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Report on Project Title:

Media Inventory and Customer Management System

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Abstract

This project “Media Inventory and Customer Management System” application simply keeps records of the customers and media inventory in the music and film store. By using this application, users will be able to check availability of a certain media through search service. Search may be also optimized using search preferences like title, genre, artist, language etc. The user (store-keeper) can access information on daily transactions based on cash sales or credit sales. He can easily relate regular customers to their related services availed. Information on payment details regarding the customers and services will also be easily accessible.

Introduction

In music and film stores, there are a number of daily transactions taking place and flow of products and goods in and out of the store. The daily transactions may range from renting CD/DVD films to selling of multimedia items(films, songs, blank CDs,/DVDs) .A number of new films and songs may be coming in the stores daily or at some days interval. The inventory of these items must be updated. Similarly, a customer may demand a film or song CD/DVD in a number of ways. He might ask for it by the title/album, genre, artist /actors or simply whether it is a hit or not. These information should be easily and quickly retrieved for efficient customer service.

Moreover, the customers may be regular and frequently using the services, or non-regular. So, there may be different cost- schemes for regular and non-regular customers.A non-member customer might have to deposit a certain amount to avail rental service. The services may be offered on credit or cash. So, the records of customers and their related transactions must be maintained.

Hence, an efficient customer and multimedia inventory system is must to keep records of the daily transactions and status of multimedia items and customers in the music and film stores.

Objectives

To run any system smoothly and effectively there must be the proper management. In the lack of proper management the system cannot function well and won't be able to fulfill its objectives. The “Customer Management and Media Inventory System” enrolls different activities to manage the system properly so that it meets its overall objectives. Some of objectives of “Customer Management System” are as follows:

1. Media search will be easy and customizable. User can search film or song album using title, genre, artists , rating etc.

2. Media can be easily added and deleted in the inventory.

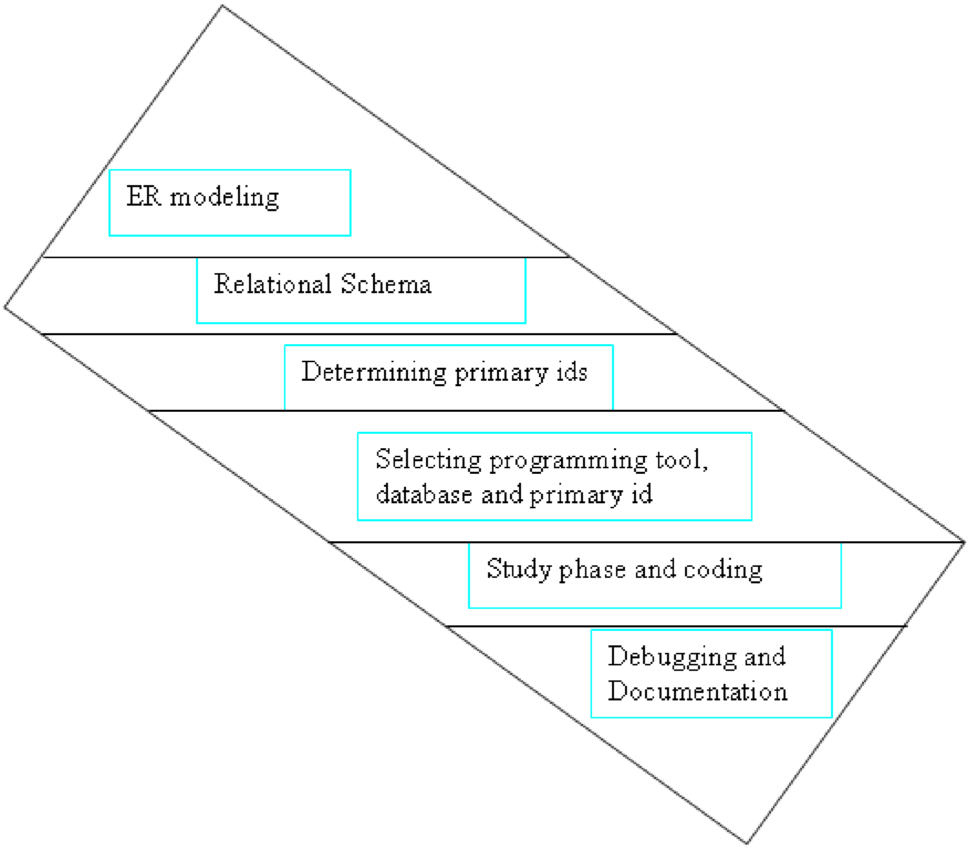
3. Customer records will be maintained in relation to credit sale or rental service.

4. Sales or rental records will be easily accessed in useful statistics like total sales, total outstanding income etc.

Project Description:

We completed this project by implementing the following project development pipeline:

1. ER modeling
2. Relational Schema
3. Determining composition of primary ids
4. Selecting programming tool, database and primary id
5. Study phase and Coding
6. Debugging and Documentation


ER modeling
Relational Schema
Determining primary ids
Selecting programming tool, database and primary id
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Debugging and Documentation

Fig: Project development pipeline

1. Entity Relationship Model

The entity-relationship data model is based on a perception of a real world data model that consists of a collection of basic objects, person, events of process called entities, characteristics of these called attributes and the relationship among these entities. The set of all entities of the same type and the set of all relationships of the same type are termed an entity set and relationship set; respectively entities are represented by rectangles. Attributes are represented by ellipse and relationship is represented by diamond shapes or triangles.

Our output of the new logical design is the E-R model of the new system. This model defines the data requirements of the new system. During design, the E-R model is converted to databases .The conversion usually precedes in two steps. the first conversion step is to carry out the detailed analysis the data and the goal of this step is to get the data model into shape removing any redundancies from it , to do this we relational theory and replace each set is an E-R model by a able or relation. The relation is then examined for redundancy and if necessary changed into a non redundant form. The output of this step is a non redundant model of the user system. The next step is to convert the relational model to a data base definition. We call this step is as database design. To convert on E-R diagram to set of relations, we replace each set in the E-R diagram by relational schemas shown below.

Entity

Any distinguishable person, place, things, event, or concept about which information is kept, is called entity. A single occurrence of an entity is termed as the entity instance

Attributes/property

An attribute is a descriptive property or characteristics of an entity

Mapping Cardinalities

These are the constraints that express the number of entities to which another entity can be associated via a relationship set. For a binary relationship set, the mapping cardinalities must be one of the following;

- **One to One**

It is the binary relationship in which an entity in A is associated with at most one entity in B and vice versa.

- **One to Many**

It is the binary relationship in which an entity in A is associated with any number of entities in B.

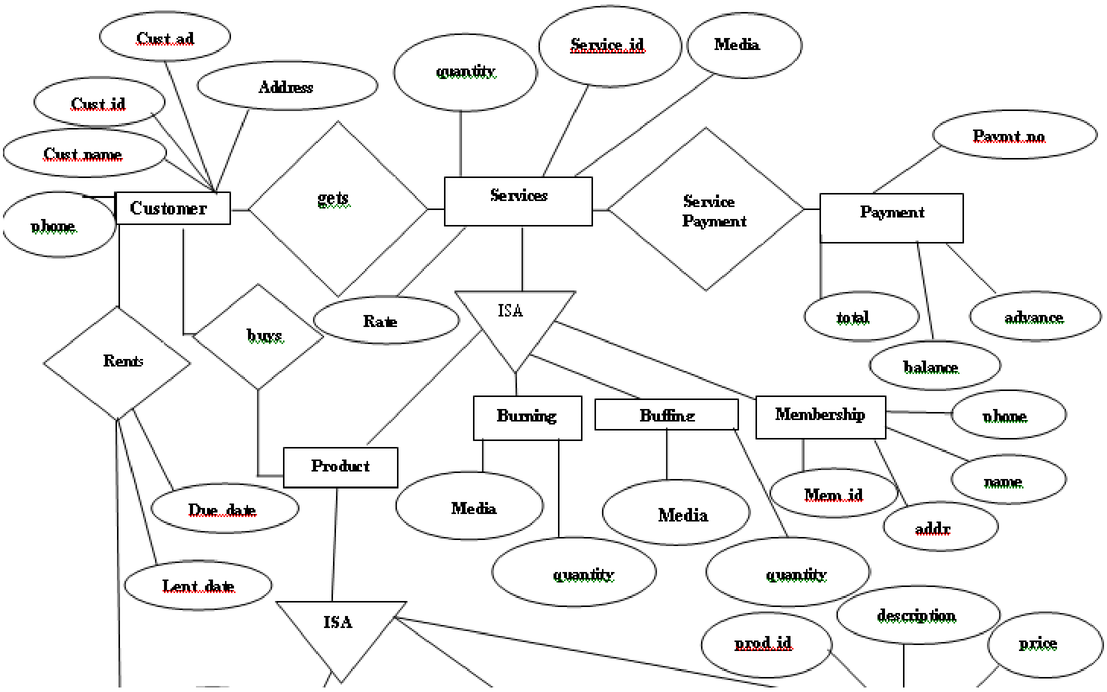
- **Many to One**

It is the binary relationship in which any number of entities in A is associated with at most entity in B.

- **Many to Many**

It is the binary relationship in which any number of entities in A is associated with any number of entities in B.

ER diagram



Cust ad
Cust id
Address
Cust name
phone
Customer
gets
quantity
Service id
Media
Services
Service Payment
Paymt no
Payment
total
advance
balance
Rate
ISA
Rents
buys
Burning
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phone
name
Mem id
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Product
Media
Media
quantity
quantity
Due date
Lent date
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description
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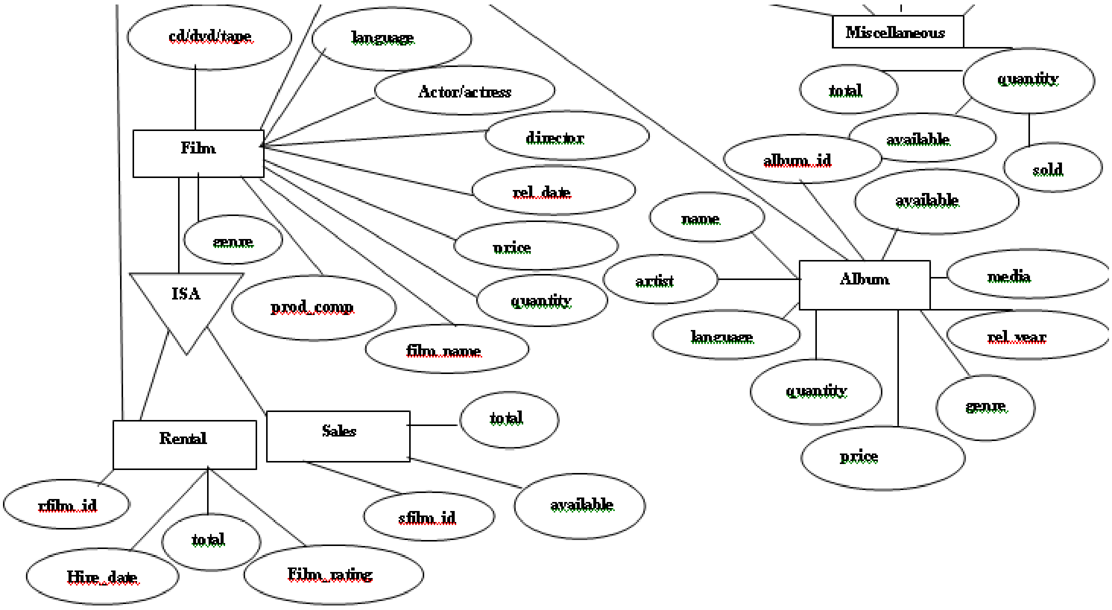

Miscellaneous
cd/dvd/tape
language
Actor/actress
Film
director
rel date
genre
price
quantity
film name
prod comp
ISA
Rental
Sales
total
available
sfilm id
rfilm id
total
Hire date
Film rating
total
quantity
available
album id
sold
available
name
artist
Album
media
language
rel year
quantity
genre
price

Fig: ER diagram for Media Inventory and Customer Management System

2. Relational Schemas

The following relational schemas are used to represent the above E-R model of the application, “Media Inventory and Customer Management System”.

1. **film** (film_id, name, language, media, actor, director, release_year, genre, date)

It represents the information about the films. The owner can insert o or update the film as required. He/she can add them to either for r rental service or sales service

- **film_rental** (rfilm_id, film_rating, hire_date, quantity, available)

It gives the additional informations about the films associated with rental service.

- **film_sales** (sfilm_id, quantity, available)

It gives the additional informations about the films associated with s sales service.

2. **album_schema** (album_id, album_name, release_date, genre, price, language, type, artist_name, insert_date, quantity, available)

It represents the information about the entity album. The owner can insert or update the album as required.

3 **member_schema** (mem_id, fname, mname, lname, phone_no, mobile, address, issue_date, expire_date)

It gives the information about the entity member. The owner can add member.

4. **customer** (cust_id, fname, mname, lname, phone_no, mobile_no, a address)

It gives the information about the entity customer. The owner keeps the information about the customer who has rented the film.

5. **product** (product_name, rate, quantity, available)

It gives the information about the entity product. The owner can update the products.

6. **services** (service_id, media, quantity, rate)

It gives the information about the services provided (like burning, buffing)

7. **payment** (payment_no, total, advance, balance)

It gives the information about the entity payment.

8 **rental_sales_film**(film_id, rfilm_id, sfilm_id)

It relates the entities film, film_rental and film_sales.

9. **rental_customer** (cust_id, rfilm_id, rental_date, payment_no)

It relates the entities film_rental and customer.

10. **sales_info** (date, id, payment_no)

It gives the information about the sold items and their payment.

11. **service_info**(date, id, payment_no)

It gives the information about the services and their payment.

12. **sys_gen** (idname, nextid)

It gives the information about the available id for all entities.

13. **usr** (name, password)

It gives the name and password of the user.

3. **Choosing Composition of Primary ids**

Choosing primary id is very important to describe the relations in the best possible way. Primary id is the entity constraint which represents the real world objects through relations. In this application, we have defined the structure of various schemas in the following ways:

For film schema,

- film_id=language+media_type+unique number generated.
- Rfilm_id=R_+film_id
- Sfilm_id=S_+film_id

This representation enables to represent the entity film in an organized way. For example, EnglishCD1 represents the first English film in the CD type besides representing itself. The primary ids of film_rental and film_sales are represented simply by concating ‘R_’ and ‘S_’ before the corresponding film_ids respectively.

Similarly,

For album schema

- Album_id=A_+language+media_type+unique number generated.

For product

- Product_name=product_name

For service

For burning

- Service_id,media=(burn+unique number generated),media

For buffering

- Service_id,media=(buffer+unique number generated),media

For member_schema

- Service_id=mem_id

For customer

- Customer_id=unique number generated

For member

- Mem_id=unique number generated

The all primary keys are generated by using sys_gen schema (idname, nextid).

4. Selecting programming tool, database and primary id

Java was selected as programming tool to develop the application in the front end using Netbeans 5.5 IDE. We used oracal 9i for database in the back end.

5. Study phase and coding

We spent sometime for familiarizing with Netbeans5.5 IDE and oracal 9i. Then we created schemas in oracal and started programming in Netbeans5.5 IDE

6. Debugging and Documentation

The application was tested for possible errors. Afterwards, it was documented.

System Requirement

Hardware:

Processor:	Pentium IV or higher
Memory:	256 MB or higher
Keyboard:	Compatible to Windows
Mouse:	Compatible to Windows or equivalent pointing device

Software:

Operating System:	Windows 9x or higher
Software:	Oracle & Java Framework

Schedule

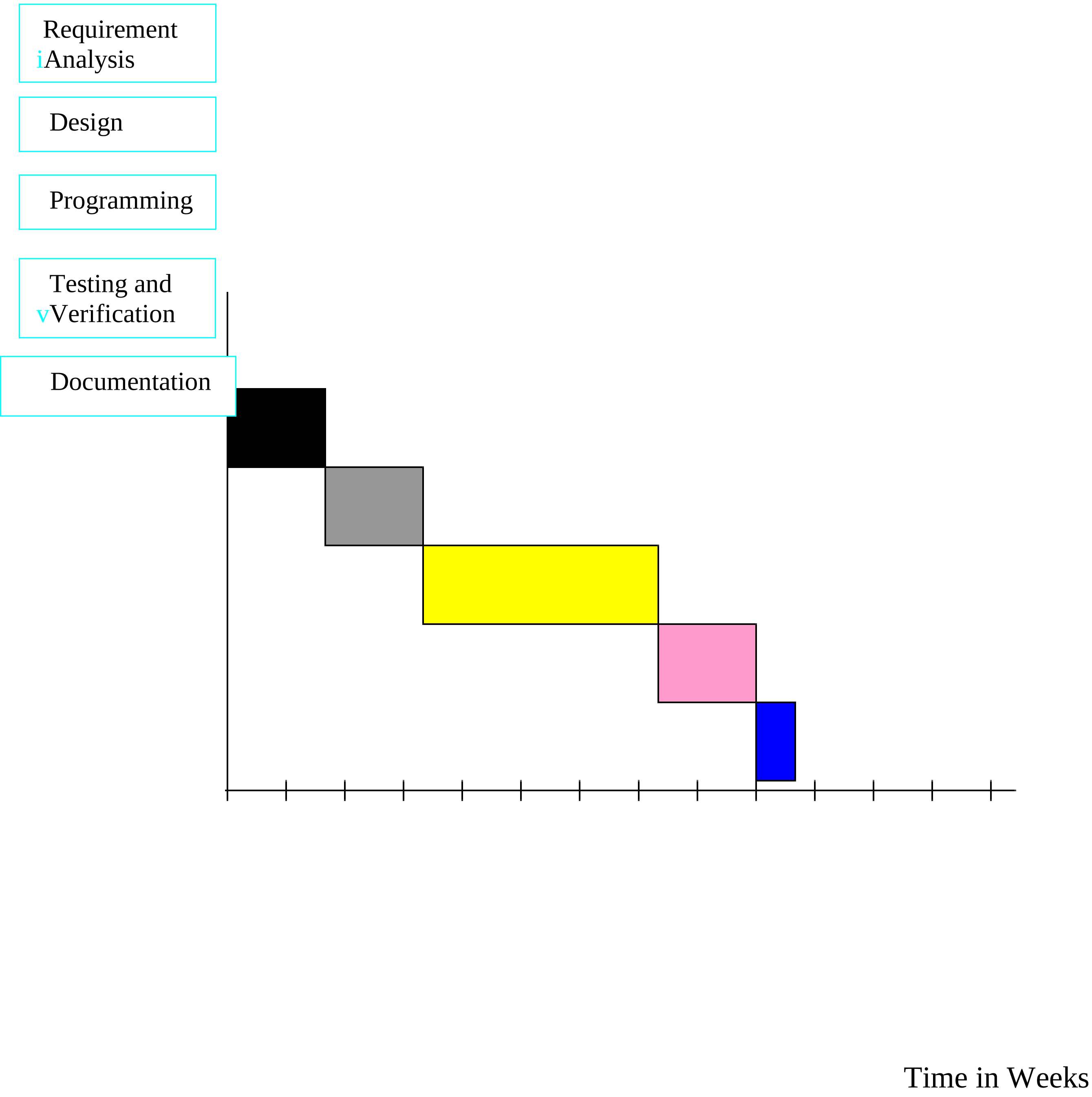

Fig: Schedule

Conclusion:

The application, “Media Inventory and Customer Management System” is developed successfully as our Datebase Management and System project. This application keeps records of the daily transactions and status of multimedia items and customers in the music and film stores. It also allows users to search films through many options such as title, actors, directors, genres, language and more. Similar mechanism is also available for songs. Besides, the information on credit and cash sales and rentals will be easily available through this application.

Since, it was developed in limited time, the application may be suceptible to data input other than the expected values.

We have used the overall knowledge of software development process and understood the details of data flow and how to implement the knowledge about the system design in real fields. We are now able to design any system by investigating the real practical field’s activities.

References:

- Database System Concept, A. Silberschatz, H. F. Korth, S. Sudarshan

- Java, How to Program, Deitel and Deitel

- Related sites from internet.