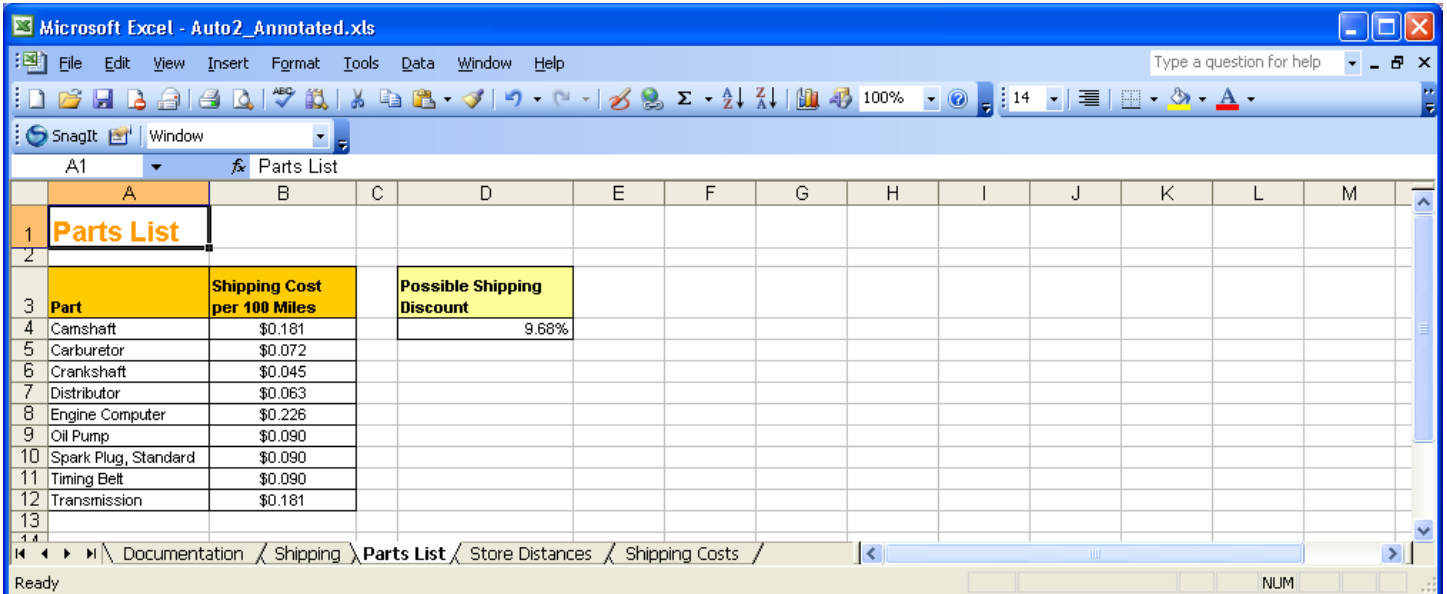
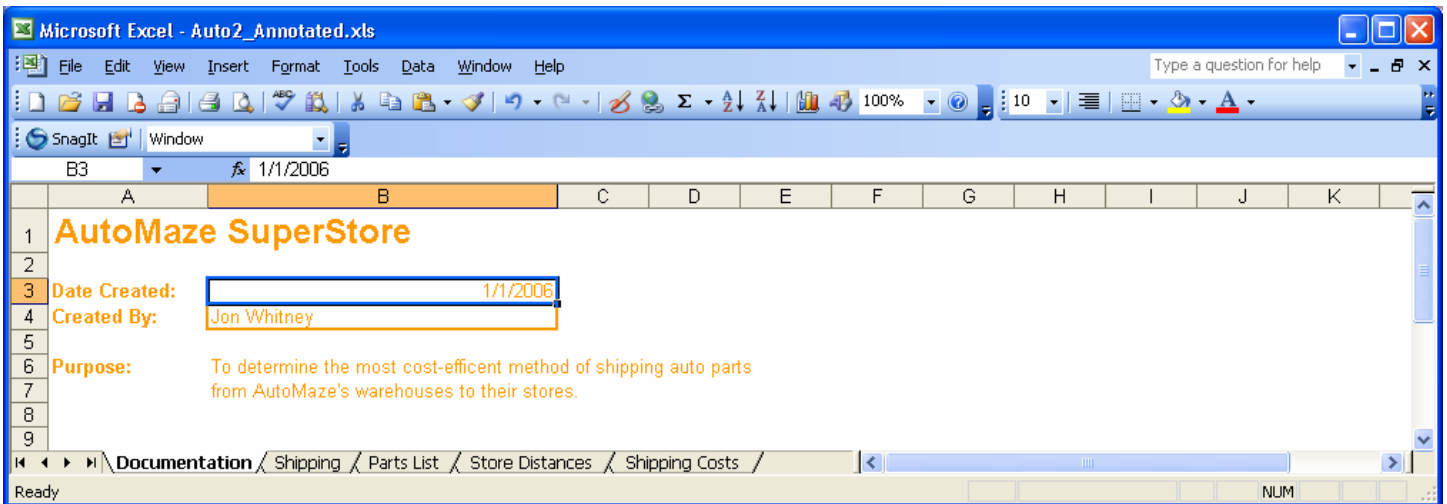


Grading Rubric – Excel 2003 Tutorial 10, Case Problem 1

Solution File(s): *Auto2.xls*

Description	Pts	Your Score
(not shown) Solver model creates that minimizes total shipping cost by changing the values in the range B29:U37 with the following constraints: a) the number of parts (B29:U37) must be an integer b) the number of shipped parts (B29:U37) must be great than or equal to zero c) the number parts requested (B17:F25) must be equal to the number of parts shipped (B65:F73) d) the number of parts remaining in stock (B53:E61) must be greater than or equal to zero	8	
(not shown) Maximum number of iterations set to 200 and the model set as linear	3	
Solver model applied	2	
Solver model saved in range A79:A85 with appropriate label in cell A78	2	
TOTAL POSSIBLE POINTS:	15	

YOUR SCORE: _____ out of 15



Microsoft Excel - Auto2_Annotated.xls

File Edit View Insert Format Tools Data Window Help

Shipping Schedule

Warehouse Stock				
Part	Richmond	Chicago	Dallas	Sacramento
Camshaft	50	160	60	100
Carburetor	97	165	11	103
Crankshaft	123	245	91	153
Distributor	104	155	53	96
Engine Computer	52	50	22	81
Oil Pump	105	200	75	125
Spark Plug, Standard	120	240	90	150
Timing Belt	38	150	56	93
Transmission	75	150	54	92

Store Requests					
Part	Roseton	Atlanta	Minneapolis	Denver	Los Angeles
Camshaft	10	50	90	50	60
Carburetor	70	40	30	50	80
Crankshaft	30	100	80	130	100
Distributor	30	60	50	30	70
Engine Computer	20	30	65	50	30
Oil Pump	60	110	40	90	50
Spark Plug, Standard	90	20	110	100	80
Timing Belt	50	40	60	40	70
Transmission	30	40	30	50	30

Orders Shipped																				
Part	From Richmond Tx:					From Chicago Tx:					From Dallas Tx:					From Sacramento Tx:				
	Roseton	Atlanta	Minneapolis	Denver	Los Angeles	Roseton	Atlanta	Minneapolis	Denver	Los Angeles	Roseton	Atlanta	Minneapolis	Denver	Los Angeles	Roseton	Atlanta	Minneapolis	Denver	
Camshaft	10	50	0	0	0	0	0	90	0	0	0	0	0	0	11	0	0	0	0	
Carburetor	70	27	0	0	0	0	13	30	16	0	0	0	0	0	0	0	0	0	23	
Crankshaft	20	100	0	0	0	0	0	80	0	0	0	0	0	91	0	0	0	0	39	
Distributor	20	60	0	0	0	0	0	50	0	0	0	0	0	30	0	0	0	0	9	
Engine Computer	20	30	15	0	0	0	0	50	0	0	0	0	0	22	0	0	0	0	28	
Oil Pump	60	45	0	0	0	0	15	40	0	0	0	0	0	75	0	0	0	0	15	
Spark Plug, Standard	90	20	0	0	0	0	0	110	0	0	0	0	0	90	0	0	0	0	10	
Timing Belt	38	0	0	0	0	0	12	40	60	0	0	0	0	40	0	0	0	0	0	
Transmission	30	40	0	0	0	0	0	30	0	0	0	0	0	50	0	0	0	0	0	

Orders Received																				
Part	In Roseton From:				In Atlanta From:				In Minneapolis From:				In Denver From:				In Los Angeles From:			
	Richmond	Chicago	Dallas	Sacramento	Richmond	Chicago	Dallas	Sacramento	Richmond	Chicago	Dallas	Sacramento	Richmond	Chicago	Dallas	Sacramento	Richmond	Chicago	Dallas	
Camshaft	10	0	0	0	50	0	0	0	0	0	90	0	0	0	0	11	0	0	0	
Carburetor	70	0	0	0	27	13	0	0	0	0	30	0	0	0	16	11	23	0	0	
Crankshaft	20	0	0	0	100	0	0	0	0	0	80	0	0	0	91	0	0	0	0	
Distributor	20	0	0	0	60	0	0	0	0	0	50	0	0	0	30	0	0	0	0	
Engine Computer	20	0	0	0	30	0	0	0	0	15	50	0	0	0	22	28	0	0	0	
Oil Pump	60	0	0	0	45	65	0	0	0	0	40	0	0	0	75	15	0	0	0	
Spark Plug, Standard	90	0	0	0	20	0	0	0	0	0	110	0	0	0	90	10	0	0	0	
Timing Belt	38	0	0	0	0	40	0	0	0	0	60	0	0	0	40	0	0	0	0	
Transmission	30	0	0	0	40	0	0	0	0	0	30	0	0	0	50	0	0	0	0	

Remaining Warehouse Stock				
Part	Richmond	Chicago	Dallas	Sacramento
Camshaft	20.00	70.00	10.00	40.00
Carburetor	0.00	106.00	0.00	0.00
Crankshaft	3.00	165.00	0.00	14.00
Distributor	14.00	405.00	55.00	54.00

Documentation \ Shipping \ Parts List \ Store Distances \ Shipping Costs

(not shown) Solver model creates that minimizes total shipping cost by changing the values in the range B29:U37 with the following constraints:

- the number of parts (B29:U37) must be an integer
- the number of shipped parts (B29:U37) must be greater than or equal to zero
- the number parts requested (B17:F25) must be equal to the number of parts shipped (B65:F73)
- the number of parts remaining in stock (B53:E61) must be greater than or equal to zero

(not shown) Maximum number of iterations set to 200 and the model set as linear

Solver model applied

Close up of annotations

(not shown) Solver model applied	(not shown) Maximum number of iterations set to 200 and the model set as linear	(not shown) Solver model creates that minimizes total shipping cost by changing the values in the range B29:U37 with the following constraints:
		<ol style="list-style-type: none"> the number of parts (B29:U37) must be an integer the number of shipped parts (B29:U37) must be greater than or equal to zero the number parts requested (B17:F25) must be equal to the number of parts shipped (B65:F73) the number of parts remaining in stock (B53:E61) must be greater than or equal to zero

Microsoft Excel - Auto2_Annotated.xls

File Edit View Insert Format Tools Data Window Help

SnagIt Window

A1 Store Distances

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Store Distances												
2													
3		Warehouse											
4	SuperStore Location	Richmond	Chicago	Dallas	Sacramento								
5	Reston	98 mi	580 mi	1,167 mi	2,359 mi								
6	Atlanta	469 mi	585 mi	717 mi	2,083 mi								
7	Minneapolis	967 mi	354 mi	860 mi	1,514 mi								
8	Denver	1,484 mi	911 mi	660 mi	894 mi								
9	Los Angeles	2,293 mi	1,749 mi	1,251 mi	351 mi								
10													
11													
12													
13													
14													
15													

Documentation Shipping Parts List Store Distances Shipping Costs

Ready NUM

Microsoft Excel - Auto2_Annotated.xls

File Edit View Insert Format Tools Data Window Help

SnagIt Window

A1 Shipping Costs

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	
1	Shipping Costs																					
2																						
3	Shipping Costs	From Richmond To:				From Chicago To:				From Dallas To:				From Sacramento To:								
4	Part	Reston	Atlanta	Minneapolis	Denver	Los Angeles	Reston	Atlanta	Minneapolis	Denver	Los Angeles	Reston	Atlanta	Minneapolis	Denver	Los Angeles	Reston	Atlanta	Minneapolis	Denver	Los Angeles	
5	Camshaft	\$1.77	\$42.34	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$57.55	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$59.61	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.04
6	Carburetor	\$4.96	\$9.15	\$0.00	\$0.00	\$0.00	\$0.00	\$5.49	\$7.67	\$10.53	\$0.00	\$0.00	\$0.00	\$0.00	\$5.25	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$14.84	\$20.29
7	Crankshaft	\$1.33	\$21.18	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.79	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.12	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$15.74	\$15.83
8	Distributor	\$1.34	\$17.79	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$11.19	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.52	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$15.53
9	Engine Computer	\$4.43	\$31.77	\$32.75	\$0.00	\$0.00	\$0.00	\$0.00	\$29.97	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$32.79	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$56.52	\$23.78
10	Oil Pump	\$5.21	\$19.06	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$12.79	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$44.71	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.11	\$15.83
11	Spark Plug, Standard	\$7.97	\$3.47	\$0.00	\$0.00	\$0.00	\$0.00	\$20.00	\$35.17	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$52.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.07	\$25.34
12	Timing Belt	\$3.34	\$0.00	\$0.00	\$0.00	\$0.00	\$6.29	\$21.13	\$19.18	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$23.84	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.19
13	Transmission	\$5.21	\$23.89	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19.18	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$59.61	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$50.72
14																						
15																						
16																						
17																						

Documentation Shipping Parts List Store Distances Shipping Costs

Ready NUM