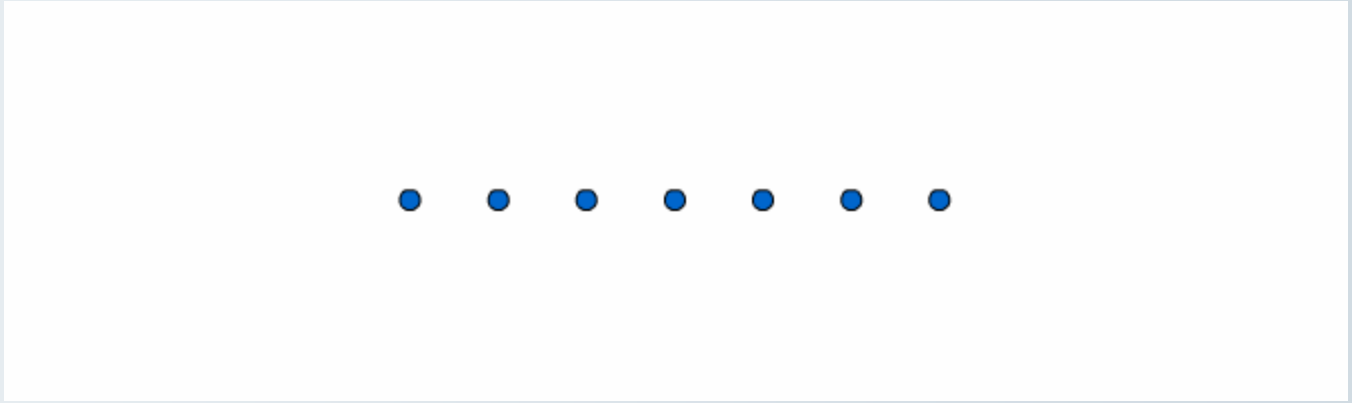
Unity Uniform Liquidators



Business Requirements

Company Overview

- Unity Uniform Liquidators provides quality uniform products to various industries like medical, culinary, and educational.
- U.U.L. buys direct from the manufacturer and offers general public and businesses uniforms for less than other uniform distributors.
- The product ordering is via a catalogue or the internet site.
- Customer satisfaction is the main objective.

Departments

Operations

- Human Resources
- Shipping
- Inventory
- Receiving

Marketing

- Research and Statistics
- Promotions
- Planning

Sales

- On-Line Sales
- Catalogue Sales

Finance

- Accounting
- Accounts Payable
- Accounts Receivable

Business Computer Applications

- Currently the company's sales department is responsible for processing all orders via phone or internet.
- The sales associate first confirms stock availability by querying the computerized inventory.
- If the item is not available in stock the sales associate calls the manufacturer to determine uniform availability. Contacting the client on orders available is usually by phone.
- Item's ordered from the manufacturer are received at U.U.L.'s distribution center where they are inventoried, processed and entered into the present computer system.

New Database Application

- U.U.L. needs a more unified Database System to store, process and handle the data for all of it's departments.
- The database will track and update all client and order information.
- U.U.L and the manufacturer will have a direct link between the two of them to track sales and operations.
- The manufacturer will have access to the database to determine the appropriate inventory needs of U.U.L.
- The company's Marketing department will have access to sales statistics for promotional campaigns and market share targeting.

Estimated Development Costs

Development Costs

Personnel:

Qty.		
1	Systems Analyst (640 hours/ $60.00/hr)	$38,400.00
2	Network Administrator (300 hours/ea $35.00/hr)	$10,500.00
2	Programmer (300 hours/ea $40.00/hr)	$12,000.00
1	Database Programmer/Design (400 hours / $45.00/hr)	$18,000.00

New Hardware & Software:

Qty.		
2	Server	$20,000.00
1	Server Software and Operating System (Application Programs)	$3,000.00
1	DBMS Server Software	$1,500.00
1	DBMS Software	$5,000.00
3	Point Of Sale Registers	$15,000.00
3	Desktop System/ per store	$3,500.00
1	Laptop System/ District Manager	$2,000.00
	Total Development Costs:	$128,900.00

Estimated Costs For Annual Operations Of New System

Personnel:

Qty.		
1	Programmer (On-Call/ $40.00/hr/ estimate 120hrs.)	$4,800.00
1	Network Administrator (On-Call/ $35.00/hr/ estimate 100hrs)	$3,500.00
2	Database Specialist (60 hrs/ea @ $30.00/hr))	$1,800.00

Expenses:

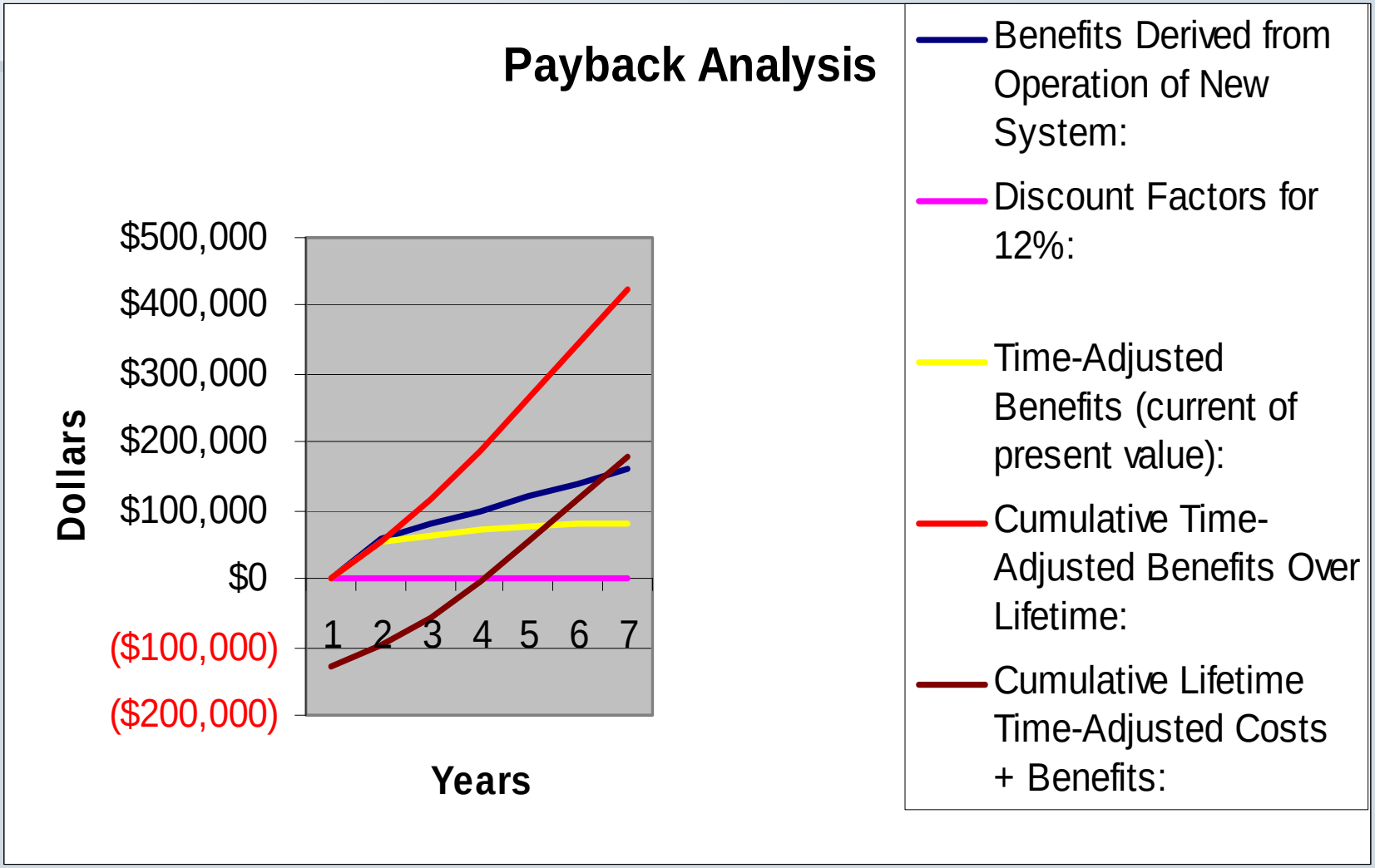
Qty.		
4	Training for System Upkeep ($3,000.00/person)	$12,000.00
5	Software License Agreement ($450.00/ea)	$2,250.00
	Promotions and Paper Costs (2400/year @ .35/flyer, 3840/year @ .15/sheet)	$1,400.00

Total Projected Annual Costs:	$25,750.00

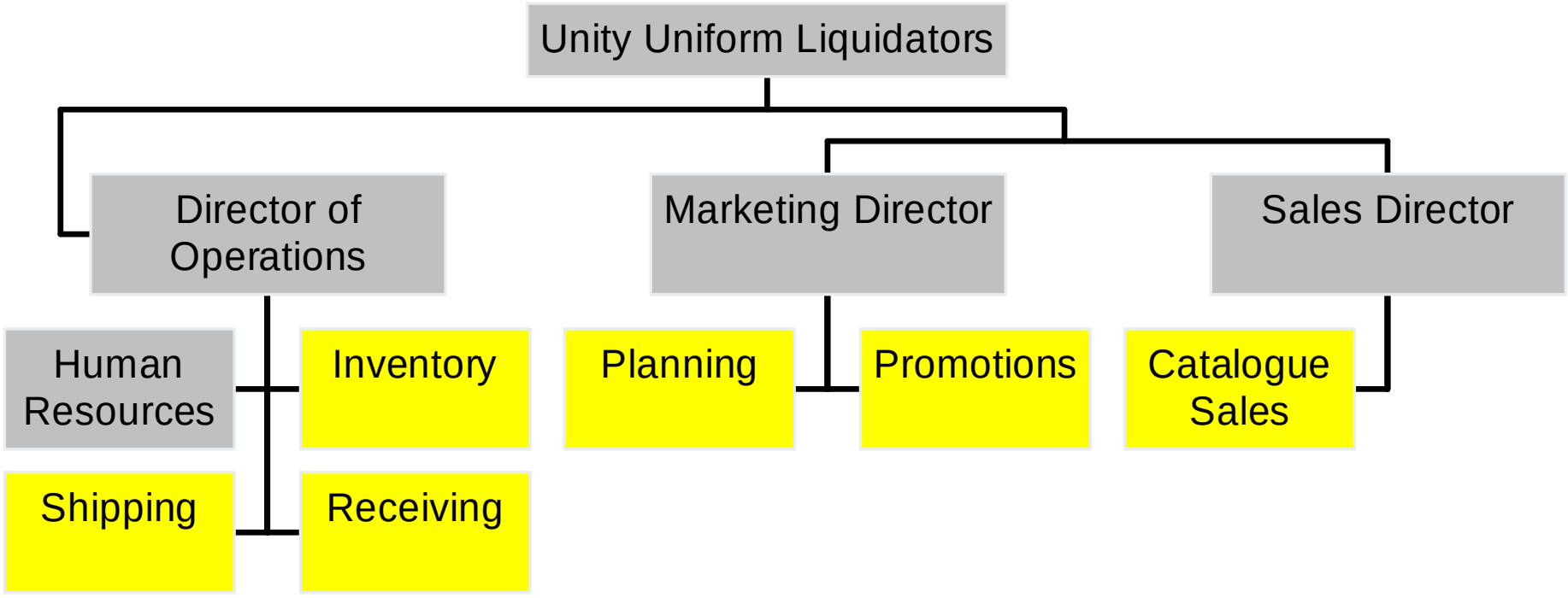
6 Year Cost Projection For New Operation System

Cash Flow Description	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Development Cost:	$128,900.00						
Operation & Maintenance Cost:		($25,750.00)	($27,000.00)	($28,000.00)	($29,000.00)	($30,000.00)	($31,000.00)
Discount Factors for 12%:	1	0.893	0.797	0.712	0.636	0.567	0.507
Time-Adjusted Costs (adjusted to present value):	($128,900)	($22,994.75)	($21,519.00)	($19,936.00)	($18,444.00)	($17,010.00)	($15,717.00)
Cumulative Time-Adjusted Costs Cver Lifetime:	($128,900)	($151,894.75)	($173,413.75)	($193,349.75)	($211,793.75)	($228,803.75)	($244,520.75)
Benefits Derived from Operation of New System:	$0	$60,000.00	$80,000.00	$100,000.00	$120,000.00	$140,000.00	$160,000.00
Discount Factors for 12%:	1	$0.89	$0.797	$0.712	$0.636	$0.567	$0.507
Time-Adjusted Benefits (current of present value):	$0	$53,580.00	$63,760.00	$71,200.00	$76,320.00	$79,380.00	$81,120.00
Cumulative Time-Adjusted Benefits Over Lifetime:	$0	$53,580.00	$117,340.00	$188,540.00	$264,860.00	$344,240.00	$425,360.00
	0	1	2	3	4	5	6
Cumulative Lifetime Time-Adjusted Costs + Benefits:	($128,900)	($98,314.75)	($56,073.75)	($4,809.75)	$53,066.25	$115,436.25	$180,839.25

6 Year Benefit Chart



Organizational Chart



Advantages

- The employees and managers will be able to cut down on operational costs.
- Production and inventory tracking will be expedited.
- Customer satisfaction will be enhanced due to sending of updates on new items and promotional discounts on select uniforms.
- Promotions will be sent to prior clients that have ordered a set amount from a uniform area.

Business Rules

The Business Rules are designed to enhance U.U. L's new information system.

- A major improvement to the old system is assigning one and only one Sales person per client. This rule helps maintain our client files. It promotes better customer service, support and also benefits our Marketing department to devised client specific campaigns.

- All marketing campaigns are determined by max and min level benchmarks. U.U.L's Planning department monitors these inventory levels when the trigger is met the inventory data is sent to marketing department to create the appropriate campaigns.

- Naming conventions for the employee ID, Shipping ID, Receiving ID, and Inventory ID also assist the end users. The first letter of the above ID's determine the type of ID. For example an Employee ID beginning with the letter S signifies a sales employee. Shipping and Receiving Ids beginning with M signify manufacturer. Inventory Ids beginning with C signify a custom. These naming conventions are detailed in the Business Rules document.

Business Rules

1. All clients are assigned one and only one sales representative from U.U.L. This will impact the EMPLOYEE entity and the CLIENT entity directly. The EMPLOYEEID will connect the entities into relationship/s. All EMPLOYEEID beginning with S will denote a Sales Employee for tracking purposes.

2. The EMPLOYEEID will be alphanumeric the letter that begins each ID will determine the type of U.U.L. employee. It will follow the key below:

   S = Sales M = Marketing T = Technology

   A = Accounting E = Executive P = Planning

3. All marketing, campaigns are triggered by inventory levels. The Planning department will monitor this benchmark using Inventory maximum levels and minimum levels. This will involve the PLANNING entity, the INVENTORY entity and the MARKETING entity.

4. U.U.L. does a year-end physical inventory count on December 1. After this is done the annul U.U.L. sales begins and lasts typically until January 15th. This is done to move inventory that has not sold during the last calendar year. All inventory sold during the annual sales is not commissionable. This does not affect the database directly but indirectly it does have an impact on the inventory as a whole.

5. U.U.L. does a quarterly inventory count each quarter to move inventory that exceeds the maximum, benchmark levels. Our clients are queried to determine which type of inventory was most frequently purchased during the past 6, month period. This data is matched all inventory that exceeds the maximum level benchmark and Marketing develops the campaign. This involves the INVENTORY, CLIENT, PLANNING, and MARKETING entities.

Business Rules

6. All clients are assigned one and only one sales representative from U.U.L. This will

7. Any uniform ordered can be custom made. Size is never a problem with U.U.L.

   Although, a client cannot choose a material design from one uniform area, example medical, and want the design used for chef pants. This will only indirectly affect the CUSTOM entity.

8. The Inventory ID will determine the type of uniform. The following key below is to be used to do so:

   M = Medical CU = Culinary E = Educational

   C = Custom

   This will impact directly the INVENTORY, PLANNING and MARKETING entities.

9. All inventory received from the Manufacturer will have a Receiving ID beginning with M.
   All other Receiving Ids without “M” will be denote Client orders.

10. All inventory shipped to the Manufacturer will have a Shipping ID beginning with M.
    All other Shipping Ids without “M” will denote Client orders.

ENTITITY BLOCK DIAGRAMS

CLIENT

Entity contains:

- Client ID
- Client Name
- Employee ID
- Address
- City
- State
- Zip code
- Phone Number
- Credit Rating

Two instances of **CLIENT**:

12345	67890
Anderson	Laurey
S6785	S6789
9300 Metcalf Ave	100 Washington Ave
Overland Park	Woburn
KS	MA
06612	08871
913-534-0987	614-932-8876
Good	Very Good

EMPLOYEE

Entity contains:

- Employee ID
- Exempt
- Hire Date
- Job Code
- Title
- Wage
- Work Hours
- Benefits

Two instances of **EMPLOYEE**:

S6788	S6789
Yes	Yes
12/31/2002	11/24/2002
456	789
Sales	Database Lead
$25,000	$60,000
Full Time	Salary
Yes	Yes

INVENTORY

Entity contains:

- Inventory ID
- Manufacturer ID
- Name
- Cost
- Retail Cost
- Date Received
- Qty
- Inven Max
- Inven MIn

Two instances of **INVENTORY**:

CU789	E780
M846	M724
Culinary	Educational
$55.00	$20.00
$150.00	$65.00
09/25/2003	10/01/2003
300	500
1000	2000
100	200

MANUFACTURER

Entity contains:

- Manufacturer ID
- Company Name
- Contact
- Address
- City
- State
- Zip Code
- Phone Number
- E-mail
- Fax

Two instances of **MANUFACTURER**:

M786
Sam's Wholesale
Lisa Bell
123 Garment Street
Metairie
LA
70001
504-123-4567
lbell@sams.com
504-123-7890

M465
Ochsner Uniforms
Sharon Lund
456 W 78th Street
New Orleans
LA
70301
504-456-1234
slund@bjs.com
504-456-7890

SALESORDER

Entity contains:

- SalesOrder ID
- Employee ID
- Client ID
- Total Cost
- Date

Two instances of **SALESORDER**:

12345	67890
S6789	S6788
C456	C567
$568.00	$789.00
10/25/2003	10/12/2003

SHIPPING

Entity contains:

- Shipping ID
- Date Shipped
- Date Received
- Cost
- Salesorder ID

Two instances of **SHIPPING**:

C12345	M67890
10/20/2003	10/15/2003
10/28/2003	10/22/2003
$25.34	$10,000.23
12345	67890

RECEIVING

Entity contains:

- Receiving ID
- Date Received
- Quantity

Two instances of **RECEIVING**:

M2345 10/20/2003 1000	C7896 10/15/2003 01

PLANNING

Entity contains:

- Plan ID
- Inventory ID
- Date

Two instances of **PLANNING**:

45-59 M3456 10/26/2003	46-34 E6785 10/25/2003

MARKETING

Entity contains:

- Mktg ID
- Campaign Name
- Target Mkt
- Description
- Plan ID

Two instances of **MARKETING**:

UM50	ICE20
Medical50	Educational20
Urban	Inner City
50% off scrubs	20% off blazers
45-50	25-20

LINEITEM

Entity contains:

- Line Item ID
- Item ID
- Qty
- Tax
- Total
- Sales Order ID

Two instances of **LINEITEM**:

12345	67890
M6789	E8976
689	567
10%	10%
$45.98	$24.89
M564	E567

ITEM

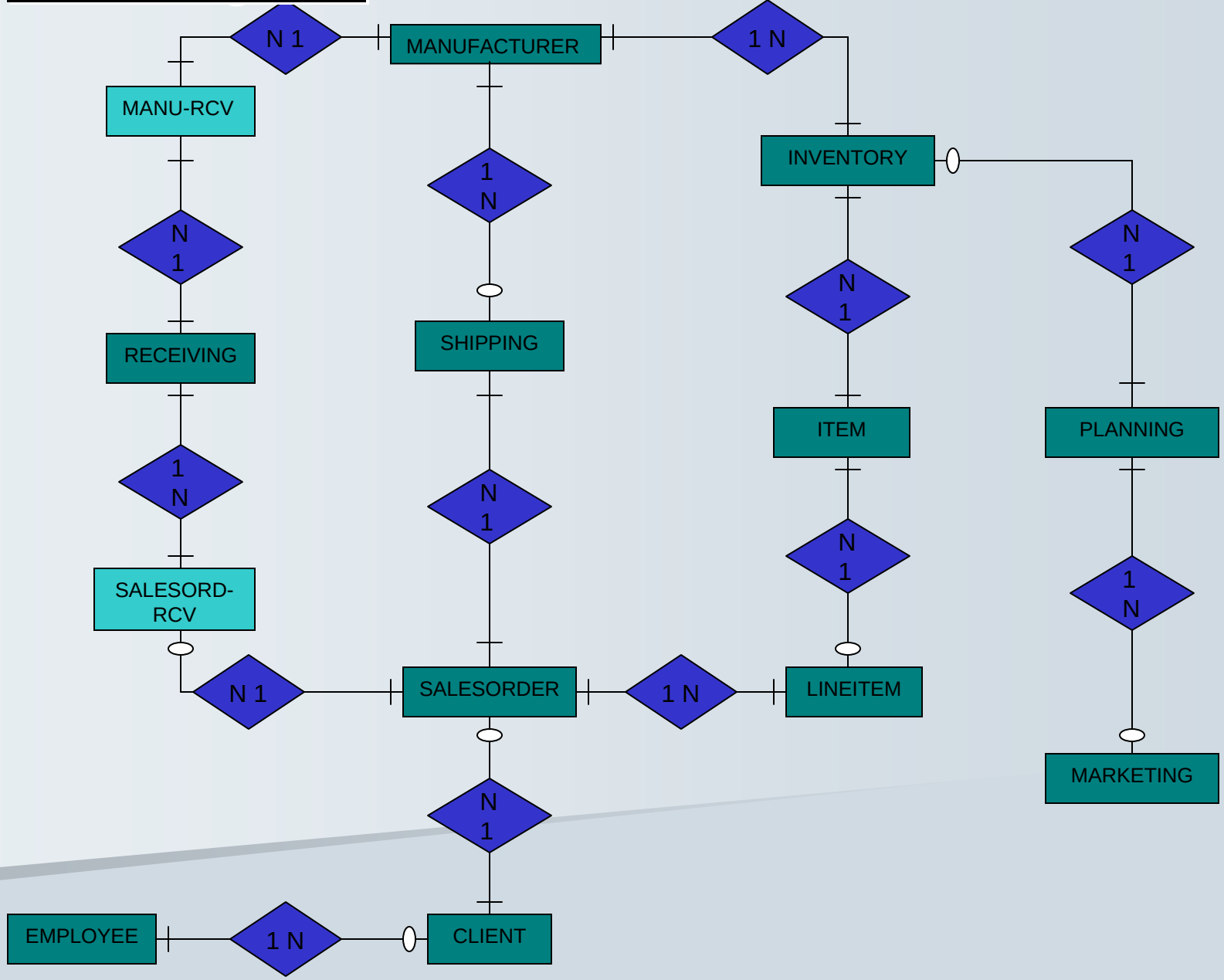
Entity contains:

- Item ID
- Inventory ID
- Qty
- Date
- Manufacturer ID
- Description

Two instances of **ITEM**:

12345 M6789 689 10/12/2003 M5646 Smock	67890 E8976 567 11/04/2003 M3546 Skirt Blue

ER Diagram


N 1
MANUFACTURER
1 N
MANU-RCV
1
N
INVENTORY
N
1
N
1
N
1
RECEIVING
SHIPPING
ITEM
PLANNING
1
N
N
1
N
1
1
N
SALESORD-
RCV
N 1
SALESORDER
1 N
LINEITEM
N
1
MARKETING
EMPLOYEE
1 N
CLIENT

ENTITY / KEY / CONSTRAINTS

ITEM (Item ID, LineItem ID, Qty, Date, Description)

Key: (Item ID)

Constraints: Item ID ----> Qty

Item ID ----> Date

Item ID ----> Description

EMPLOYEE (Employee ID, Exempt, Hire Date, Job Code, Title, Wage, Work Hours, Benefits)

Key: (Employee ID)

Constraints: Employee ID ----> Hire Date

Employee ID ----> Title

Employee ID ----> Wage

Employee ID ----> Work Hours

Employee ID ----> Job Code

Employee ID ----> Exempt

Employee ID ----> Benefits

MANUFACTURER (Manufacturer ID, Company Name, Contact, Address, City, State, Zip Code, Phone Number, E-mail, Fax)

Key: (Manufacturer ID)

Constraints:

Manufacturer ID ----> Company Name

Manufacturer ID ----> Contact

Manufacturer ID ----> Address

Manufacturer ID ----> Zip Code

Manufacturer ID ----> Phone Number

Manufacturer ID ----> E-mail

Manufacturer ID ----> Fax

Zip Code ----> (City, State)

INVENTORY (Inventory ID, Manufacturer ID, Item ID, Plan ID, Name, Retail Cost, Cost, Date Received, Qty, Inven Max, InvenMin)

Key: (Inventory ID)

Constraints:

Inventory ID ----> Name

Inventory ID ----> Retail Cost

Inventory ID ----> Cost

Inventory ID ----> Date Received

Inventory ID ----> Qty

Inventory ID ----> Inven Max

Inventory ID ----> Inven Min

CLIENT (Client ID, Client Name, Employee ID, Address, City, State, Zip Code, Phone Number, Credit Rating)

Key: (Client ID)

Constraints: Client ID ----> Client Name

Client ID ----> Address

Client ID ----> Zip Code

Client ID ----> Phone Number

Client ID ----> Credit Rating

Zip Code ----> (City, State)

SHIPPING (Shipping ID, Date Shipped, Date Received, Cost,
SalesOrder ID, Manufacturer ID)

Key: (Shipping ID)

Constraints: Shipping ID ----> Date Shipped

Shipping ID ----> Date Received

Shipping ID ----> Cost

SALESORDER (SalesOrder ID, Client ID, Total Cost, Date)

Key: (SalesOrder ID)

Constraints: SalesOrder ID ----> Total Cost

SalesOrder ID ----> Date

RECEIVING (Receiving ID, Date Received, Quantity)

Key: (Receiving ID)

Constraints: Receiving ID ----> Date Received

Receiving ID ----> Quantity

LINEITEM (LineItem ID, SalesOrder ID, Qty, Tax, Total)

Key: (LineItem ID)

Constraints: LineItem ID ----> Qty

LineItem ID ----> Tax

LineItem ID ----> Total

PLANNING (Planning ID, Date)

Key: (Planning ID)

Constraints: Planning ID ----> Date

MARKETING (Marketing ID, Campaign Name, Target Mkt, Description, Plan ID)

Key: (Marketing ID)

Constraints: Marketing ID ----> Campaign Name

Marketing ID ----> Target Mkt

Marketing ID ----> Description

Domain Key/ Normalized Definitions

Domain Definitions

ClientID	in	DEC(4)
Client_Name	in	CHAR(30)
Employee_ID	in	CDD,C is CHAR(1), D= decimal digit
Address	in	CHAR(30)
Zip_Code	in	DEC(10); format 99999-9999
Phone_Number	in	DEC(12); format 999-999-9999
Credit_Rating	in	CHAR(10)

Relation and Key Definitions

CLIENT(Client_ID, Employee_ID, Zip_Code)
Key (primary): Client_ID

ZIP_TABLE(Zip_Code)
Key: Zip_Code

EMPLOYEE(Employee_ID, Job_Code)
Key:Employee_ID

Domain Definitions

Zip_Code	in	DEC(10); format 99999-9999
City	in	CHAR(15)
State	in	CHAR(2)

Relation and Key Definitions

CLIENT(Client_ID, Employee_ID, Zip_Code)
Key (primary): Client_ID

ZIP_TABLE(Zip_Code)
Key: Zip_Code

Domain Definitions

Employee_ID	in	CDD,C is CHAR(1), D= decimal digit
Hire_Date	in	DATE
Job_Code	in	CDDD, C is CHAR(1); D = decimal digit
Wage	in	DEC(10); format currency $999,999.99
Work_Hours	in	CHAR(2); {‘PT’ = Part-Time,’FT’=Full-Time, ‘TM’=Temp,’EX’=Executive}
L_Name	in	CHAR(15)
F_Name	in	CHAR(15)
Benefits	in	Boolean; {‘Y’ = yes, ‘N’=No}
Exempt	in	Boolean; {‘Y’ = yes, ‘N’=No}
Title	in	CHAR(15)

Relation and Key Definitions

EMPLOYEE(Employee_ID, Job_Code)
Key:Employee_ID

Domain Definitions

Inventory_ID	in	CCDDD,{‘M’=Medical,’CU’=Culinary, ‘C’=Custom, ‘E’=Educational} D= decimal digit
Manufacturer_ID	in	CDDDD, C=‘M’, D=decimal digit
Item_ID	in	DEC(5)
Plan_ID	in	DEC(5); format 99-99
Name	in	CHAR(15)
Retail_Cost	in	DEC(9); format currency $9,999.99
Cost	in	DEC(9); format currency $9,999.99
Date_Received	in	DATE
Qty_In_Stock	in	DEC(5)
Inven_Max	in	DEC(5)
Inven_Min	in	DEC(5)

Relation and Key Definitions

INVENTORY(Inventory_ID, Manufacturer_ID,Item_ID,Plan_ID)
Key: Inventory_ID(Primary)

MANUFACTURER(Manufacturer_ID)
Key: Manufacturer_ID

ITEM(Item_ID,Lineitem_ID)
Key: Item_ID

PLANNING(Plan_ID)
Key: Plan_ID

Domain Definitions

Manufacturer_ID	in	CDDDD, C='M', D=decimal digit
Company_Name	in	CHAR(30)
Contact	in	CHAR(15)
Address	in	CHAR(30)
Zip_Code	in	DEC(10); format 99999-9999
Phone_Number	in	DEC(12); format 999-999-9999
E_Mail	in	CHAR(50)
FAX	in	DEC(12); format 999-999-9999

Relation and Key Definitions

MANUFACTURER(Manufacturer_ID)
Key: Manufacturer_ID

Domain Definitions

Salesorder_ID	in	DEC(5)
Total_Cost	in	DEC(9); format currency $9,999.99
Date	in	DATE

Relation and Key Definitions

SALESORDER(Salesorder_ID)
Key: Salesorder_ID(primary)

SALESORD-RCV(Salesorder_ID,Receiving_ID)
Key: Salesorder_ID, Receiving_ID

MANU-RCV(Receiving_ID,Manufacturer_ID)
Key: Receiving_ID, Manufacturer_ID

LINEITEM(Lineitem_ID, Salesorder_ID)
Key: Lineitem_ID

Domain Definitions

Receiving_ID	in	CDDDD; C is CHAR{‘M’=Manufacturer, ‘C’ = Client}, D= decimal digit
Quantity	in	DEC(6)
Date_Received	in	DATE

Relation and Key Definitions

RECEIVING(Receiving_ID)
Key: Receiving_ID (primary)

SALESORD-RCV(Salesorder_ID,Receiving_ID)
Key: Salesorder_ID, Receiving_ID

MANU-RCV(Receiving_ID,Manufacturer_ID)
Key: Receiving_ID, Manufacturer_ID

Domain Definitions

Receiving_ID	in	CDDDD; C is CHAR{‘M’=Manufacturer, ‘C’ = Client}, D= decimal digit
Salesorder_ID	in	DEC(5)

Relation and Key Definitions

SALESORD-RCV(Salesorder_ID,Receiving_ID)
Key: Salesorder_ID, Receiving_ID

RECEIVING(Receiving_ID)
Key: Receiving_ID (primary)

SALESORDER(Salesorder_ID)
Key: Salesorder_ID(primary)

Domain Definitions

Receiving_ID	in	CDDDD; C is CHAR{‘M’=Manufacturer, ‘C’ = Client}, D= decimal digit
Manufacturer_ID	in	CDDDD, C=‘M’, D=decimal digit

Relation and Key Definitions

MANU-RCV(Receiving_ID,Manufacturer_ID)
Key: Receiving_ID, Manufacturer_ID

RECEIVING(Receiving_ID)
Key: Receiving_ID (primary)

MANUFACTURER(Manufacturer_ID)
Key: Manufacturer_ID

Domain Definitions

Shipping_ID	in	CDDDD; C is CHAR{‘M’=Manufacturer, ‘C’ = Client}, D= decimal digit
Date_Shipped	in	DATE
Date_Received	in	DATE
Cost	in	DEC(9); format currency $9,999.99
Manufacturer_ID	in	CDDDD, C=‘M’, D=decimal digit
Salesorder_ID	in	DEC(5)

Relation and Key Definitions

SHIPPING(Shipping_ID,Salesorder_ID, Manufacturer_ID)
Key: Shipping_ID(primary)

MANUFACTURER(Manufacturer_ID)
Key: Manufacturer_ID

SALESORDER(Salesorder_ID)
Key: Salesorder_ID

Domain Definitions

Plan_ID	in	DEC(5); format 99-99
Date_Start	in	DATE

Relation and Key Definitions

PLANNING(Plan_ID)
Key: Plan_ID

MARKETING(Mktg_ID, Plan_ID)
Key: Mktg_ID (primary)

Domain Definitions

Mktg_ID	in	TEXT(8)
Campaign_Name	in	CHAR(30)
Target_Mkt	in	TEXT(10); {‘Inner_City’, ‘Rural’,’Urban’}
Description	in	TEXT(50)
Plan_ID	in	DEC(5); format 99-99

Relation and Key Definitions

PLANNING(Plan_ID)
Key: Plan_ID

MARKETING(Mktg_ID, Plan_ID)
Key: Mktg_ID (primary)

Domain Definitions

Item_ID	in	DEC(5)
Lineitem_ID	in	DEC(5)
Date	in	DATE
Description	in	TEXT(50)
Qty	in	DEC(6)

Relation and Key Definitions

ITEM(Item_ID,Lineitem_ID)
Key: Item_ID (primary)

LINEITEM(Lineitem_ID, Salesorder_ID)
Key: Lineitem_ID (primary)

Domain Definitions

Lineitem_ID	in	DEC(5)
Salesorder_ID	in	DEC(5)
Qty	in	DEC(6)
Tax	in	formula, .10*(Qty*total)
Total	in	DEC(9); format currency $9,999.99

Relation and Key Definitions

LINEITEM(Lineitem_ID, Salesorder_ID)
Key: Lineitem_ID (primary)

SALESORDER(Salesorder_ID)
Key: Salesorder_ID

RELATIONS

RELATIONS

CLIENT (ClientID, Client Name, *EmployeeID*, Address, *Zip Code*, Phone Number, Credit Rating)

ZIP-TABLE (ZipCode, City, State)

EMPLOYEE (EmployeeID, HireDate, JobCode, Title, Wage, WorkHours, Benefits, Exempt)

INVENTORY (InventoryID, *ManufacturerID*, *ItemID*, *PlanID*, Name, Retail Cost, Cost, Date Received, Qty, InvenMax, InvenMin)

MANUFACTURER (ManufacturerID, CompanyName, Contact, Address, ZipCode, PhoneNumber, E-mail, Fax)

SALESORDER (SalesOrderID, ClientID,Total Cost, Date)

RECEIVING (ReceivingID, Date Received, Quantity)

SALESORD-RCV (*SalesOrderID*, *ReceivingID*)

MANU-RCV (*ManufacturerID*, *ReceivingID*)

SHIPPING (ShippingID, Date Shipped, Date Received, Cost, *SalesOrderID*, *ManufacturerID*)

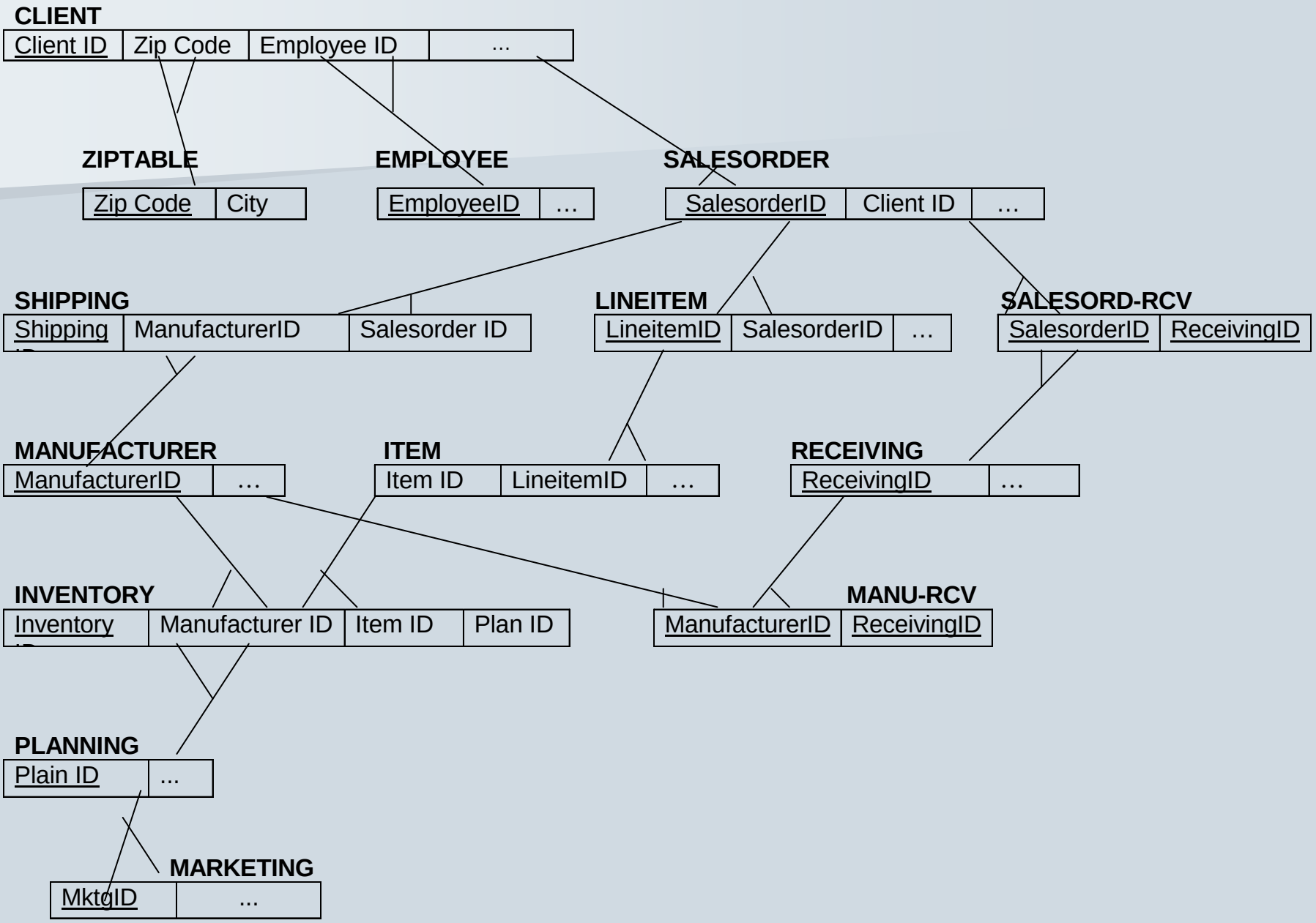
PLANNING (PlanID, Date)

MARKETING (MktgID, CampaignName, Target Mkt, Description, *PlanID*)

ITEM (ItemID, *LineItemID*, Qty, Date, Description)

LINEITEM (LineItemID, *SalesOrderID*, Qty, Tax, Total)

Relationship Diagram



Data View Definitions

U.U.L's Information System is designed to specifically enhance and improve data handling method in five major areas:

- Sales
- Marketing
- Processing: Shipping and Receiving
- Client Information
- Inventory

Each focus area needs only the data specific to executing its daily, weekly or monthly tasks. U.U.L will create four internal Data views to address our current operations issues and one external view.