Tuesday, October 13, 2020 19:21

LINEAR PROGRAM -- ORIGINAL DATA

Title: Q1

	x1	x2		
	x1	x2		
Maximize	500000.00	100000.00		
Subject to				
(1)	50000.00	20000.00	<=	200000.00
(2)	1.00	0.00	>=	3.00
(3)	0.00	1.00	<=	5.00
Lower Bound	0.00	0.00		
Upper Bound	infinity	infinity		
Unrestr'd (y/n)?	n	n		

LINEAR PROGRAMMING OUTPUT SUMMARY

Title: Q1
Final Iteration No.: 5
Objective Value = 2000000

Variable	Value	Obj Coeff	Obj Val Contrib
x1: x1	4.00	500000.00	2000000.00
x2: x2	0.00	100000.00	0.00

Constraint	RHS	Slack-/Surplus+
1 (<)	200000.00	0.00
2 (>)	3.00	1.00+
3 (<)	5.00	5.00-

Sensitivity Analysis

Variable	Current Obj Coeff	Min Obj Coeff	Max Obj Coeff	Reduced Cost
x1: x1	500000.00	250000.00	infinity	0.00
x2: x2	100000.00	-infinity	200000.00	100000.00

Constraint	Current RHS	Min RHS	Max RHS	Dual Price
1 (<)	200000.00	150000.00	infinity	10.00
2 (>)	3.00	-infinity	4.00	0.00
3 (<)	5.00	0.00	infinity	0.00

Tuesday, October 13, 2020 18:49

LINEAR PROGRAM -- ORIGINAL DATA

Title: Q2

	A	B		
	x1	x2		
Minimize	9.00	10.00		
Subject to				
(1)	2.00	2.00	>=	50.00
(2)	4.00	3.00	>=	24.00
(3)	3.00	2.00	>=	60.00
Lower Bound	0.00	0.00		
Upper Bound	infinity	infinity		
Unrestr'd (y/n)?	n	n		

LINEAR PROGRAMMING OUTPUT SUMMARY

Title: Q2
Final Iteration No.: 7
Objective Value = 225

Variable	Value	Obj Coeff	Obj Val Contrib
x1: A	25.00	9.00	225.00
x2: B	0.00	10.00	0.00

Constraint	RHS	Slack-/Surplus+
1 (>)	50.00	0.00
2 (>)	24.00	76.00+
3 (>)	60.00	15.00+

Sensitivity Analysis

Variable	Current Obj Coeff	Min Obj Coeff	Max Obj Coeff	Reduced Cost
x1: A	9.00	0.00	10.00	0.00
x2: B	10.00	9.00	infinity	-1.00

Constraint	Current RHS	Min RHS	Max RHS	Dual Price
1 (>)	50.00	40.00	infinity	4.50
2 (>)	24.00	-infinity	100.00	0.00
3 (>)	60.00	-infinity	75.00	0.00

Tuesday, October 13, 2020 19:25

LINEAR PROGRAM -- ORIGINAL DATA

Title: Q3

	x1	x2	x3		
	x1	x2	x3		
Maximize	5.00	10.00	8.00		
Subject to					
(1)	3.00	5.00	2.00	<=	60.00
(2)	4.00	4.00	4.00	<=	72.00
(3)	2.00	4.00	5.00	<=	100.00
Lower Bound	0.00	0.00	0.00		
Upper Bound	infinity	infinity	infinity		
Unrestr'd (y/n)?	n	n	n		

Tuesday, October 13, 2020 19:25

LINEAR PROGRAM -- ORIGINAL DATA

Title: Q3

	x1	x2	x3		
	x1	x2	x3		
Maximize	5.00	10.00	8.00		
Subject to					
(1)	3.00	5.00	2.00	<=	60.00
(2)	4.00	4.00	4.00	<=	72.00
(3)	2.00	4.00	5.00	<=	100.00
Lower Bound	0.00	0.00	0.00		
Upper Bound	infinity	infinity	infinity		
Unrestr'd (y/n)?	n	n	n		

Tuesday, October 13, 2020 19:29

LINEAR PROGRAM -- ORIGINAL DATA

Title: Q3(ii)

	x1	x2	x3		
	x1	x2	x3		
Minimize	2.00	5.00	2.00		
Subject to					
(1)	3.00	0.00	1.00	>=	10.00
(2)	5.00	1.00	2.00	>=	15.00
(3)	1.00	2.00	0.00	>=	8.00
Lower Bound	0.00	0.00	0.00		
Upper Bound	infinity	infinity	infinity		
Unrestr'd (y/n)?	n	n	n		

LINEAR PROGRAMMING OUTPUT SUMMARY

Title: Q3(ii)
Final Iteration No.: 7
Objective Value = 16

Variable	Value	Obj Coeff	Obj Val Contrib
x1: x1	8.00	2.00	16.00
x2: x2	0.00	5.00	0.00
x3: x3	0.00	2.00	0.00

Constraint	RHS	Slack-/Surplus+
1 (>)	10.00	14.00+
2 (>)	15.00	25.00+
3 (>)	8.00	0.00

Sensitivity Analysis

Variable	Current Obj Coeff	Min Obj Coeff	Max Obj Coeff	Reduced Cost
x1: x1	2.00	0.00	2.50	0.00
x2: x2	5.00	4.00	infinity	-1.00
x3: x3	2.00	0.00	infinity	-2.00

Constraint	Current RHS	Min RHS	Max RHS	Dual Price
1 (>)	10.00	-infinity	24.00	0.00
2 (>)	15.00	-infinity	40.00	0.00
3 (>)	8.00	3.33	infinity	2.00

LINEAR PROGRAM -- ORIGINAL DATA

Title: Q4

	x1	x2	x3	x4	x5	
	x1	x2	x3	x4	x5	
Maximize	18.00	28.00	6.00	11.00	12.00	
Subject to						
(1)	4.00	3.00	1.00	3.00	2.00	<=
(2)	1.00	3.00	1.00	1.00	0.00	<=
(3)	1.50	0.00	0.00	0.50	0.50	<=
(4)	1.00	0.00	0.00	0.00	0.00	<=
(5)	0.00	1.00	0.00	0.00	0.00	<=
(6)	0.00	0.00	1.00	0.00	0.00	<=
(7)	0.00	0.00	0.00	1.00	0.00	<=
(8)	0.00	0.00	0.00	0.00	1.00	<=
Lower Bound	0.00	0.00	0.00	0.00	0.00	
Upper Bound	infinity	infinity	infinity	infinity	infinity	
Unrestr'd (y/n)?	n	n	n	n	n	

(1)	300.00
(2)	160.00
(3)	150.00
(4)	20.00
(5)	50.00
(6)	45.00
(7)	70.00
(8)	40.00

LINEAR PROGRAMMING OUTPUT SUMMARY

Title: Q4
Final Iteration No.: 6
Objective Value = 2146.67

Variable	Value	Obj Coeff	Obj Val Contrib
x1: x1	20.00	18.00	360.00
x2: x2	46.67	28.00	1306.67
x3: x3	0.00	6.00	0.00
x4: x4	0.00	11.00	0.00
x5: x5	40.00	12.00	480.00

Constraint	RHS	Slack-/Surplus+
1 (<)	300.00	0.00
2 (<)	160.00	0.00
3 (<)	150.00	100.00-
4 (<)	20.00	0.00
5 (<)	50.00	3.33-
6 (<)	45.00	45.00-
7 (<)	70.00	70.00-
8 (<)	40.00	0.00

Sensitivity Analysis

Variable	Current Obj Coeff	Min Obj Coeff	Max Obj Coeff	Reduced Cost
x1: x1	18.00	11.83	27.33	0.00
x2: x2	28.00	18.00	54.00	0.00
x3: x3	6.00	-infinity	9.33	3.33
x4: x4	11.00	-infinity	15.11	4.11
x5: x5	12.00	5.78	infinity	0.00

Constraint	Current RHS	Min RHS	Max RHS	Dual Price
1 (<)	300.00	270.00	300.00	2.89
2 (<)	160.00	160.00	167.50	6.44
3 (<)	150.00	50.00	infinity	0.00
4 (<)	20.00	20.00	infinity	0.00
5 (<)	50.00	46.67	infinity	0.00
6 (<)	45.00	0.00	infinity	0.00
7 (<)	70.00	0.00	infinity	0.00
8 (<)	40.00	40.00	55.00	6.22

Tuesday, October 13, 2020 19:41

LINEAR PROGRAM -- ORIGINAL DATA

Title: Q5

	x1	x2	x3	x4	x5	x6
	x1	x2	x3	x4	x5	x6
Maximize	12.00	12.00	15.00	24.00	22.00	23.00
Subject to						
(1)	1.00	1.00	1.00	0.00	0.00	0.00
(2)	0.00	0.00	0.00	1.00	1.00	1.00
(3)	1.00	0.00	0.00	1.00	0.00	0.00
(4)	0.00	1.00	0.00	0.00	0.00	1.00
(5)	0.00	0.00	1.00	0.00	0.00	1.00
Lower Bound	0.00	0.00	0.00	0.00	0.00	0.00
Upper Bound	infinity	infinity	infinity	infinity	infinity	infinity
Unrestr'd (y/n)?	n	n	n	n	n	n

(1)	<=	400.00
(2)	<=	250.00
(3)	=	200.00
(4)	=	100.00
(5)	=	250.00

LINEAR PROGRAMMING OUTPUT SUMMARY

Title: Q5
Final Iteration No.: 9
Objective Value = 11350

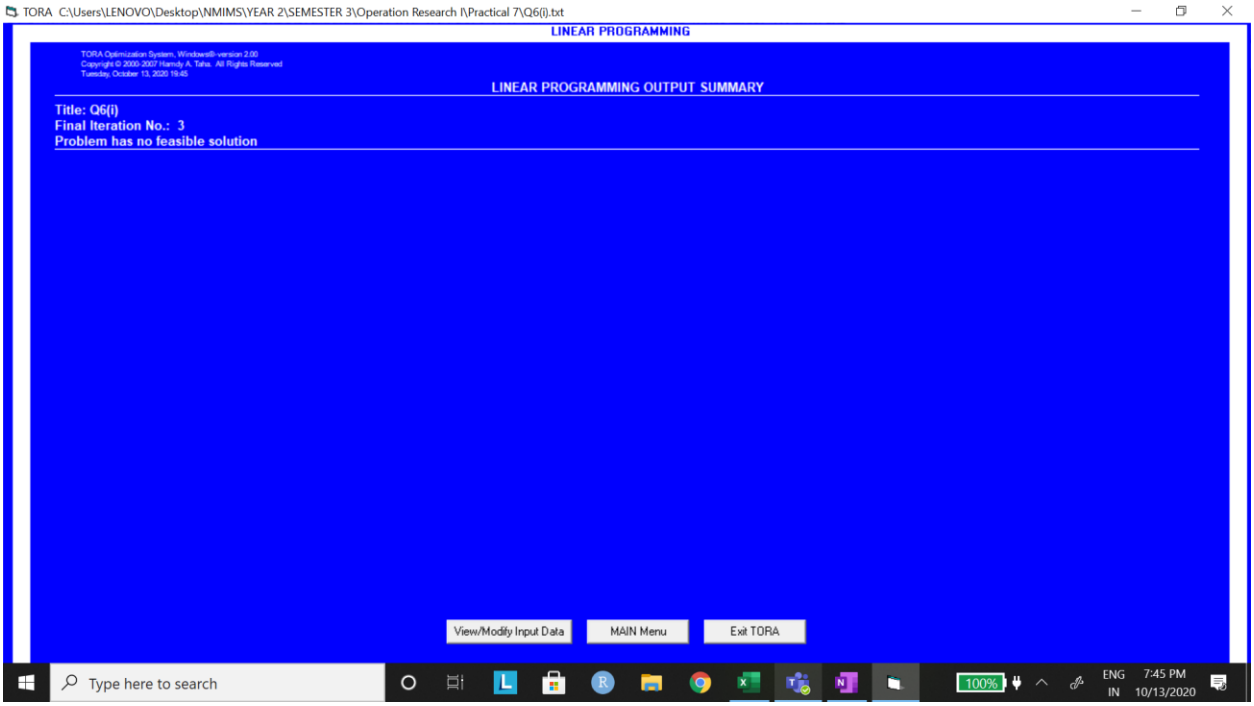
Variable	Value	Obj Coeff	Obj Val Contrib
x1: x1	50.00	12.00	600.00
x2: x2	100.00	12.00	1200.00
x3: x3	250.00	15.00	3750.00
x4: x4	150.00	24.00	3600.00
x5: x5	100.00	22.00	2200.00
x6: x6	0.00	23.00	0.00

Constraint	RHS	Slack-/Surplus+
1 (<)	400.00	0.00
2 (<)	250.00	0.00
3 (=)	200.00	0.00
4 (=)	100.00	0.00
5 (=)	250.00	0.00

Sensitivity Analysis

Variable	Current Obj Coeff	Min Obj Coeff	Max Obj Coeff	Reduced Cost
x1: x1	12.00	2.00	15.00	0.00
x2: x2	12.00	6.00	infinity	0.00
x3: x3	15.00	9.00	infinity	0.00
x4: x4	24.00	21.00	34.00	0.00
x5: x5	22.00	12.00	28.00	0.00
x6: x6	23.00	-infinity	29.00	6.00

Constraint	Current RHS	Min RHS	Max RHS	Dual Price
1 (<)	400.00	350.00	550.00	10.00
2 (<)	250.00	150.00	infinity	22.00
3 (=)	200.00	50.00	300.00	2.00
4 (=)	100.00	0.00	150.00	2.00
5 (=)	250.00	100.00	300.00	5.00


TORA C:\Users\LENOVO\Desktop\NMIMS\YEAR 2\SEMESTER 3\Operation Research I\Practical 7\Q6(i).txt
LINEAR PROGRAMMING
TORA Optimization System, Windows® version 2.00
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Tuesday, October 13, 2020 19:45
LINEAR PROGRAMMING OUTPUT SUMMARY
Title: Q6(i)
Final Iteration No.: 3
Problem has no feasible solution
View/Modify Input Data
MAIN Menu
Exit TORA
Type here to search
100%
ENG
IN
7:45 PM
10/13/2020

Tuesday, October 13, 2020 19:47

LINEAR PROGRAM -- ORIGINAL DATA

Title: Q6(ii)

	x1	x2		
	x1	x2		
Maximize	8.00	16.00		
Subject to				
(1)	1.00	1.00	<=	200.00
(2)	0.00	1.00	<=	125.00
(3)	3.00	6.00	<=	900.00
Lower Bound	0.00	0.00		
Upper Bound	infinity	infinity		
Unrestr'd (y/n)?	n	n		

LINEAR PROGRAMMING OUTPUT SUMMARY

Title: Q6(ii)
Final Iteration No.: 3
Objective Value = 2400

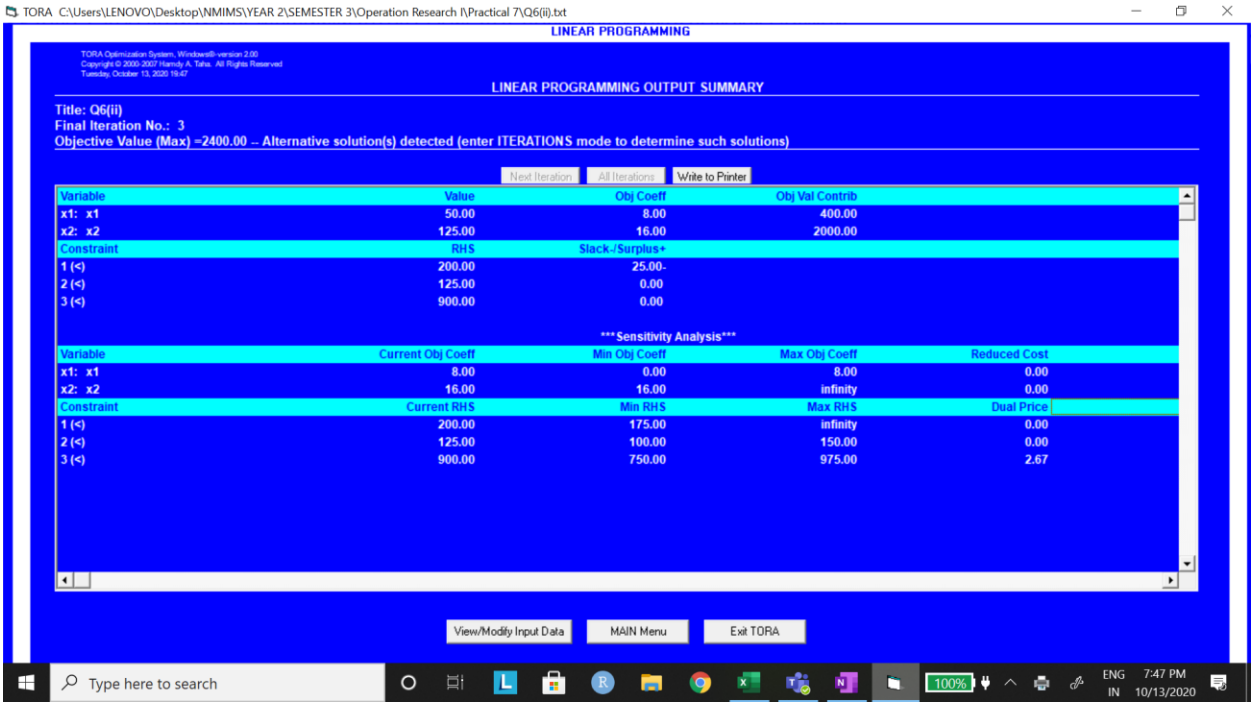
Variable	Value	Obj Coeff	Obj Val Contrib
x1: x1	50.00	8.00	400.00
x2: x2	125.00	16.00	2000.00

Constraint	RHS	Slack-/Surplus+
1 (<)	200.00	25.00-
2 (<)	125.00	0.00
3 (<)	900.00	0.00

Sensitivity Analysis

Variable	Current Obj Coeff	Min Obj Coeff	Max Obj Coeff	Reduced Cost
x1: x1	8.00	0.00	8.00	0.00
x2: x2	16.00	16.00	infinity	0.00

Constraint	Current RHS	Min RHS	Max RHS	Dual Price
1 (<)	200.00	175.00	infinity	0.00
2 (<)	125.00	100.00	150.00	0.00
3 (<)	900.00	750.00	975.00	2.67


TORA C:\Users\LENOVO\Desktop\NMIMS\YEAR 2\SEMESTER 3\Operation Research I\Practical 7\Q6(ii).txt
LINEAR PROGRAMMING
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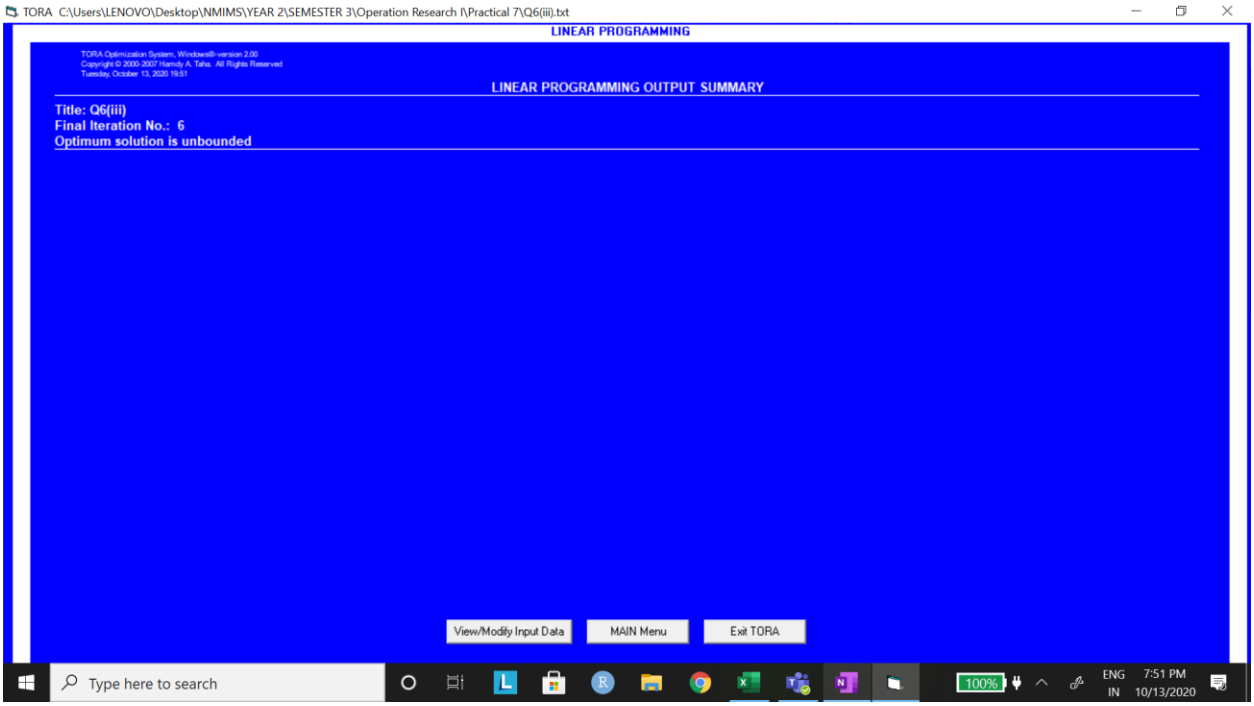
Tuesday, October 13, 2020 19:47
LINEAR PROGRAMMING OUTPUT SUMMARY
Title: Q6(ii)
Final Iteration No.: 3
Objective Value (Max) =2400.00 -- Alternative solution(s) detected (enter ITERATIONS mode to determine such solutions)
Next Iteration
All Iterations
Write to Printer
Variable Value Obj Coeff Obj Val Contrib
x1: x1 50.00 8.00 400.00
x2: x2 125.00 16.00 2000.00
Constraint RHS Slack-/Surplus+
1 (<) 200.00 25.00-
2 (<) 125.00 0.00
3 (<) 900.00 0.00
Sensitivity Analysis
Variable Current Obj Coeff Min Obj Coeff Max Obj Coeff Reduced Cost
x1: x1 8.00 0.00 8.00 0.00
x2: x2 16.00 16.00 infinity 0.00
Constraint Current RHS Min RHS Max RHS Dual Price
1 (<) 200.00 175.00 infinity 0.00
2 (<) 125.00 100.00 150.00 0.00
3 (<) 900.00 750.00 975.00 2.67
View/Modify Input Data
MAIN Menu
Exit TORA
Type here to search
100%
ENG
IN
7:47 PM
10/13/2020


TORA C:\Users\LENOVO\Desktop\NMIMS\YEAR 2\SEMESTER 3\Operation Research I\Practical 7\Q6(iii).txt
LINEAR PROGRAMMING
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Tuesday, October 13, 2020 19:51
LINEAR PROGRAMMING OUTPUT SUMMARY
Title: Q6(iii)
Final Iteration No.: 6
Optimum solution is unbounded
View/Modify Input Data
MAIN Menu
Exit TORA
Type here to search
100%
ENG
IN
7:51 PM
10/13/2020