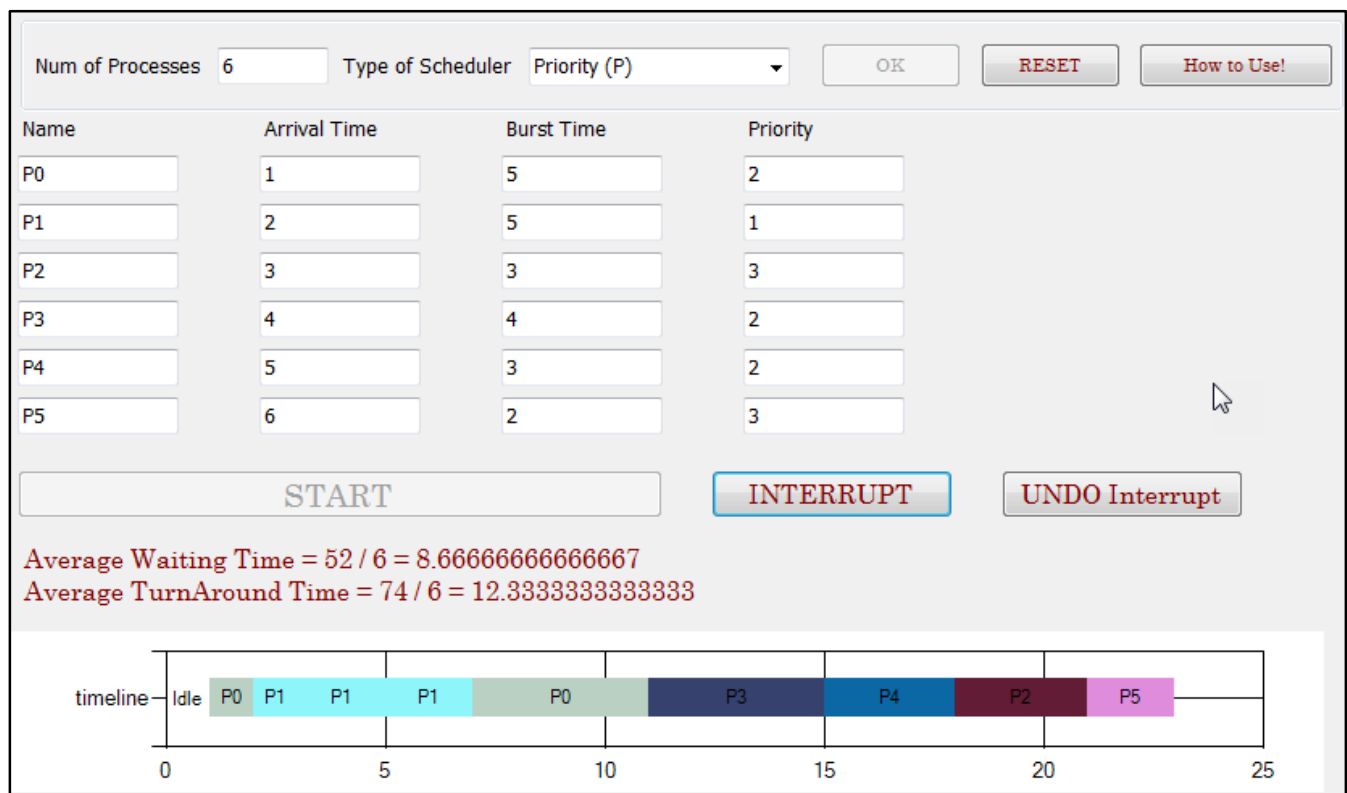


5- Priority (P):

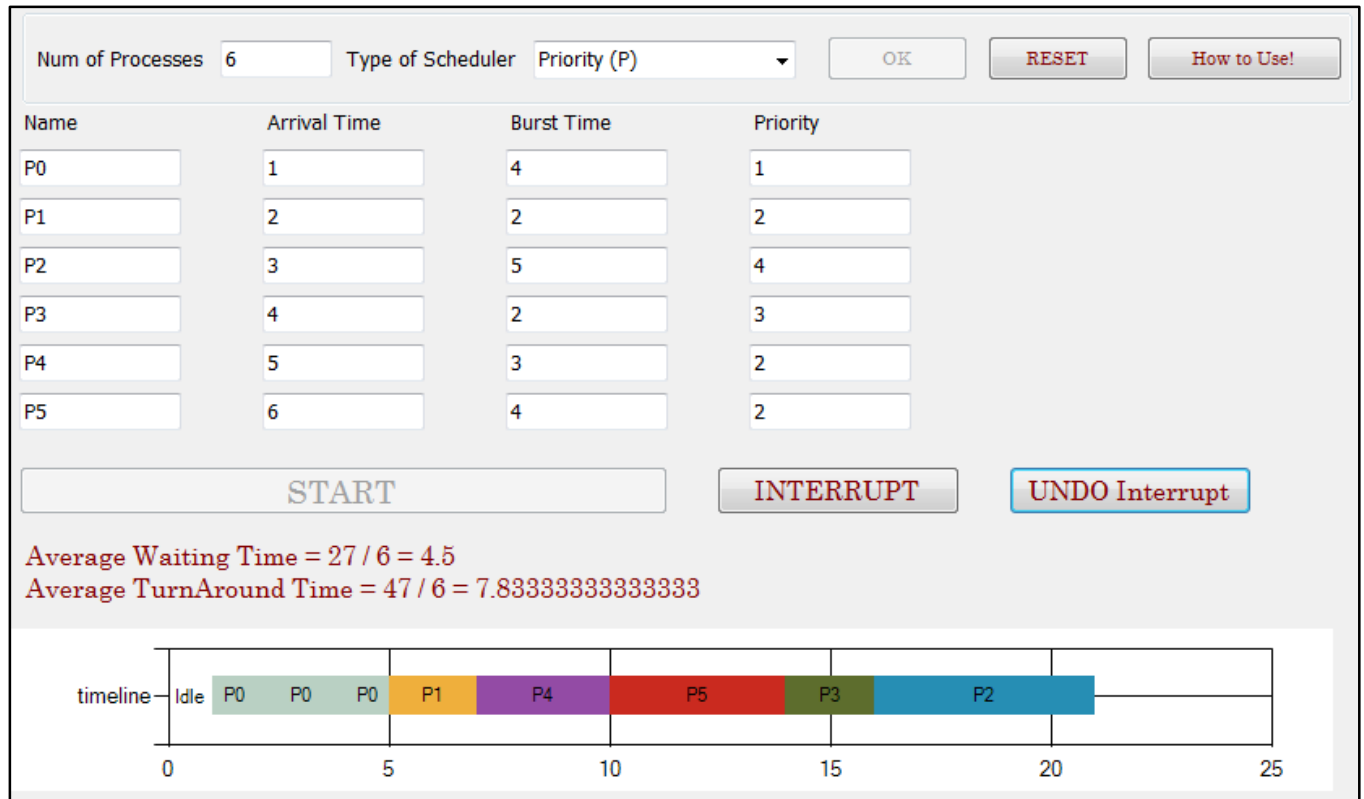
Case 1:



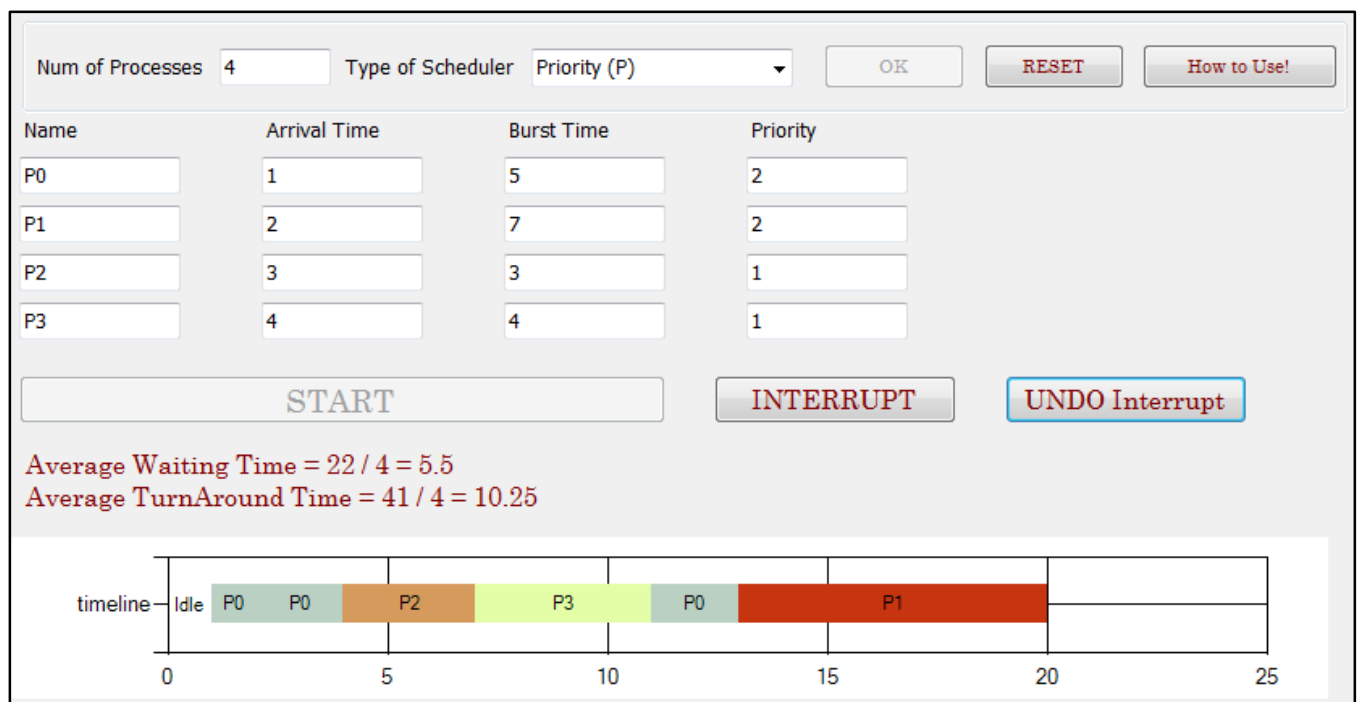
Case 2:



Case 3:

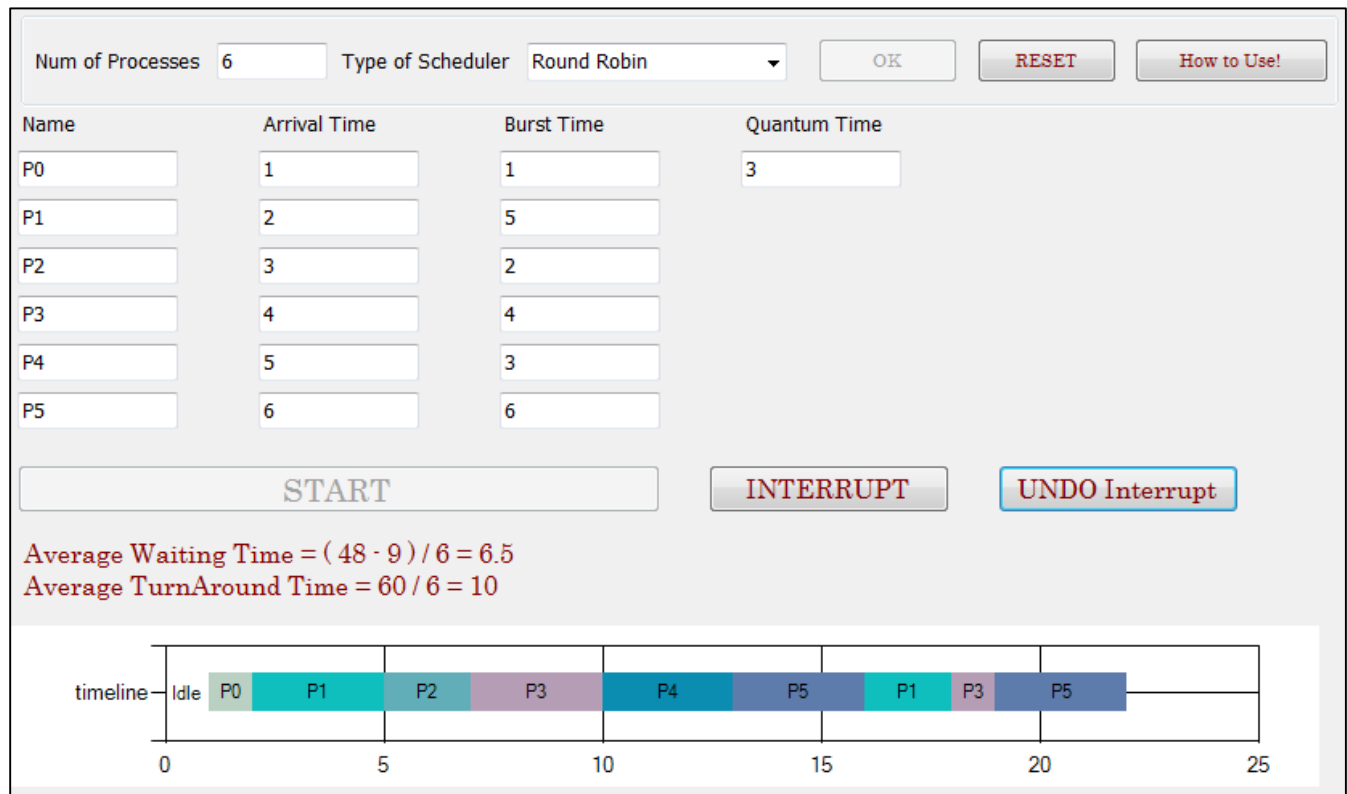


Case 4:

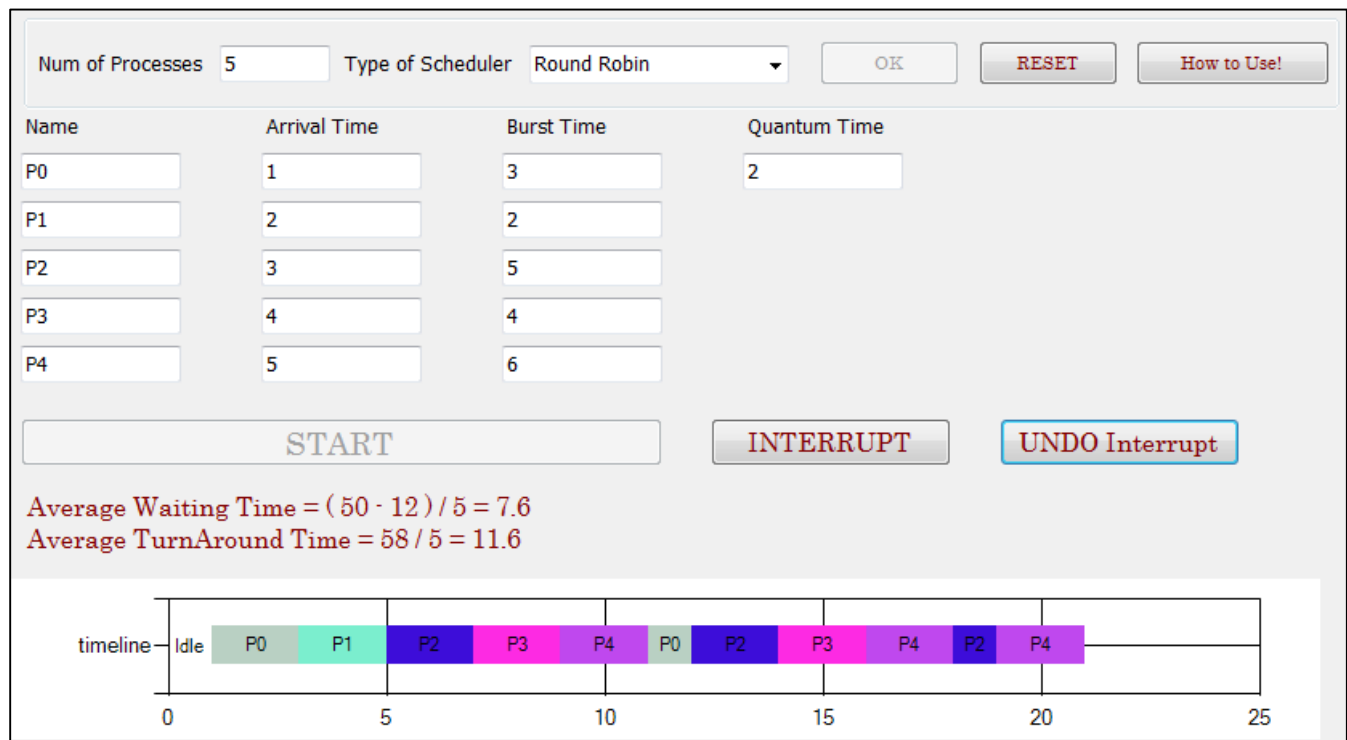


6- Round Robin

Case 1:



Case 2:



Case 3:

Num of Processes	4	Type of Scheduler	Round Robin	OK	RESET	How to Use!
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Name	Arrival Time	Burst Time	Quantum Time
P0	1	4	1
P1	2	3	
P2	3	5	
P3	4	4	

START INTERRUPT UNDO Interrupt

Average Waiting Time = $(44 - 12) / 4 = 8$
Average TurnAround Time = $48 / 4 = 12$

Timeline diagram showing process execution order: Idle, P0, P1, P2, P3, P0, P1, P2, P3, P0, P1, P2, P3, P0, P2, P3, P2.

Case 4:

Num of Processes	7	Type of Scheduler	Round Robin	OK	RESET	How to Use!
------------------	---	-------------------	-------------	----	-------	-------------

Name	Arrival Time	Burst Time	Quantum Time
P0	1	7	4
P1	2	2	
P2	3	3	
P3	4	8	
P4	5	3	
P5	6	6	
P6	7	5	

START INTERRUPT UNDO Interrupt

Average Waiting Time = $(117 - 16) / 7 = 14.4285714285714$
Average TurnAround Time = $135 / 7 = 19.2857142857143$

Timeline diagram showing process execution order: Idle, P0, P1, P2, P3, P4, P5, P6, P0, P3, P5, P6.