Supply Chain Systems Logility Exercise

Overview

This exercise exposes you to a software package called Logility Value Chain Solutions (LVCS). This package is a leader in the category of collaborative planning, forecasting, and replenishment (CPFR) software. Logility donated the package to SU[1]; it has a market value of about $500,000, though there are additional fees for servers, annual maintenance, education, and consulting.

The Two Parts of the Exercise

The exercise is comprised of two parts that are completed by each group. The first part familiarizes you with some of the forecasting screens and some of the tools that support the development of forecasts. You will

1. select a product from one of the three company divisions (i.e., bakery, office, vending),
2. develop national product forecasts by month using different forecasting methods,
3. select the most accurate forecasting method (when used to forecast demand in past periods) and save these forecasts,
4. force your updated forecasts down to more detailed levels (e.g., so the forecasts for your product at all of the stores in all of the cities add up to your new national forecasts),
5. update the aggregate forecasts that are affected by your new national forecasts for your product (e.g., so the product category forecast is based on the sum of all of the product forecasts in the category, and that the division forecast is based on the sum of all of the product category forecasts).

Part I of this exercise gives you a small peek into how the software can be used to help develop and manage demand forecasts. A sample deliverable that you can use as a template for this part of the exercise can be found below.

Part II goes after one of your most wonderful of traits—curiosity. This package has an excellent online help facility.[2] For Part II, you will play with the system while reading help documents on areas of interest, then show and tell me what you learned. You may wish to take about 15 or 30 minutes more or less randomly scanning categories and subtopics in the help contents, perhaps trying out some of the things you are reading about. Once you find an aspect of the system that interests you, investigate in some depth and try to develop a good understanding of it.[3] Here is what you will need to submit:

1. A summary of what you discovered. This is limited to a maximum of one page (12-point font, single-spaced). Make sure that the summary is well written (i.e., free of grammatical and spelling errors, and well organized).

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[1]You might even send a brief word of thanks to Mr. Bob Cowdrick (bcowdrick@logility.com) if you feel that access to this software is especially useful to you.

[2]You can view the contents and the index of the help facility by clicking on the question mark in the upper right of the LVCS window. The help is context sensitive (i.e., brings up information related to the screen where help was accessed). In total, the help facility has the equivalent of about 1,300 8.5"× 11" pages worth of content.

[3]If you run into something you're curious about and you cannot find the answer in the help facility, you may send me the question via email. I will compile and send to Bob Cowdrick. He may not be able to answer, but if he sends a reply, then I'll post the question and answer on our class website.

2. An appendix that contains at least 4 relevant screenshots from your journey along with supporting narrative. Essentially you will be illustrating the things you learned by showing and explaining some of the screenshots related to the aspect of the software you investigated. The supporting narratives should be brief, to the point, and well written.

Accessing Logility, and Sources for More Information

We have installed the software on machines in Ballentine (3rd floor of SOM), the computer cluster in room 319, and on the machines in the breakout rooms adjacent to Ballentine. If you are using a machine in room 319, then you will need to boot up under Windows 98 (i.e., select "Shutdown", then "Shutdown and Restart", then select "**Win98 [modifiable]**" from the 4 options). This is the second of the four boot options – make sure you **do not select the third option**.

You may find the program under the name of Logility Value Chain Solutions (go to Programs under the Start menu, or click the Logility pyramid icon on the desktop). Once you double click on the application, you will be asked for a user ID and password.
User ID: scm
Password: scm

After you have opened the application, feel free to browse through the system, trying out the various buttons at the top of the window. The work for part I of the exercise is under *Day-to-Day Planning – Forecasts*, so you may wish to focus your browsing here.

Here are sources for more information on the package (optional viewing):
- Logility's home page: **http://www.logility.com/**
- VICS CPFR site: **http://cpfr.org/** - VICS is a committee that develops guidelines and standards for CPFR
- *CPFR for Beginners* overheads (available for download on class website) – these overheads give an overview of CPFR. (It is fine to disable macros when opening this file.)
- *Demand Planning* overheads (available for download on class website) – these overheads cover navigation and functionality related to developing and managing forecasts. The coverage is closely related to part I of the exercise. The beginning talks about setting up a Logility project and provides an overview of the software structure. The content on navigation and forecasting begins on page 29.

The Part I Template

The following pages illustrate what you will submit for Part I of this exercise. You will need to delete all of the screenshots currently in the file and paste your own screenshots as you work through the 15 steps. Here is one way to paste screenshots into a document in case you haven't done this before. When viewing a screen in Logility, hit the *Alt+Print Screen* button. This will copy the image of the current open window into your *clipboard*. Then go to your Word document, place the cursor where you want the screenshot to appear, and hit *Ctrl+V*.

Part I Example (for use as a template for your assignment)

Group number: [group number here]
Group members: [list of group members here]

1. Select a level 3 product. When you do this, select a product with forecast inconsistency between levels 2 and 3 (this ensures that you are not picking a product that has already been processed by a different group). You can check for forecast inconsistency by going to the *Day-to-Day Planning – Forecasts – View tab* screen and select level 3. Then click the *Group-to-Item* button. This shows all of the level 2 products that make up the higher level 3 product that is identified in the top left of the window. A forecast inconsistency occurs when the numbers in the *Item Totals* row are different from the *Group Forecasts* row. You can scan through the products by clicking the blue arrows at the top. Once you have identified a level 3 product with forecast inconsistency, identify the product and paste the screenshot below. Note that you can adjust the width of column 1 (i.e., the column with the Item heading) by dragging the column border with your mouse. In this way you will be able to read the entire item code for all of the "children" of your selected product.

Our product: [your product here, e.g., D 3 TART BLUEBERRY for this example; do not select D 3 TART BLUEBERRY as your product]

2. Identify the children of the first child of your selected product (move down the pyramid to the first child, then paste the screenshot of the *Group-to-Item* screen; if necessary, expand the width of column 1 to display the entire item code by dragging the column border with your mouse):

Logility Value Chain Solutions

File Edit View Express Preferences Window Help

Group-To-Item - D 2 TART BLUEBERRY   ATL

Description: BLUEBERRY TART - 6 PACK   In: Base Unit   As of: 1999/01

Item	Description	2/99	Ind	3/9
TART BLUEBERRY ATL ALL OTHER	BLUEBERRY TART - 6 PACK	4,754	H	
TART BLUEBERRY ATL BUDGET	BLUEBERRY TART - 6 PACK	7,289	H	
TART BLUEBERRY ATL PREMIUM	BLUEBERRY TART - 6 PACK	4,754	H	

Item Totals: 16797   17837   18013

Group Forecasts: 18728 H   18997 H   18955 H

Preview   Save   Close   Reset   Options...

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3. Display forecasts for the product (paste screenshot from the *Day-to-Day Planning – Forecasts – View tab – Demand and Forecast*):

Logility Value Chain Solutions

File Edit View Express Preferences Window Help

Demand And Forecast - D 3 TART BLUEBERRY

Description: BLUEBERRY TART - 6 PACK   In: Base Unit   As of: 1999/01

Future Period	Actual Demand 3 Years Ago	Actual Demand 2 Years Ago	Actual Demand 1 Year Ago	Forced System Forecast	Management Override	Ind	Resultant Forecast
99/02	94,457	100,503	103,063	107,324	0	H	107,324
99/03	94,415	103,327	106,154	109,721	0	H	109,721
99/04	97,128	99,523	105,304	108,770	0	H	108,770
99/05	95,542	98,718	104,221	107,694	0	H	107,694
99/06	96,827	100,539	106,460	109,638	0	H	109,638
99/07	96,457	100,604	105,096	109,081	0	H	109,081
99/08	96,895	100,329	103,774	108,183	0	H	108,183
99/09	104,708	108,168	111,841	116,646	0	H	116,646
99/10	104,610	107,848	109,121	115,517	0	H	115,517
99/11	103,546	106,437	109,311	114,590	0	H	114,590
99/12	104,729	107,797	110,429	115,950	0	H	115,950
00/01	103,099	106,158	0	80,576	0	H	80,576
Total	1,192,413	1,239,951	1,174,774	1,303,690	0		1,303,690

Preview   Save   Close   Reset   Options...   Profile...

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4. Calculate and display new forecasts for your product using the *Moving Average* method (go to *Day-to-Day Planning – Forecasts – Action tab*, click the *Calculate forecast…* button, select *Moving Average* as the *Forecast Type*, then click the *Process* button, then paste the screenshot of the original and revised forecasts):

Calculate Forecast Results 2 - D 3 TART BLUEBERRY ☒

Description: BLUEBERRY TART - 6 PACK   In: UNITS

Calculation Results

Period	Adjusted Demand	Ind	Original Forecast	Revised Forecast	System Forecast	Revised Forecast
			Historical Data		Future Data Beginning 99/02	
1998/02	103,063	N	103,239	103,074	107,324	101,377
1998/03	106,154	N	107,203	103,329	109,721	101,377
1998/04	105,304	N	106,130	103,543	108,770	101,377
1998/05	104,221	N	105,225	103,778	107,694	101,377
1998/06	106,460	N	107,084	104,260	109,638	101,377
1998/07	105,096	N	106,698	104,719	109,081	101,377
1998/08	103,774	N	106,118	105,212	108,183	101,377
1998/09	111,841	N	114,459	105,586	116,646	101,377
1998/10	109,121	N	113,764	105,873	115,517	101,377
1998/11	109,311	N	112,519	106,179	114,590	101,377
1998/12	75,948	P	113,596	106,286	115,950	101,377
1999/01	76,227	P	67,482	106,525	80,576	101,377
TOTALS	1,216,520		1,263,517	1,258,364	1,303,690	1,216,524
Standard Deviation:			11846.83	13198.4		

Save   Cancel   More…   Help

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5. If your new forecast method is more accurate then the original forecast method when used to predict historical demand (i.e., a lower *Standard Deviation*), then save the forecast (i.e., click the *Save* button); otherwise *Cancel*. Now calculate and display new forecasts for your product using the *Non-Seasonal* method (follow step 4 except select *Non-Seasonal* as the *Forecast Type*, then click the *Process* button, then paste the screenshot of the original and revised forecasts):

Calculate Forecast Results 2 - D 3 TART BLUEBERRY   ☒

Description: BLUEBERRY TART - 6 PACK   In: UNITS

Calculation Results

Period	Historical Data				Future Data Beginning 99/02	
	Adjusted Demand	Ind	Original Forecast	Revised Forecast	System Forecast	Revised Forecast
1998/02	103,063	N	103,239	104,803	107,324	106,387
1998/03	106,154	N	107,203	105,191	109,721	106,562
1998/04	105,304	N	106,130	105,352	108,770	106,730
1998/05	104,221	N	105,225	105,703	107,694	106,889
1998/06	106,460	N	107,084	105,976	109,638	107,042
1998/07	105,096	N	106,698	106,159	109,081	107,187
1998/08	103,774	N	106,118	106,474	108,183	107,324
1998/09	111,841	N	114,459	106,678	116,646	107,453
1998/10	109,121	N	113,764	106,776	115,517	107,575
1998/11	109,311	N	112,519	107,397	114,590	107,690
1998/12	75,948	P	113,596	107,816	115,950	107,796
1999/01	76,227	P	67,482	108,226	80,576	107,895
TOTALS	1,216,520		1,263,517	1,276,551	1,303,690	1,286,530
Standard Deviation:			11846.83	13784.48		

Save   Cancel   More...   Help

6. If your new forecast method is more accurate then the original forecast method when used to predict historical demand (i.e., a lower *Standard Deviation*), then save the forecast (i.e., click the *Save* button); otherwise *Cancel*. Now calculate and display new forecasts for your product using the *Patterned* method (follow step 5 except select *Patterned* as the *Forecast Type*, then click the *Process* button, then paste the screenshot of the original and revised forecasts):

Calculate Forecast Results 2 - D 3 TART BLUEBERRY					✕
Description: BLUEBERRY TART - 6 PACK				In: UNITS	
Calculation Results					
Historical Data				**Future Data Beginning 99/02**	
Period	Adjusted Demand	Ind	Original Forecast	Revised Forecast	System Forecast	Revised Forecast
1998/02	103,063	N	103,239	104,299	107,324	104,547
1998/03	106,154	N	107,203	104,195	109,721	104,664
1998/04	105,304	N	106,130	104,111	108,770	104,777
1998/05	104,221	N	105,225	104,049	107,694	104,884
1998/06	106,460	N	107,084	104,007	109,638	104,987
1998/07	105,096	N	106,698	103,986	109,081	105,084
1998/08	103,774	N	106,118	104,049	108,183	105,177
1998/09	111,841	N	114,459	104,059	116,646	105,255
1998/10	109,121	N	113,764	104,090	115,517	105,337
1998/11	109,311	N	112,519	104,143	114,590	105,414
1998/12	75,948	P	113,596	75,935	115,950	105,486
1999/01	76,227	P	67,482	76,004	80,576	105,554
TOTALS	1,216,520		1,263,517	1,192,927	1,303,690	1,261,166
Standard Deviation:			11846.83	3394.81		

Save   Cancel   More...   Help

7. If your new forecast method is more accurate then the original forecast method when used to predict historical demand (i.e., a lower *Standard Deviation*), then save the forecast (i.e., click the *Save* button); otherwise *Cancel*. Now calculate and display new forecasts for your product using the *Seasonal* method (follow step 6 except select *Seasonal* as the *Forecast Type*, then click the *Process* button, then paste the screenshot of the original and revised forecasts):

Calculate Forecast Results 2 - D 3 TART BLUEBERRY					⊠
Description: BLUEBERRY TART - 6 PACK			In: UNITS		
Calculation Results					
Historical Data				**Future Data Beginning 99/02**	
Period	Adjusted Demand	Ind	Original Forecast	Revised Forecast	System Forecast	Revised Forecast
1998/02	103,063	N	104,299	108,353	104,547	87,449
1998/03	106,154	N	104,195	117,942	104,664	86,323
1998/04	105,304	N	104,111	114,710	104,777	82,787
1998/05	104,221	N	104,049	111,468	104,884	79,347
1998/06	106,460	N	104,007	111,203	104,987	78,243
1998/07	105,096	N	103,986	107,812	105,084	75,002
1998/08	103,774	N	104,049	105,125	105,177	72,012
1998/09	111,841	N	104,059	111,201	105,255	74,708
1998/10	109,121	N	104,090	108,556	105,337	71,411
1998/11	109,311	N	104,143	106,707	105,414	68,382
1998/12	75,948	P	75,935	95,466	105,486	58,548
1999/01	76,227	P	76,004	92,790	105,554	56,659
TOTALS	1,216,520		1,192,927	1,291,333	1,261,166	890,871
Standard Deviation:			3394.81	9546.18		

Save   Cancel   More...   Help

8. Which of the methods (including the original) was the most accurate against historical data? [your answer here; an answer for this example: "The patterned method was the most accurate when measured according to the standard deviation (i.e., standard deviation = 3394.1). The second most accurate method against history was the seasonal method with standard deviation = 9546.18. The original method resulted in a standard deviation of 11846.83."]

9. Review and display the forecasts of the children of your selected product (paste screenshot from the *Day-to-Day Planning – Forecasts – View tab – Group-to-Item* screen; if necessary, expand the width of column 1 to display the entire item code by dragging the column border with your mouse):

Item	Description	2/99	Ind	3/99	Ind	4/99
TART BLUEBERRY ATL	BLUEBERRY TART -	18,728	H	18,997	H	18,95
TART BLUEBERRY ED'S SF	BLUEBERRY TART -	2,771	H	2,859	H	2,80
TART BLUEBERRY LAX	BLUEBERRY TART -	21,412	H	21,691	H	21,21
TART BLUEBERRY LON	BLUEBERRY TART -	910	H	923	H	92
TART BLUEBERRY MAD	BLUEBERRY TART -	14,247	H	14,703	H	14,43
TART BLUEBERRY MOM'S	BLUEBERRY TART -	1,091	H	1,104	H	1,08
TART BLUEBERRY NYC	BLUEBERRY TART -	10,972	H	11,491	H	11,70
TART BLUEBERRY SEA	BLUEBERRY TART -	1,329	H	1,366	H	1,34

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Group-To-Item - D 3 TART BLUEBERRY
Description: BLUEBERRY TART - 6 PACK   In: Base Unit   As of: 1999/01

Item Totals: 71460   73134   72474

Group Forecasts: 104547 H   104664 H   104777 H

Preview   Save   Close   Reset   Options...

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10. If any of the group forecasts for the first 3 periods do not match item totals of the children, then you have a forecast inconsistency across levels of this product. The forecast forcing step will force the sum of the forecasts of all the children of a product to equal the forecast of the parent (the percentage contribution of each child to the total will remain fixed). Force the (potentially new) forecasts for your selected product down through its children and grandchildren (i.e., levels 2 and 1) and display the results. In order to do this, go to *Calculations – Force Forecasts*, set the *Highest Forcing Level* to 3, the *Lowest Forcing Level* to 1, and click the *Process* button followed by the *Save* button. Display the downward forecast consistency for the children of your selected product (paste screenshot from the *Day-to-Day Planning – Forecasts – View tab – Group-to-Item* screen; if necessary, expand the width of column 1 to display the entire item code by dragging the column border with your mouse):

11. Display the downward forecast consistency for the children of the first child of your selected product (move down the pyramid to the first child, then paste the screenshot of the *Group-to-Item* screen; if necessary, expand the width of column 1 to display the entire item code by dragging the column border with your mouse):

12. Display all the children of the parent of your selected product (from the *Day-to-Day Planning – Forecasts – View tab* screen with your product selected, click the *up pyramid* icon on the tool bar at the top, then click the *Group-to-Item* button, and paste).

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File   Edit   View   Express   Preferences   Window   Help

Group-To-Item - D 4 TART

Description: TART GROUP   In: Base Unit   As of: 1999/01

Item	Description	2/99	Ind	3/99	Ind	4/99	Ind
TART APPLE	APPLE TART - 6	25,372	H	26,926	H	26,180	H
TART BLUEBERRY	BLUEBERRY TART -	104,547	H	104,664	H	104,777	H
TART CHERRY	CHERRY TART - 6	49,557	H	52,481	H	52,245	H
TART CRANBERRY NUT	CRANBERRY NUT	88,458	H	93,210	H	92,248	H

Item Totals: 267934   277281   275450

Group Forecasts: 245635   H   260956   H   262660   H

Preview   Save   Close   Reset   Options...

MPM

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13. Display the children of the top-level (level 5) category that contains your selected product (from the screen in step 12, click the *up pyramid* icon on the tool bar at the top, and paste):

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File Edit View Express Preferences Window Help

Group-To-Item - D 5 BAKERY

Description: THE BAKERY COMPANY   In: Base Unit   As of: 1999/01

Item	Description	2/99	Ind	3/99	Ind	4/99	Ind
BREAD	BREAD GROUP	155,615	H	158,202	H	155,000	H
BROWNIE	BROWNIE GROUP	95,162	H	101,866	H	91,190	H
COOKIE	COOKIE GROUP	149,233	H	143,860	H	160,936	H
MUFFIN	MUFFIN GROUP	261,941	H	270,153	H	262,878	H
PIE	PIE GROUP	101,066	H	97,672	H	93,998	H
TART	TART GROUP	245,635	H	260,956	H	262,660	H

Item Totals: 1008652   1032709   1026662

Group Forecasts: 1047196 H   1062731 H   1048836 H

Preview   Save   Close   Reset   Options...

MPM

14. The previous two screenshots may show upward forecast inconsistency (i.e., the sum of the lower level product forecasts to not match the forecasts for the parent). Correct this by summing the level 3 product forecasts to yield the level 4 product forecasts, and summing the level 4 product forecasts to yield the level 5 product forecasts. In order to do this, use the *jump feature* to go to *Calculations – Summarize Demand* (i.e., hit *Ctrl+J* and enter the key code 'SID') and set the switches to match the following,
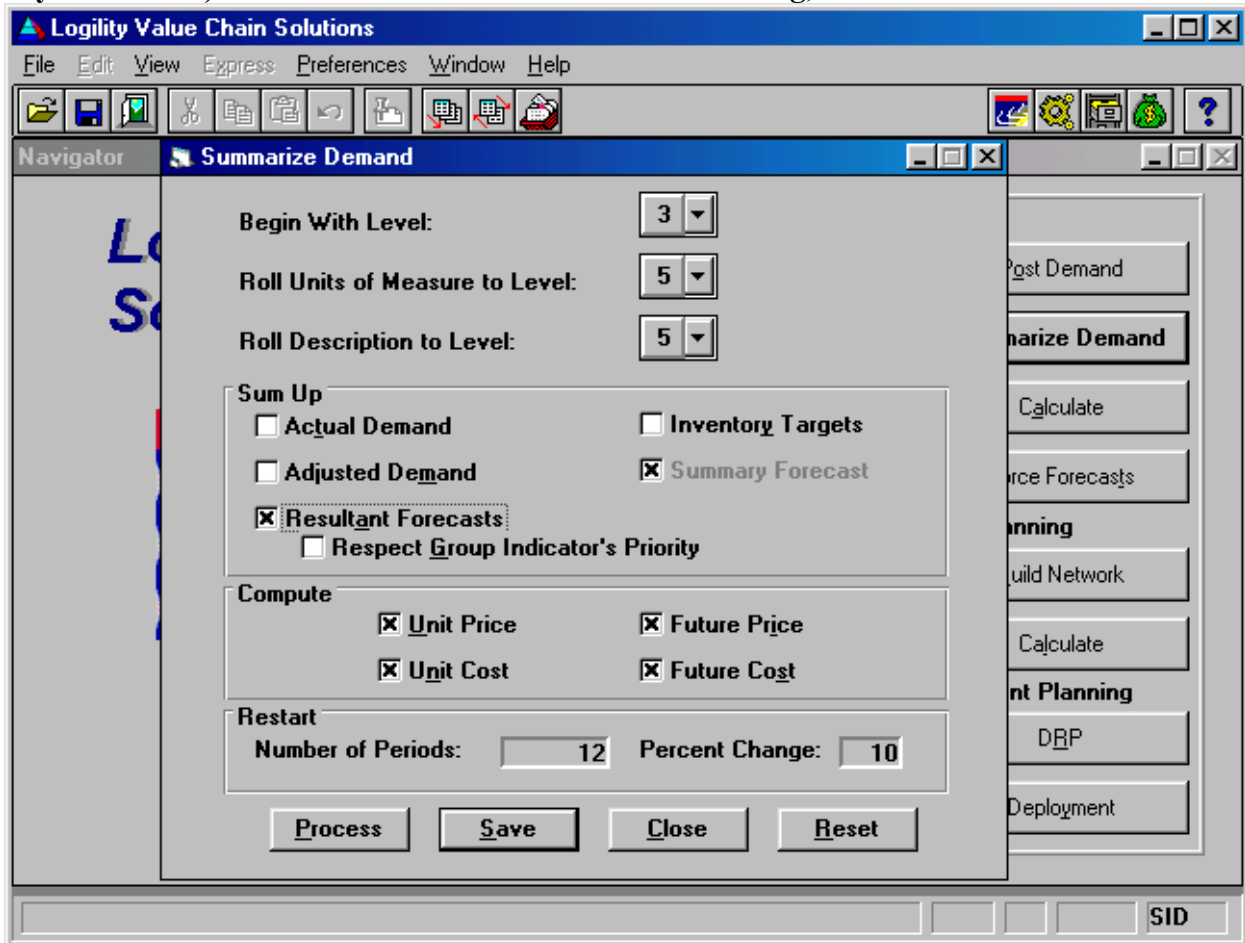
and then click the *Process* button, followed by *Save* button.

15. Display the results of the computation (i.e., the upward forecast consistency). Go to the screens from steps 12 and 13 that now show updated numbers, and paste below:

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File Edit View Express Preferences Window Help

Group-To-Item - D 4 TART

Description: CRANBERRY NUT TART - 6 PACK   In: Base Unit   As of: 1999/01

Item	Description	2/99	Ind	3/99	Ind	4/99	Ind
TART APPLE	APPLE TART - 6	25,372	H	26,926	H	26,180	H
TART BLUEBERRY	BLUEBERRY TART -	104,547	H	104,664	H	104,777	H
TART CHERRY	CHERRY TART - 6	49,557	H	52,481	H	52,245	H
TART CRANBERRY NUT	CRANBERRY NUT	88,458	H	93,210	H	92,248	H

Item Totals: 267934   277281   275450

Group Forecasts: 267934 H   277281 H   275450 H

Preview   Save   Close   Reset   Options...

MPM

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File   Edit   View   Express   Preferences   Window   Help

Group-To-Item - D 5 BAKERY

Description: CRANBERRY NUT TART - 6 PACK   In: Base Unit   As of: 1999/01

Item	Description	2/99	Ind	3/99	Ind	4/99	Ind
BREAD	WHOLE WHEAT	158,149	H	153,550	H	154,429	H
BROWNIE	TURTLE BROWNIE	92,894	H	100,246	H	89,138	H
COOKIE	SHORT BREAD	148,863	H	143,100	H	159,964	H
MUFFIN	BRAN MUFFIN - 12	262,420	H	269,756	H	262,557	H
PIE	PECAN PIE	101,280	H	99,356	H	97,118	H
TART	CRANBERRY NUT	267,934	H	277,281	H	275,450	H

Item Totals: 1031540   1043289   1038656

Group Forecasts: 1031540   H   1043289   H   1038656   H

[Preview]   [Save]   [Close]   [Reset]   [Options...]

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