DBIS Project Report

Online Shopping

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Contents

Chapter 1

Introduction

1.1 Overall Description

The project aims to make an online shopping store.It will be used by netusers so that that they can order products and make deals at the click of a mouse.The store has facilities for buying goods,selling goods(the users may want to sell products through our website),auctions,posting comments/queries about goods,and discussion . The users of the system are the netshoppers who use the customer interface described above and the businessman(the shopkeeper) who uses the businessman interface to make changes to the underlying database system such as changing the policy engine et al.

1.2 Definitions

1. Shopping: This entails interaction between the customer and the shopkeeper dealing with buying,selling of commodities.
2. Product:An commodities that is being sold/given to a customer.
3. Customer:A buyer or probable buyer at the store.
4. Deal:A 2 way transaction usually money for goods.
5. Policy set:A set of rules used by the shopkeeper to manage the shop. eg. users who have used my site for 1 year get 10

1.3 References

Abraham Silberschatz, Henry F. Korth and S. Sudarshan. *Database System Concepts.* McGrawHill, 1996

1.4 Overview of Developer's Responsibilities

The developer is responsible for development of the underlying database structure which shall serve as an online shop. The developer shall also be responsible for development of both the customer and the businessmans interface for the online shop which shall both make use of the underlying database structure.The developer will also train the user to use the interface and show sample data entry and deletion. The database must then be built by the client.

Chapter 2

General Description

2.1 Product Perspective

Relationship with other products and principal interfaces

The interface will be in 2 basic parts

1. The businessmans interface for data deletion,entry and the management of the policy set. The above encompasses all shopkeeper functions such as changing the item information, managing the despatch time-table et al

2. The customers interface for buying goods and querying. This shall also include a bulletin board which shall serve as a platform for selling goods,and by extension thereby,auctions.The interfacee will provide for an easy search so that the customer will be able to locate the product of his choice easily.The data items in the shop will be organized in semantics units called rooms which hold similar products.The rooms are themselves have child rooms , a parent room and data items in the room .We are using a tree datastructure for the same.

Both of the above interfaces shall make changes to the same underlying database structure which in totality shall constitute an online shop.

2.2 Product Functions Overview

1. Enable customer to buy online.

2. Enable customer to easily browse through the products.

3. Enable customer to search products.

4. allowing customers to post queries and discuss products and sell through us.

5. allow the businessman to manage the shop inventory.

6. allow the businessman to view graphs depicting previos sales etc.

7. allow the businesman to change the look and fel of the site with ease.

8. allow the shopkeeper to view different configuration options and update them.

2.3 User Characteristics

The businessman and his team members will be trained by us on how to use our interfaces for maintaining the shop.

2.4 General Constraints

This project is to be completed, including coding, testing and loading of the database, by Nov 15, 2000. A prototype demo is due on Oct 22, 2000.

Chapter 3

Information Description

3.1 Entities and Relationships

3.1.1 Entities

1. Item
2. ItemAuthority
3. orders_to_be_placed
4. supplier
5. despatch_table
6. users
7. registered_users
8. unregistered_users
9. priveleged_users
10. normal_users
11. mode_of_payment_table
12. policy_set
13. Shopping_basket
14. room
15. password

16. SalesLogs
17. auctionz
18. aucstatz
19. Globalvarz
20. newsgroup
21. topic
22. ConfigureOptions
23. SetupVars
24. TemplateFiles

3.1.2 Relationships

1. ManufacturedBy
2. room_item
3. mop_despatch
4. SupplierItems

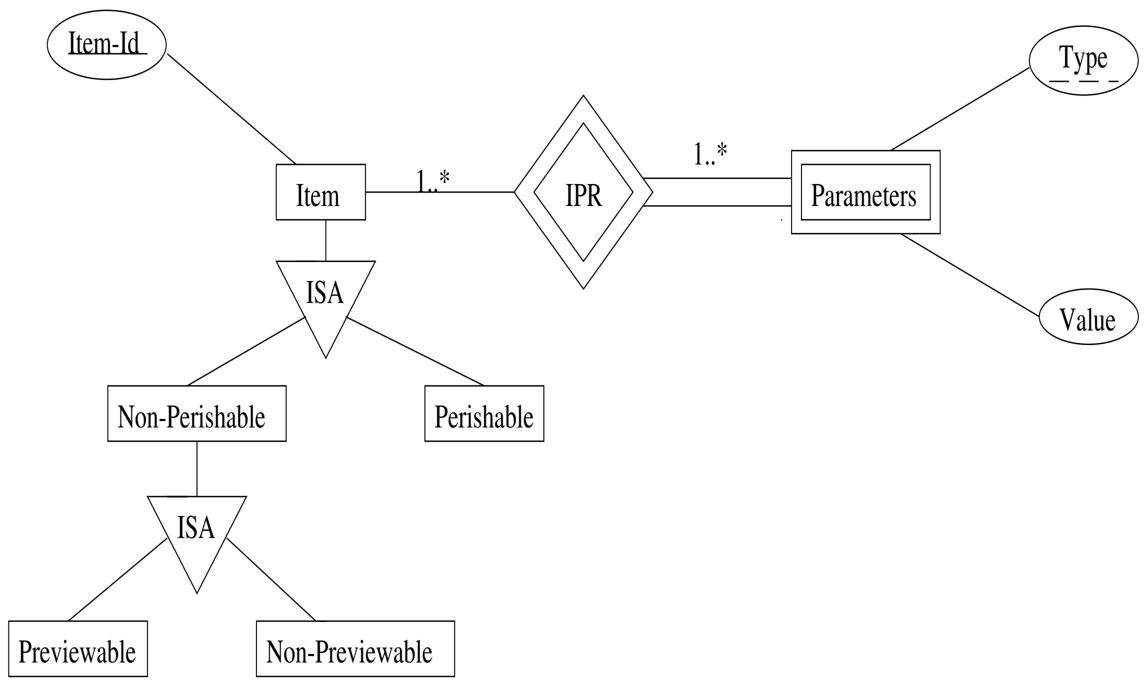

Figure 3.1: **Item**

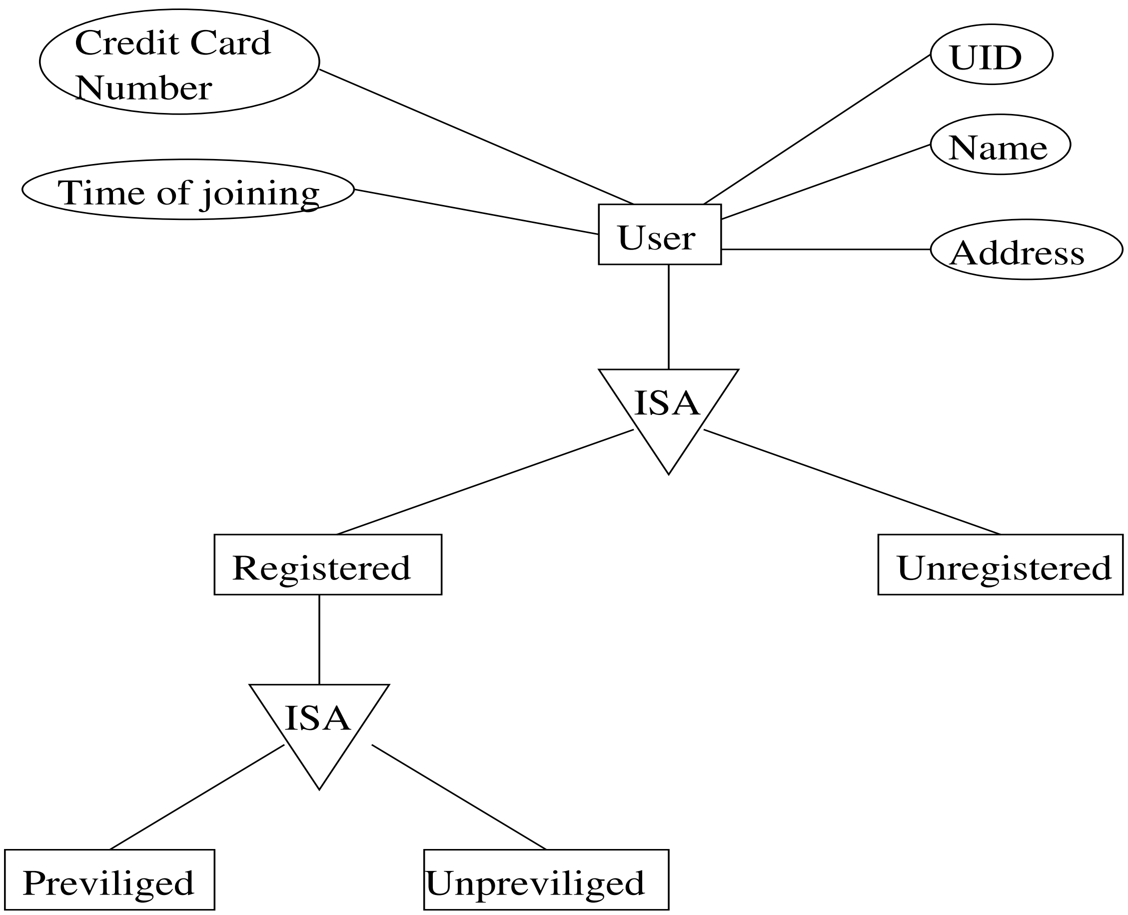

Figure 3.2: **User**

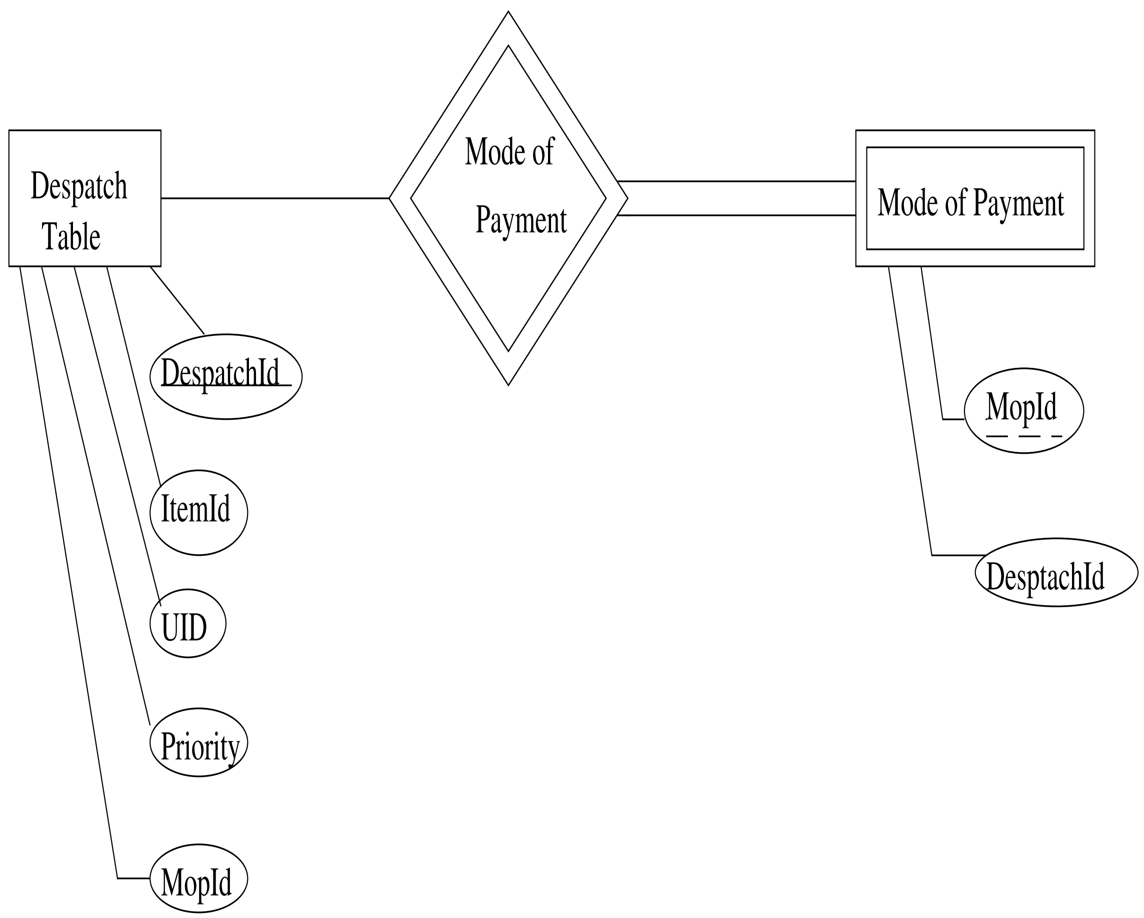

Figure 3.3: **Despatch**

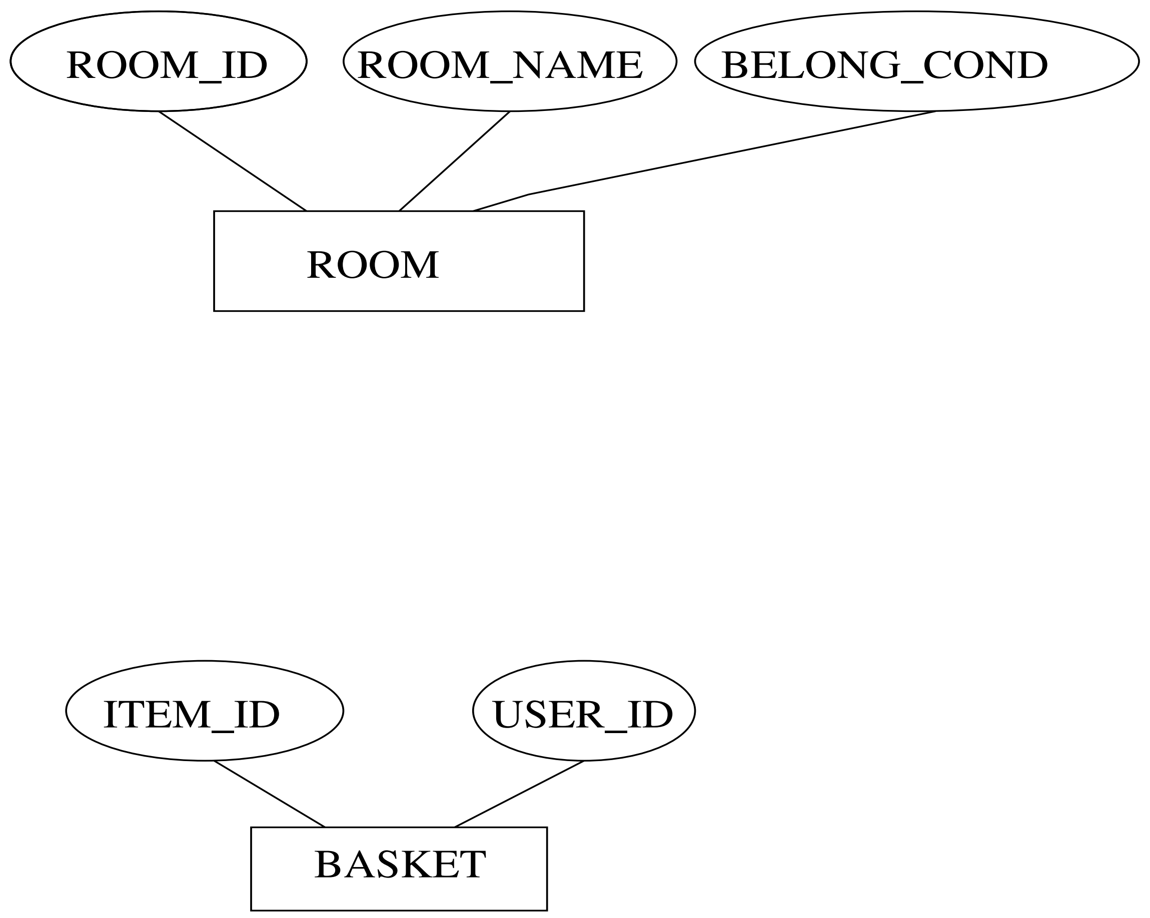

Figure 3.4: **Basket and Room**

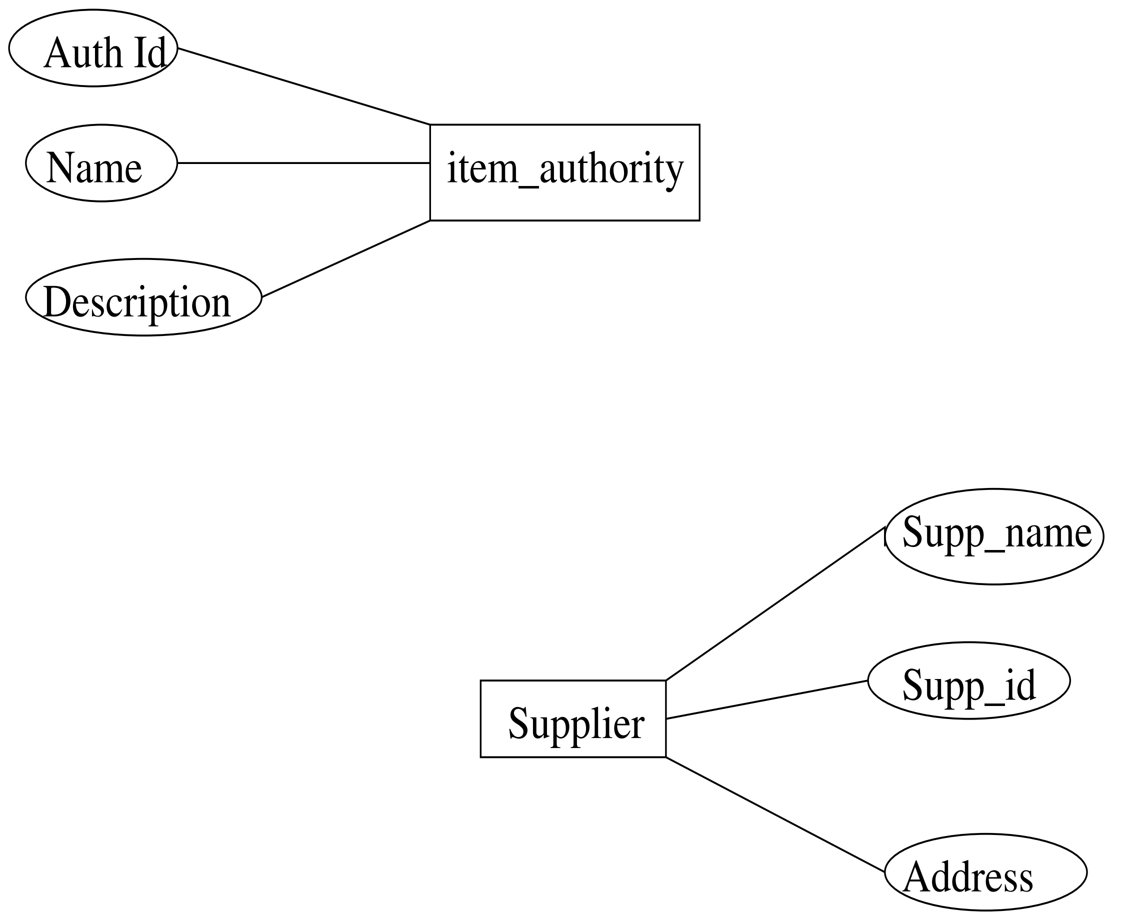

Figure 3.5: **item-authority and supplier**

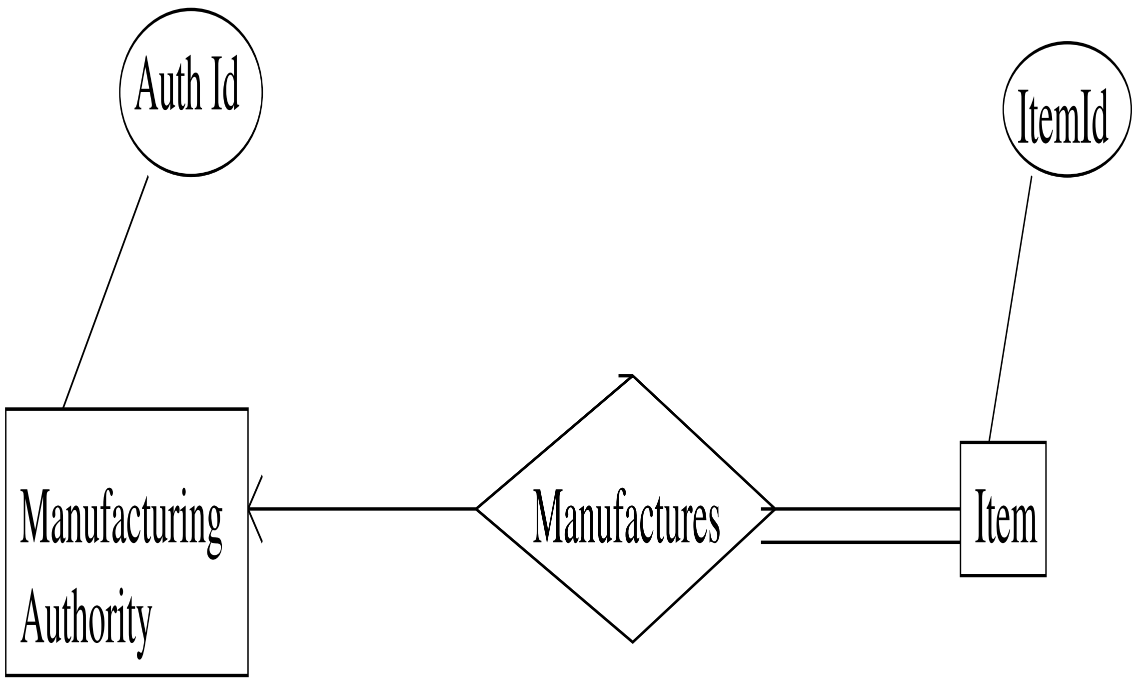

Figure 3.6: **Manufactured-by**

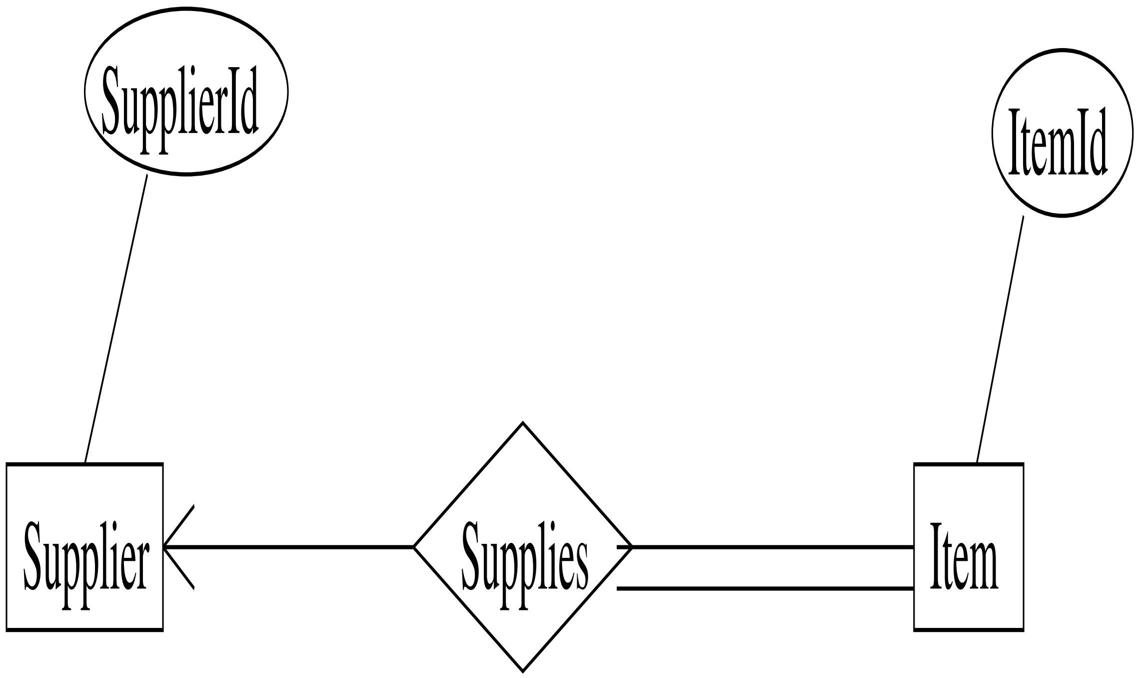

Figure 3.7: **supplies**

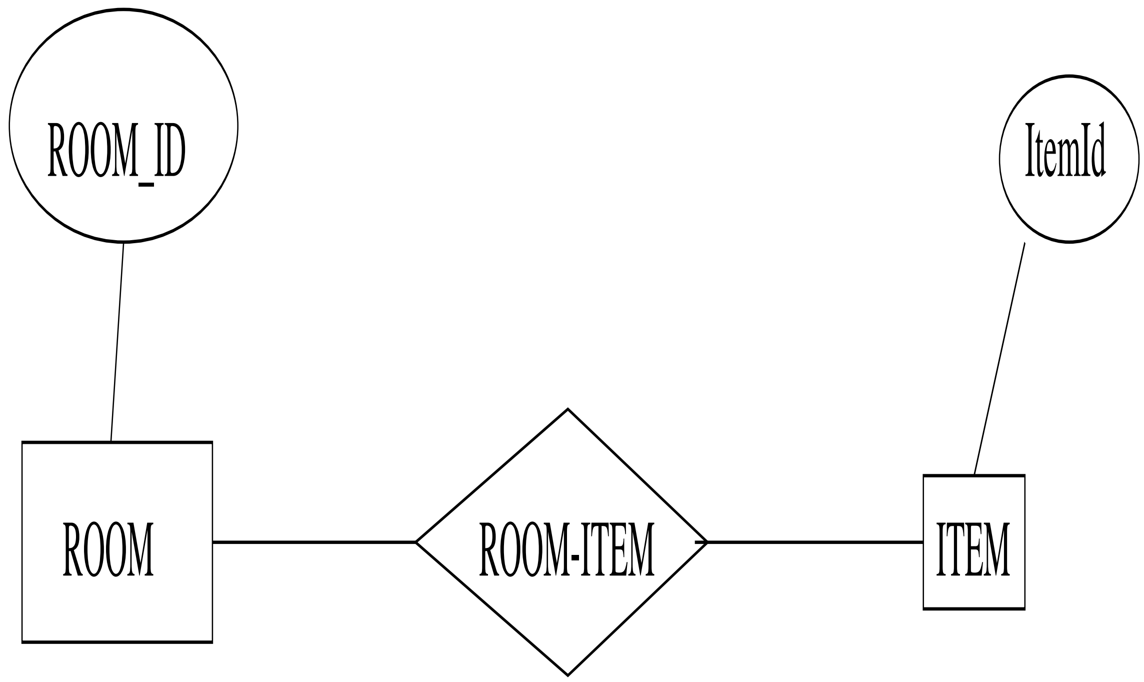

Figure 3.8: **room-item**

3.2 Data Dictionary

Entities

3.2.1 Entity *item*

Field	Domain	Constraint	Description
item_id	integer	primary key	An identifier acting as primary key
item_name	varchar(20)	not null	Name of the item
price	float	not null	The price of the item per unit

This entity has all the information about the item. All additional specific parameters are taken from the parameters entity.

3.2.2 Entity *supplier*

Field	Domain	Constraint	Description
supplier_id	integer	primary key	An identifier acting as primary key
s_name	varchar(20)	not null	Supplier Name
address	varchar(50)	not null	Address of supplier
email	varchar(40)	-	Email Address

This entity contains the information of all the suppliers.

3.2.3 Relationship*supplier-items*

Field	Domain	Constraint	Description
supplier_id	integer	foreign key references supplier	The supplier of the corres supplier
item_id	integer	foreign key references item	The item of the corres item

This gives all the items supplied by each supplier

3.2.4 Entity *orders_to_be_placed*

Field	Domain	Constraint	Description
item_id	integer	foreign key references item	
supplier_id	integer	foreign key references supplier	
quantity	integer	not null	The quantity of items to be supplied
order_date	varchar(40)	not null	date of placing order
priority_no	integer	not null	gives the urgency of order to be placed

Whenever the stock of an item falls below its minimum acceptable quantity,an order has to be placed to the appropriate supplier

3.2.5 Entity *item_authority*

Field	Domain	Constraint	Description
auth_id	integer	primary key	An identifier acting as primary key
name	varchar(20)	not null	The name of the authority corres to the item eg.the author,artist,manufacturer involved et al
description	blob	not null	Contains the description of the authority.Could be added to the preview of item

This entity gives the authority corresponding to an item. An authority can range from an artist of a painting to the author of a book to the manufacturer of an item

3.2.6 Relationship *manufactured_by*

Field	Domain	Constraint	Description
auth_id	integer	foreign key referencing item_authority	-
item_id	integer	foreign key referencing item	-

This just relates each authority to the corresponding item.

3.2.7 Entity *priv_users*

Field	Domain	Constraint	Description
user_id	integer	primary key	An identifier acting as primary key
user_name	varchar(20)	not null	User Name
address	varchar(100)	not null	Address of user
email	varchar(40)	-	Email Address
credit_card_no	integer	not null	Credit Card Number
join_date	date	not null	date of registering

This entity contains all the priveleged users.This information is used for calculating discounts et al.These users have to be registered.

3.2.8 Entity *Users*

Field	Domain	Constraint	Description
user_id	integer	primary key	An identifier acting as primary key
user_name	varchar(20)	not null	User Name
address	varchar(100)	not null	Address of user
email	varchar(40)	-	Email Address
credit_card_no	integer	not null	Credit Card Number
join_date	date	not null	date of registering
privtype	varchar(20)	-	registered or unregistered

This entity contains all the users,both registered and unregistered.The type of the user is stored in the privtype field.

3.2.9 Entity *Despatch_table*

Field	Domain	Constraint	Description
Despatch_id	integer	primary key	An identifier acting as primary key
user_id	integer	not null	UID of the user who places order
Item_id	integer	not null	This is the id of the item being ordered
Quantity	integer	not null	This gives the quantity of the item ordered
Priority	integer	not null	This is the priority of the order placed

This is the final storage unit for the transation information about a deal. When a user confirms to a particular deal, an entry is made in this table to sugnify the same. This entry is later processed for final despatch after the time for tentative changes has expired. During this period the user can take cancel his order if he intends to. This period can again be varied depending upon the urgency of the order placed. Thus it acts as a buffer to store the transaction details.
A thread polls this table after a specified time to check for any update if required. It may be that the buffer period for a particular item order has expired and it can thus be sent for final delivery.

3.2.10 Entity *Mode_of_payment*

Field	Domain	Constraint	Description
MOP_id	integer	discriminator	An identifier acting as
Despatch_id	integer	not null	This indicates the primary key of the strong entity
Amount	float	not null	This gives the amount per MOP per Despatch

This table represents a weak entity with the despatch table as the strong entity. This stores the mode of payment used by a particular transaction.

3.2.11 Entity *policy_set*

Field	Domain	Constraint	Description
policy_type	varchar(20)	primary key	the name of the policy type eg.dispatch
cnf_str	varchar(20)	not null	this shall be a string in CNF form which shall contain conditions entailing the policy

This entity contains the policies in a CNF form corresponding to each policy type,which shall be computed from the input received from appropriate interface.

3.2.12 Entity *shopping_basket*

Field	Domain	Constraint	Description
user_id	integer	foreign key references users	User Id
item_id	integer	foreign key references item	Item Id
quantity	integer	not null	Gives the quantity of the item in the basket

This acts as a buffer for each customer session wherein all the items selected for buying shall be put into the basket. Then while remitting the basket,all the item-transactions are performed at the same time

3.2.13 Entity *rooms*

Field	Domain	Constraint	Description
room_id	integer	primary key	
room_desc	varchar(20)	not null	The description of the room
Par_room	integer	not null	The parent room id

This entity contains the information about each room including the belonging_condition which shall be in CNF form.The latter shall be computed from

input received from an appropriate interface.

3.2.14 Relationship *room_items*

Field	Domain	Constraint	Description
room_id	integer	foreign key references room	
item_id	integer	foreign key references item	Item Id

This gives the items in each room.

3.2.15 Entity *Password*

Field	Domain	Constraint	Description
user_id	integer	foreign key referencing users	The user whose password is stored
encrypted_password	varchar(20)	not null	The encrypted password

This entity stores the password of each user.The same may be stored in an appropriate encrypted format

3.2.16 Entity *Saleslogs*

Field	Domain	Constraint	Description
user_id	varchar(20)	foreign key referencing Users	
item_id	integer	foreign key referencing Items	
unitBuyPrice	numeric(6,2)	not null	
quantity	integer	primary key	

This entity contains the logs of previous sales which can be used for inferencing due patterns et al for the businessman

3.2.17 Entity *Aucstatz*

Field	Domain	Constraint	Description
item_id	integer	foreign key referencing Items	
qtd_price	float	not null	The price quoted by a user
Buyer	varchar(20)	not null	The user who has quoted the above price

This entity contains information about the various auctions under way

3.2.18 Entity *Auctionz*

Field	Domain	Constraint	Description
item_id	integer	primary key	
item_name	varchar(200)	not null	The name of the item being sold
item_qty	integer	not null	The parent room id
reserve_price	float	-	The minimum price set by the seller
preview_url	varchar(200)	-	This gives the preview url of the product
item_desc	varchar(1000)	not null	This is a short description of the item sold
lapse_date	date	-	The date till which the auction should take place
Seller	varchar(20)	not null	The id of the seller

This entity contains the information about auctions with respect to seller

3.2.19 Entity *GlobalVarz*

Field	Domain	Constraint	Description
name	varchar(20)	not null	The name of the parameter
value	varchar(20)	not null	The value of the parameter

This entity stores the globalvariables akin to a hashtable in the form of name value pairs

3.2.20 Entity *NewsGroup*

Field	Domain	Constraint	Description
user_id	varchar(20)	foreign key referencing users	
aid	integer	not null	The id of the article
art_text	varchar(1000)	not null	The text of the article
p_aid	integer	-	The parent article
title	varchar(20)	not null	The title of the article

This entity contains all the newsgroup contents.We also store the parent article so that we can simulate threads

3.2.21 Entity *Topic*

Field	Domain	Constraint	Description
topic_name	varchar(20)	not null	The name of the topic
r_art	integer	not null	The root articles of this topic

This entity contains all the thread root articles of each topic

3.2.22 Entity *ConfigureOptions*

Field	Domain	Constraint	Description
opt	varchar(100)	-	The Configuration option under consideration
className	varchar(100)	not null	The class used for this option

This entity is akin to a HashTable with option and the corresponding className pairs

3.2.23 Entity *SetupVars*

Field	Domain	Constraint	Description
name	varchar(20)	primary key	the name of the variable under consideration
val	varchar(1000)	not null	The value of the variable
description	varchar(1000)	not null	The description of the variable

This entity contains the setup Variables.Thus we can store many setup variables in the database and many code sections like servlets need only access the database to get the values of the same

3.2.24 Entity *TemplateFiles*

Field	Domain	Constraint	Description
name	varchar(200)	-	The template name
fileAddress	varchar(500)	not null	The address of the corresponding file
fileDescription	varchar(1000)	not null	The description of the template

This entity contains the details about various template files. The template name,the address of the corresponding file and the description of the same

Chapter 4

Functional Requirements

CUSTOMERS DOMAIN

1. Browsing Through Items: The customer will be given a web interface which allows easy browsing through the different rooms.Basically the items in the shop are well organised and well presented so that a user can find his required item easily.

2. Item Selection: When a customer selects an item authorisation takes place he will be prompted for password or if he is an unregisterd user he may give his credit-card number and other information and

3. Basket Remittanceand Updation:The customer is allowed to update/change/add to his basket with due authorisation after which when he remits the basket and the items are sent to the despatch table.

4. Queries and discussions: The customer is allowed to post queries about products available and discuss products sold online.

5. Ability to sell:The customers themselves must be allowed to sell some item through the website.

BUSINESSMAN'S DOMAIN

1. Shop Modification: He has an interface to add items to his shop and make modifications to items like prices etc.

2. Easy configurator:The businessman must be able to configure his shop.

3. Graphical view tool:The businessman must be able to graphically view the saleslogfs and othe statistaicl reports in form of pie charts/bar diagrms etc so that he can make business decisions.

Chapter 5

External Interface Requirements

5.1 User Interfaces

The web is used as the interface.

5.2 Hardware Interfaces

No special hardware interface.

5.3 Software Interfaces

1. Java 1.2
2. JDBC and servelets
3. An Oracle8i SQL server.

Chapter 6

Performance Requirements

We dont have an exact idea for the performance requirements at this stage. Maybe at this stage we must say.

1. a powerful server:A large number of the html files are dynamically generated .This puts a lot of load on the server.It is imperative that server must be powerful enough.
2. A good harddisk (fast and big) are essential for a shop
3. The shop must be well connected to the net by a good connection so that a large number of customers can use the shop together.

Chapter 7

Design Constraints et al

7.1 Design Constraints

7.1.1 Standards Compliance

Not Applicable.

7.1.2 Hardware Limitations

Not Applicable.

7.2 Validation Criteria

We will load the database wih sample data and show the smooth functioning of the various facilities. Tests correctness will be conducted.

7.3 Other Requirements

Not Applicable