

Case Study 2: Run Logistics Company with ERPSIM**Table 1: Tasks for running a logistics company**

Simulation Role	Function	Transaction Code
CEO (Team Leader)	Watch financial statement	F.01, page 12
	Check summary sales report	ZVC2, page 11
	Check sales report	ZVA05, page 10
	Check inventory Report	ZMB52, page 10
Sales Manager	Change price	VK32, page 2
	Check summary sales report	ZVC2, page 11
	Check sales report	ZVA05, page 10
Planning Manger	Forecast – create planned indep. Req.	MD61, page 4
	Run MRP	MD01, page 4
	Review MRP Report	MD07, page 6
	Automatic generate POs	ME59N, page 7
	Track purchase order	ZME2N, page 9
MM Manager	Maintain Stock Transfer Planning (Push/Pull)	ZMB1B, page 9
	Check inventory Report	ZMB52, page 10

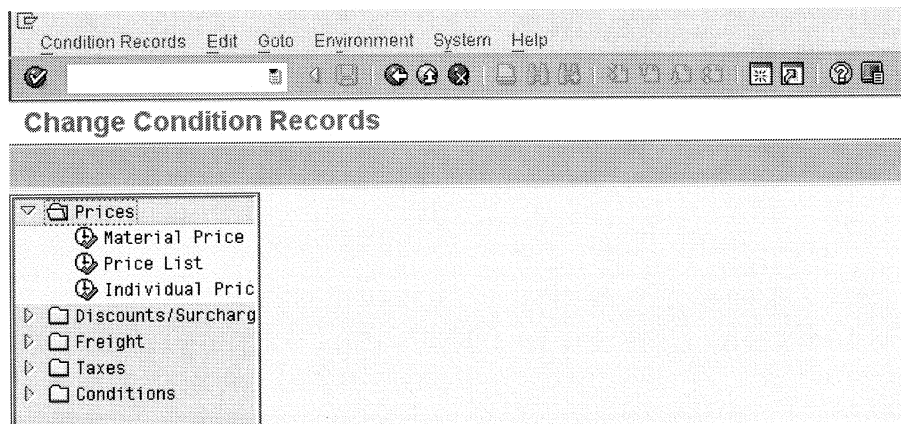
Notes:

If your team has only three members, then your team may combine the roles for CEO and MM manager together.

1. Change Price

(Transaction Code VK32)

- Select Price -> Price List and click on it



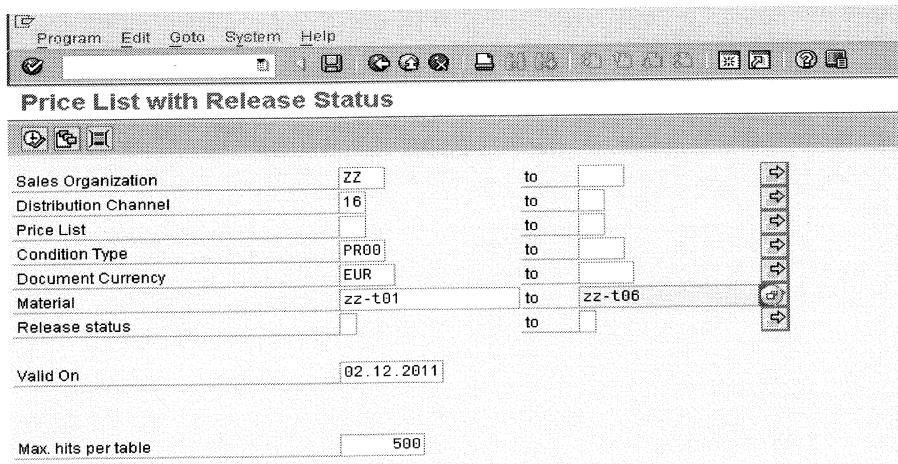
- Enter your company code: \$\$
- Enter distribution channel: 16
- Price List 01
- Condition Type: PR00
- Document Currency: EUR



(ENTER)



Click (EXECUTE)



Change your prices for your products.

Variable key	Amount	Unit	per	UoM	CCen	NumC	B	P	Valid From
PR00 EUR ZZ-T01 Milk	25,25	EUR	1ST						20.06
PR00 EUR ZZ-T02 Cream	79,28	EUR	1ST						20.06
PR00 EUR ZZ-T03 Yoghurt	28,43	EUR	1ST						20.06
PR00 EUR ZZ-T04 Cheese	90,35	EUR	1ST						20.06
PR00 EUR ZZ-T05 Butter	65,67	EUR	1ST						20.06
PR00 EUR ZZ-T06 Ice Cream	47,47	EUR	1ST						20.06



(ENTER)



(SAVE)

2. Create Planned Independent Requirement

(Transaction Code: MD61)

Enter the following information:

- Product Group: \$\$-T
- Plant: \$\$
- Version: 00
- Planned Period: M (month)

Create Planned Independent Requirements: Initial Screen

User Parameters

Planned independent requirements for

☐ Material

☒ Product group **XX-T**

☐ Reqmts Plan

Plant **XX**

Define version

Version **00** REQUIREMENTS PLAN

Planning horizon

From **2013-10-15** To **2014-11-19** Planning period **M** Month



(ENTER), Enter your plan for your products in next month.

Planned indep.reqmts Edit Goto Settings Environment System

Plnd Ind. Reqmts Create: Planning Table

Product group XX-T Product Group X - Trading Goods

Planning start 2013-10-01 Planning End 2014-11-19

Table Items Sched. lines

Material	Plant	V	A	BU	M 10-2013	M 11-2013	M 12-2013	M 01-2014
XX-T01	XX	00	<input checked="" type="checkbox"/>	ST		750		
XX-T02	XX	00	<input checked="" type="checkbox"/>	ST		650		
XX-T03	XX	00	<input checked="" type="checkbox"/>	ST		650		
XX-T04	XX	00	<input checked="" type="checkbox"/>	ST		750		
XX-T05	XX	00	<input checked="" type="checkbox"/>	ST		750		
XX-T06	XX	00	<input checked="" type="checkbox"/>	ST		650		
	XX	00	<input checked="" type="checkbox"/>					



(ENTER)



(SAVE)

3. Run MRP

Allow the system to plan the availability and requirements for your products and all the components.

(Transaction Code MD01)

Enter the following information:

- Enter plant: \$\$
- Processing key: NEUPL
- Create pur. req.: 1
- Deliv. schedule: 3
- Create MRP list: 1
- Planning mode: 3
- Scheduling: 1

Planning Edit Goto Settings System Help

MRP Run

Scope of planning
Plant XX

MRP control parameters

Processing key	NEUPL	Regenerative Planning
Create purchase req.	1	Purchase requisitions
Schedule lines	3	Schedule lines
Create MRP list	1	MRP list
Planning mode	3	Delete and recreate planning data
Scheduling	1	Determination of Basic Dates for Planned
Planning date	2010-06-02	

Process control parameters

☐ Parallel processing
☐ Display material list

User exit: select materials for planning

User exit key
User exit parameter



(ENTER)

- A warning message appears - please check input parameters



(ENTER) again to confirm and bypass the warning message

- Review results



(EXIT)

4. Review MRP Result

(Transaction Code MD07)

- Enter your company code: \$\$
- Enter MRP Controller: 102

Stock/Requirements List: Initial Screen

Individual access Collective access

Plant: ZZ Factory Z

Selection by:

- ☒ MRP controller: 102 Dairy Controller
- ☐ Product group
- ☐ Vendor
- ☐ Production line
- ☐ Class
- ☐ Class Type

Restrict Selection:

Material Data Flags

Procurement type: ☐ ABC Indicator: ☐ MRP Type: ☐

Special procurement: ☐ Plant-sp.matl status: ☐

☒ Set up lists in background

☐ With Filter

➤ (ENTER)

Stock/Requirements List: Material List

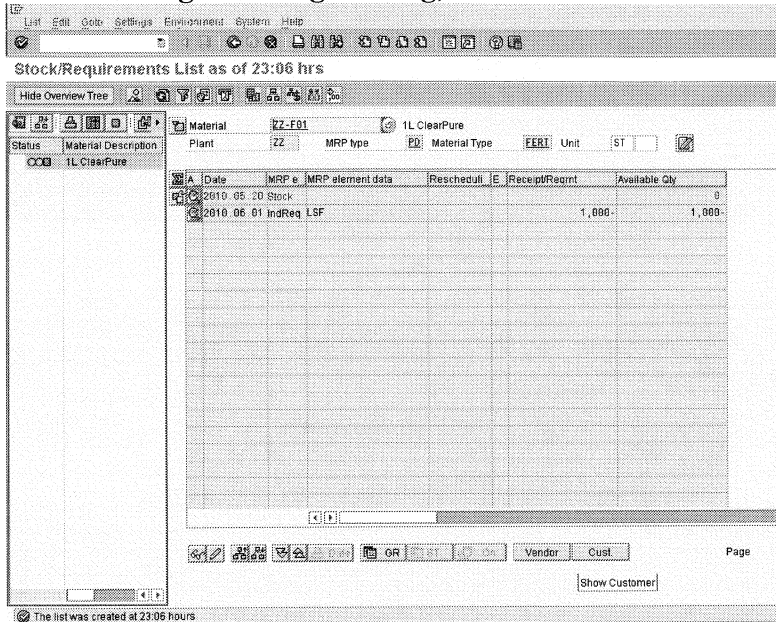
Selected stock/requirements lists Define traffic light Exception groups

Plant: ZZ Factory Z

MRP Controller: 101 Muesli Controller

Light	Material	Material Description	A	Stock	DS	1st R	2nd R	1	2	3	4	5	6	7	8	Pl	B	MTyp	PT	S	A	MT	Code	C
	ZZ-F01	1L ClearPure		999,9		999,9	999,9										0	ST	FERT	F		PD	000	
	ZZ-F02	1L Spritz		999,9		999,9	999,9										0	ST	FERT	F		PD	000	<input checked="" type="checkbox"/>
	ZZ-F03	1L Lemon Spritz		999,9		999,9	999,9										0	ST	FERT	F		PD	000	<input checked="" type="checkbox"/>
	ZZ-F04	500mL ClearPure		999,9		999,9	999,9										0	ST	FERT	F		PD	000	<input checked="" type="checkbox"/>
	ZZ-F05	500mL Spritz		999,9		999,9	999,9										0	ST	FERT	F		PD	000	<input checked="" type="checkbox"/>
	ZZ-F06	500mL Lemon Spritz		999,9		999,9	999,9										0	ST	FERT	F		PD	000	<input checked="" type="checkbox"/>
	ZZ-P01	1L Bottle		999,9		999,9	999,9										0	ST	ROH	F		PD	001	<input checked="" type="checkbox"/>
	ZZ-P02	1L Cap		999,9		999,9	999,9										0	ST	ROH	F		PD	001	<input checked="" type="checkbox"/>
	ZZ-P03	500mL Bottle		999,9		999,9	999,9										0	ST	ROH	F		PD	001	<input checked="" type="checkbox"/>
	ZZ-P04	500mL Cap		999,9		999,9	999,9										0	ST	ROH	F		PD	001	<input checked="" type="checkbox"/>
	ZZ-R01	Carbon dioxide		999,9		999,9	999,9										0	KG	ROH	F		PD	001	<input checked="" type="checkbox"/>
	ZZ-R02	Lemon extract		999,9		999,9	999,9										0	KG	ROH	F		PD	001	<input checked="" type="checkbox"/>
	ZZ-R03	Colour		999,9		999,9	999,9										0	KG	ROH	F		PD	001	<input checked="" type="checkbox"/>
	ZZ-R04	Citric acid		999,9		999,9	999,9										0	KG	ROH	F		PD	001	<input checked="" type="checkbox"/>
	ZZ-R05	Ozone		999,9		999,9	999,9										0	KG	ROH	F		PD	001	<input checked="" type="checkbox"/>
	ZZ-R06	Water		999,9		999,9	999,9										0	KG	ROH	F		PD	001	<input checked="" type="checkbox"/>
	ZZ-T01	Milk		999,9		999,9	999,9										0	ST	HAWA	F		PD	999	<input checked="" type="checkbox"/>
	ZZ-T02	Cream		999,9		999,9	999,9										0	ST	HAWA	F		PD	999	<input checked="" type="checkbox"/>
	ZZ-T03	Yoghurt		999,9		999,9	999,9										0	ST	HAWA	F		PD	999	<input checked="" type="checkbox"/>
	ZZ-T04	Cheese		999,9		999,9	999,9										0	ST	HAWA	F		PD	999	<input checked="" type="checkbox"/>
	ZZ-T05	Butter		999,9		999,9	999,9										0	ST	HAWA	F		PD	999	<input checked="" type="checkbox"/>
	ZZ-T06	Ice Cream		999,9		999,9	999,9										0	ST	HAWA	F		PD	999	<input checked="" type="checkbox"/>

Select any finished goods item and click on the icon "Selected stock/requirements lists".



Stock/Requirements List as of 23:06 hrs

Material: 1L ClearPure, Plant: 22, MRP type: PD, Material Type: FERT, Unit: ST

A	Date	MRP	MRP element data	Reschedule	E	Receipt/Reqmt	Available Qty
+	2010.05.20	Stock				0	0
-	2010.06.01	MRP	LSF			1,000	1,000

The list was created at 23:06 hours



(EXIT)

5. Convert Purchase Requisition to Purchase Orders)


(Transaction Code: ME59N)

The transaction ME59N automatically creates consolidated purchase orders for each vendor. In other words, if more than one requisition was assigned to the same vendor, only one purchase order with multiple items will be created.

Enter the following information:

➤ Purchasing organization: \$\$

➤ Plant: \$\$

Click  (EXECUTE)

Program Edit Goto System Help

Automatic Creation of Purchase Orders from Requisitions

Purchasing Group: XX to

Purch. Organization: to

Fixed Vendor: to

Contract: to

Plant: XX to

Supplying Plant: to

New Purchase Order:

☐ Per Purchasing Group ☐ Per delivery date

☐ Per Plant ☐ Per Vendor Subrange

☐ Per Storage Location ☐ Per Requisition

☐ Per Item Category ☐ Per Requisition Item

☒ Per Company Code ☒ Per Contract

Other Parameters:

☐ Generate Schedule Lines Detailed Log: 1

☐ Omit Faulty Items

☐ Test Run

Material Group: to

Release Date: to

Delivery Date: to

MRP Controller: to

Purchase Requisition: to

Material: to

Req. Tracking Number: to

A report is displayed confirming the conversion of the purchase requisition in consolidated PO.

List Edit Goto System Help
















Automatic Creation of Purchase Orders from Requisitions

PO	OTyp	POrg	POr	Agreement	Item	Purch.Req.	Item	D	S	Message Text	Mes	M	e	No. of items	No. requisns
Vendor V03 Spyro Packaged Goods															
450000023	NB	YY	800							Purchase order successfully created				6	6
					10000032					Requisition successfully converted				0	1
					10000033					Requisition successfully converted				0	1
					10000034					Requisition successfully converted				0	1
					10000035					Requisition successfully converted				0	1
					10000036					Requisition successfully converted				0	1
					10000037					Requisition successfully converted				0	1

Record the PO numbers: _____

6. Track Purchase Order Report

(Transaction Code: ZME2N)

<i>Purchase Order Tracking</i>						
						
             						
Purchase Order Tracking: Quarter 4 Day 01						
Order	Material Description	Quantity	Price	Delivered	Goods	Payment
4500000305	Milk	1.400	22,95	X	1/06	1/08
4500000307	Cream	300	72,07	X		
4500000309	Yoghurt	900	25,85	X		
4500000311	Cheese	600	82,68	X		
4500000313	Butter	450	59,88	X		
4500000315	Ice Cream	350	43,15	X		

7. Stock Transfer Planning










(Transaction Code: ZMB1B)

Step 1: Select Planning mode: **Push** or **Pull**

Step 2: Select **scheduling days**

Step 3: Set **allocation plan** for each product in three regions.

System Help

Stock Transfer Planning

Planning Mode

☒ Push
☐ Pull

Scheduling

2 days

Allocation Plan

Material	Description	North	South	West
ZZ-T01	Milk	3	2	2
ZZ-T02	Cream	1	2	3
ZZ-T03	Yoghurt	2	3	1
ZZ-T04	Cheese	2	1	1
ZZ-T05	Butter	1	2	2
ZZ-T06	Ice Cream	3	2	3

Clear



(SAVE)

8. Check Inventory Report

(Transaction Code: ZMB52)

System Help

Inventory Report

Warehouse Capacity

Finished Goods:	0 /	Unlimited
Raw Materials:	0 /	Unlimited
Packaging:	0 /	Unlimited

Inventory Report: Quarter 4 Day 01

S Loc	Material	Descr.	Stock	Unit
03	ZZ-T04	Cheese	0	ST
	ZZ-T05	Butter	0	ST
	ZZ-T06	Ice Cream	0	ST
03N	ZZ-T01	Milk	0	ST
	ZZ-T02	Cream	0	ST
	ZZ-T03	Yoghurt	0	ST
	ZZ-T04	Cheese	0	ST
	ZZ-T05	Butter	0	ST
	ZZ-T06	Ice Cream	0	ST
03S	ZZ-T01	Milk	0	ST
	ZZ-T02	Cream	0	ST
	ZZ-T03	Yoghurt	0	ST
	ZZ-T04	Cheese	0	ST
	ZZ-T05	Butter	0	ST
	ZZ-T06	Ice Cream	0	ST
03W	ZZ-T01	Milk	0	ST
	ZZ-T02	Cream	0	ST
	ZZ-T03	Yoghurt	0	ST

9. Check Sales report

(Transaction Code ZVA05)





















Detailed Sales Order Report

Detailed Sales Order Report: Quarter 4 Day 01

Qtr	Day	DChl	Area	Descr.	Sold-to pt	Price	Qty	Value	A/R Qtr	A/R Day
1	10	16	NO	Cheese	80294	90,95	17	1.546,15	2	02
				Milk	80294	25,25	33	833,25	2	02
				Butter	80296	65,87	19	1.251,53	2	02
				Yoghurt	80296	28,43	65	1.847,95	2	02
				Yoghurt	80295	28,43	49	1.393,07	2	02
			SO	Ice Cream	80300	47,47	17	806,99	2	02
				Milk	80300	25,25	51	1.287,75	2	02
				Butter	80299	65,87	17	1.119,79	2	02
				Yoghurt	80299	28,43	43	1.222,49	2	02
				Butter	80298	65,87	14	922,18	2	02
				Yoghurt	80298	28,43	36	1.023,48	2	02
				Butter	80299	65,87	12	790,44	2	02
				Cheese	80299	90,95	18	1.637,10	2	02
				Milk	80299	25,25	69	1.742,25	2	02
			WE	Ice Cream	80302	47,47	39	1.851,33	2	02
				Cheese	80302	90,95	9	818,55	2	02
				Milk	80302	25,25	47	1.186,75	2	02

10. Check Summary Sales Report

(Transaction Code ZVC2)

Summary Sales Order Report					
					
                  					
Summary Sales Order Report: Quarter 4 Day 01					
Qtr	Day	Descr.	Orders	Qty	Value
1	10	Butter	4	62	4.083,94
		Cheese	5	61	5.547,95
		Ice Cream	2	56	2.658,32
		Milk	6	244	6.161,00
		Yoghurt	5	250	7.107,50
	09	Butter	3	42	2.766,54
		Cheese	4	54	4.911,30
		Cream	1	14	1.109,92
		Ice Cream	2	41	1.946,27
		Milk	5	209	5.277,25
		Yoghurt	4	165	4.690,95
	08	Butter	6	102	6.718,74
		Cheese	5	65	5.911,75
		Cream	2	27	2.140,56
		Ice Cream	6	167	7.927,49
		Milk	5	269	6.792,25
		Yoghurt	8	320	9.097,60

11. Watch Financial Statement and make a screenshot

(Transaction Code F.01)

- Enter your company code: \$\$
- Select ZSIM for “Financial Statement Version”
- Select ALV Tree Control



(ENTER)

Financial Statements

Chart of accounts: to

GL account: to

Company code: xx to

Selection using search help:

Search help ID:

Search string:

Search help:

Transaction Figures Selection:

Business area: to

Currency type:

Ledger:

Further selections: Special evaluations: Output control:

Financial statement version: ZSIM Language: EN

Reporting year: 2010

Reporting periods: 1 to 16

Comparison year: 2009

Comparison periods: 1 to 16

Plan version (ledger 00 only):

List output:

☐ Classical list

☐ ALV grid control

☒ ALV Tree Control

Layout:



(EXECUTE)

Financial Statements - ERPSim Distribution Game

OL: 10 Ledger

EUR: Currency type Company code currency

2010.01 - 2010.16: Amounts in European Euro

2010.01 - 2010.16: Reporting periods

2009.01 - 2009.16: Comparison periods

F.S. item/account	Tot.rpt.pr	tot.cmp.pr	Abs. diff.
Balance Sheet	0.00	0.00	0.00
Assets	500,000.00	0.00	500,000.00
Current assets	250,000.00	0.00	250,000.00
113300 Bank Cash Account	146,060.00	0.00	146,060.00
792000 Finished goods	103,940.00	0.00	103,940.00
Long-term assets	250,000.00	0.00	250,000.00
011000 Machinery and equipment	250,000.00	0.00	250,000.00
Liabilities and Owners' Equity	500,000.00	0.00	500,000.00
Equity	500,000.00	0.00	500,000.00
Shareholders Equity	500,000.00	0.00	500,000.00
070000 Common stock	500,000.00	0.00	500,000.00
Retained Earnings	0.00	0.00	0.00
Net Loss	0.00	0.00	0.00

Logistics Extended Game

Login: \$1 to \$9

Password: ERPSIM



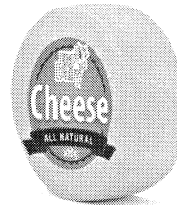
Products



\$\$-T01

Milk

UNIT COST
€22,95



\$\$-T04

Cheese

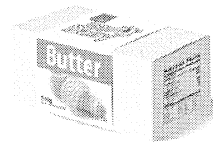
UNIT COST
€82,68



\$\$-T02

Cream

UNIT COST
€72,07



\$\$-T05

Butter

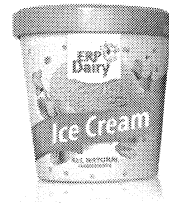
UNIT COST
€59,88



\$\$-T03

Yoghurt

UNIT COST
€25,85



\$\$-T06

Ice Cream

UNIT COST
€43,15

German Market



CUSTOMERS

Payment time (days)	4
---------------------	---

SUPPLIERS

Payment time (days)	5
---------------------	---

General Information

Days/Round
10

Distribution Channel
DC16: Retail stores

TRANSPORTATION FEES

Purchasing Cost (from supplier to main warehouse)	€1 000
Main Warehouse to Regional Storage Location	€100

WAREHOUSING COSTS

Base Capacity (maximum capacity without additional fees)	4,000 units
Extra daily fee for each additional 1,000 boxes	€300

Total Market Size

Approx. €12 000 per company per day

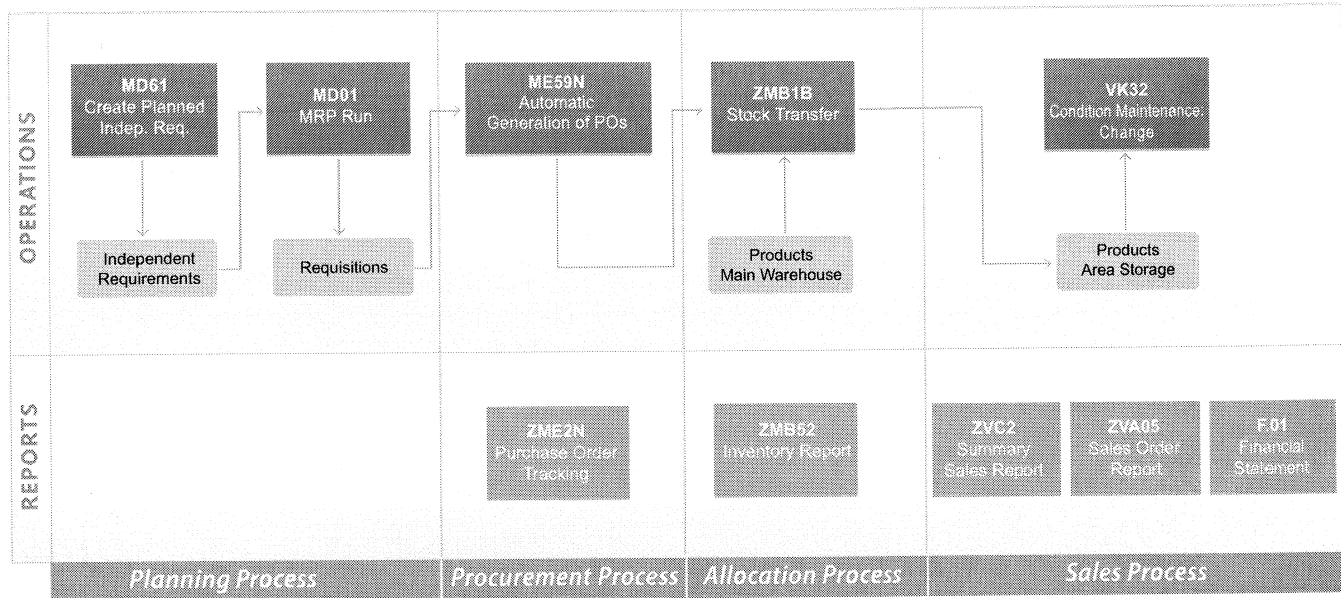
Logistics Extended Game

Login: \$1 to \$9

Password: ERPSIM



HEC MONTRÉAL
ERP SIMULATION GAME
Logistics Game



FORECAST SALES

Create Planned Indep. Req. (MD61)

- 1 Select Product group, then enter : \$\$-T
- 2
- 3 Enter new forecasted quantities in Next month
- ? The quantity corresponds to the replenishment level
- 5

CALCULATE REQUIREMENTS

MRP Run (MD01)

- 1
- 2 Click once again on Enter
- 3 In the pop-up window, click

PURCHASING

Automatic Gen. of POs (ME59)

- 1
- 2 Purchase orders are created
- ? If no open requisitions :
No suitable requisitions found.

STOCK TRANSFER

Stock Transfer Planning (ZMB1B)

- 1 Select between a Push of Pull stock allocation approach
- 2 Select your delivery schedule
- 3 Enter the amount of each product you wish to send/maintain in each region

CHANGE PRICE

Condition Maintenance: Change (VK32)

- 1 Open Prices folder and double click on Price list
- 2 In Distribution channel, enter DC 16
- 3 In Material, enter product code (optional)
- 4
- 5 Enter your prices and

FINANCIAL STATEMENT

Financial Statements (F01)

- 1 In company code, enter your company code (\$\$)
- 2 Select ALV Tree control (optional)
- 3

STOCK LEVELS

Inventory Report (ZMB52)

Shows all stock levels.

SALES AND MARKET DATA

Sales order report (ZVA05)

Shows sales transactions: time, sales revenues, boxes sold and price per box.

Summary sales report (ZVC2)

Shows cumulative sales

PURCHASE ORDERS

Purchase Order Tracking (ZME2N)

Shows purchase orders.

General guideline for case 2 analysis

1. Purpose: Extract lessons learned and/or best practices, by routinely and systematically reflecting on your experience of running a business operation, whether it was success and/or failure.
2. Core focus of the analysis effort
 1. Evaluate whether your strategy worked or not, and answer why or why not.
 2. Learn from your success and/or mistake/failure
 3. Broaden and deepen your operation experience by accumulating lessons learned and best practices
3. Analysis procedure and report outline:
 1. Document your initial operations strategy and every change in your strategy
 2. Record consequential issues that were irrelevant to your operations strategy but affected your performance, such as miscommunications or system interface problems.
 3. Upload the business data of the entire market and individual companies.
 4. Evaluate performance of each operation strategy over time, using graphs, charts and diagrams to highlight performances and identify performance drivers.
 5. Identify if correlations exist between operations factors (such as pricing vs. marketing)
 6. Identify if casual effect relationships exist between operations factors.
 7. Draw lessons learned from this this specific operation run.
 8. Draw best practices that are applicable to all sorts of operations in general
4. Possible analysis efforts and techniques of use:
 1. Graphing and clustering techniques
 - Look into daily inventory, such as stock out, the number of days of stock out; how it affects your business objective, and how it compares to other companies.
 - Look into daily sales quantity and value amount for each product in each area; how it affects your business objective, and how it compares to other companies.
 - Look into daily price and price changes for each product; how it affects your business objective, and how it compares to other companies.
 - Look into purchase orders released in each quarter in your company, including how many POs, dollar amount for each PO, total dollar amount, and how it compares to other companies.
 - Look into warehouse cost change and shipping cost change.
 - Look into interest expense's change.
 - Look into cash flow change.
 2. Correlation
 - Look into whether there exists a correlation between inventory and sales/profits?
 - Look into whether there exists a correlation between price and sales/profits? Your comments.
 - Look into whether there exists a correlation between market investment and sales/profits? Your comments.
 3. Regression
 - Look into possible causal effect relationships exist between the above factors

Notes:

1. Warehouse cost account is 478100 that can be found in "batonsim/h-pnl" tab.
2. The interest expense account is 476900 that can also be found in "batonsim/h-pnl" tab.
3. Shipping cost account is 472000 that can be found in the "Financial Statements" (T-code: F.01).