

# DealForest

ONLINE COUPON MARKETPLACE

DATABASE PROJECT

STEP ONE REPORT



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## 1. Company Background

DealForest is an American worldwide online coupon marketplace connecting customers with merchants in more than 28 countries. As a business, it provides customers one stop place to discover, buy and save through offers, discounts and deals, on the other hand provides merchant a unified portal to discover new audience and ease marketing campaign making it a win-win situation for both. First market for DealForest was Chicago where it was launched in March 2012, followed soon by Boston, New York City and Toronto. Currently it is serving more than 500 cities worldwide, nearly 40 million active customers and more than 4 lakh active deals globally.

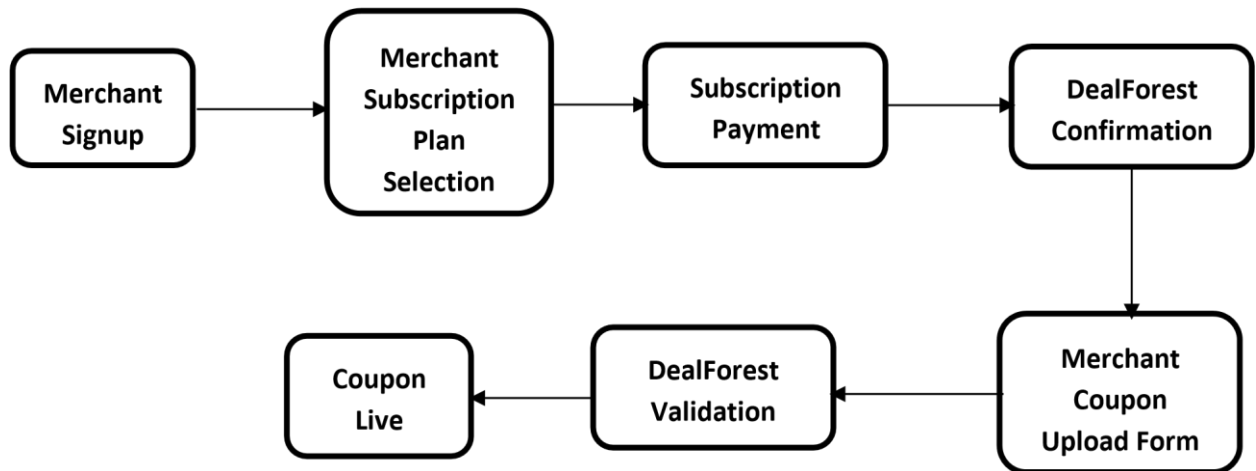
## 2. Problems in the Existing services and system

- Every business performed their own marketing through print or social media which led ineffective campaign consuming time and cost for every campaign
- It was not feasible for Merchants to offer bigger discounts for their products and services as coupons given to customers were free
- Coupon details like terms and conditions, Validity, Category (New User Coupon, Regular Coupon), Authenticity were unclear
- Dearth of market place for cross branding offers and revenue streaming with ease Lack of platform for small scale business owners to launch their advertising campaign, cost being a primary measure
- No common online platform was present to discover coupons in a seamless fashion  
Customer interests, loyalty and shopping patterns tracking was difficult  
Onboarding a new customer involved more budget, time and resources

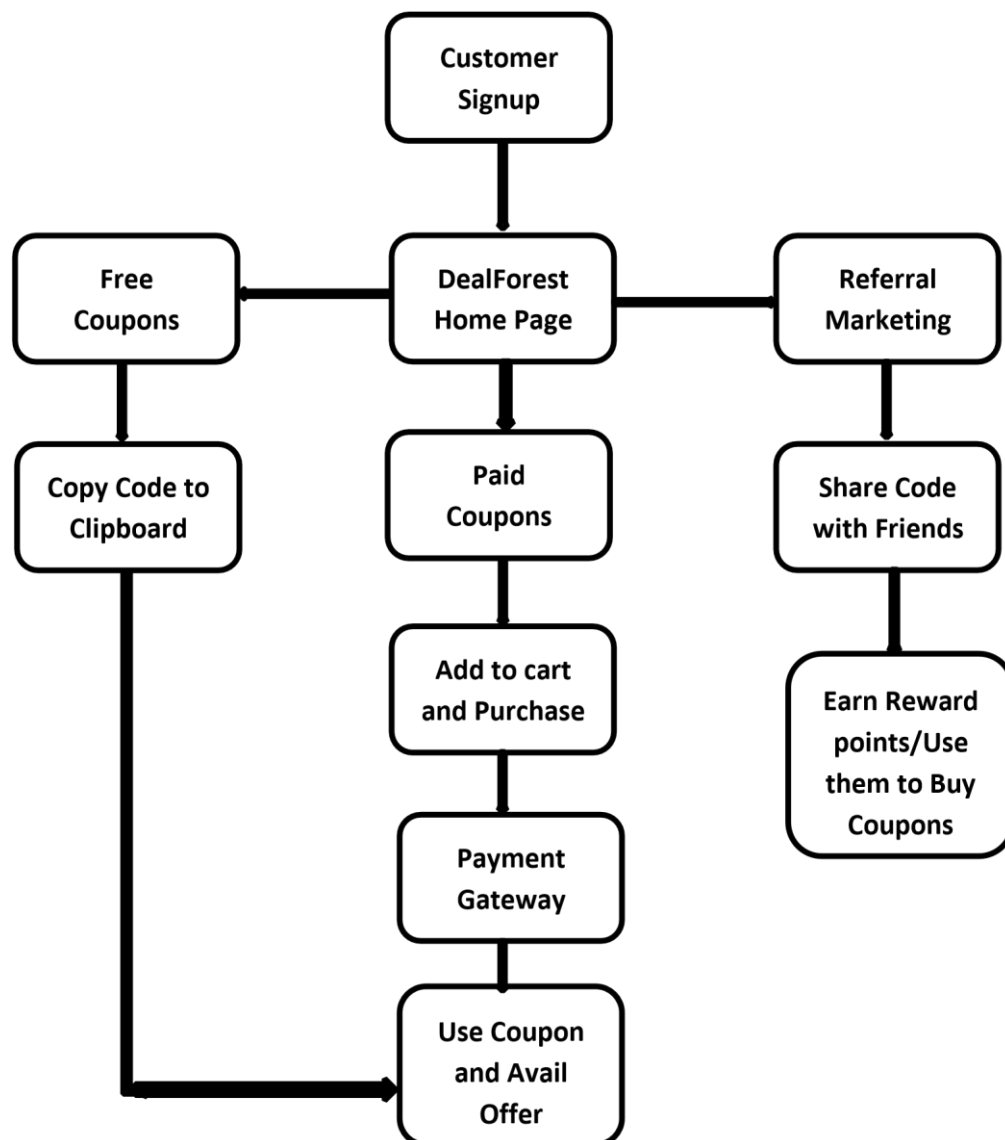
## 3. Feature of the service

- Provide a common online marketplace for coupons and deals across each category
- Use of customer interests to target relevant deals for better turnout rate
- Paid coupons will give merchants more room to provide better discounts for more users
- Having everything digital from purchase to payment will enhance customer experience
- Each merchant will have access to large pull of audience which will reduce pain of getting a new customer
- Ease of publishing and targeting campaigns to audience of choice
- Provide customer specific deals taking loyalty into consideration
- Use of referral marketing and reward points to keep audience engaged in platform

#### 4. Merchant Workflow



#### 5. Customer Workflow

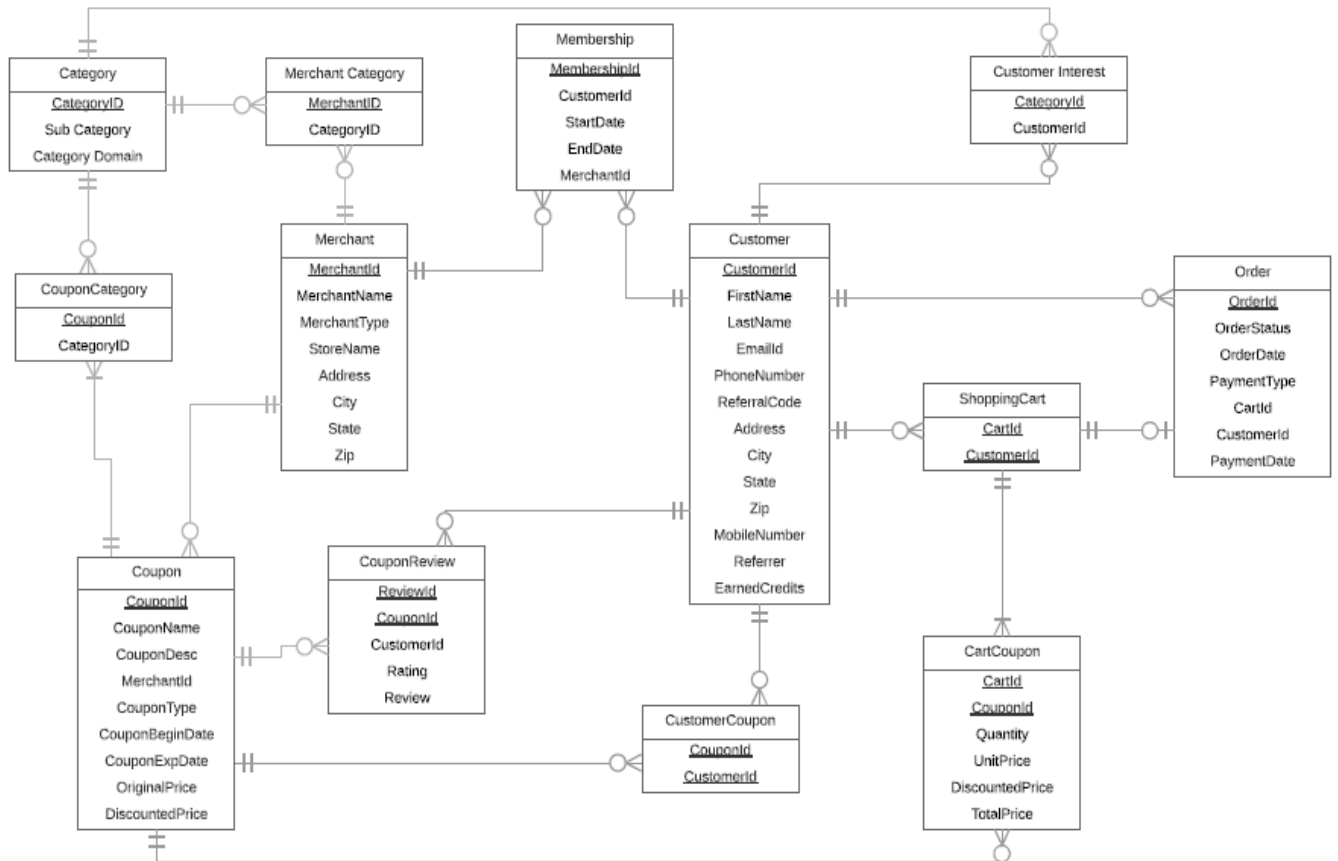


## 6. Data Scope and Table Description

The Following are the tables which will encompass the business needs and coupon information for Deal Forest

- a. **Customer Table** – This table contains the personal information of the customers which he will be providing while using DealForest signup page like Name, email id, phone number, address. Each Customer record will have a Customer Id (Primary Key) which will be unique.
- b. **Merchant Table:** This table contains Merchant related details like category, name, business type and merchant id (Primary key) which will be unique
- c. **Coupons Table:** This table is the most important table and it contains Coupon related information like validity, description, terms and conditions, coupon code, price, coupon id (Primary key).
- d. **Shopping Cart table:** This table contains data related to Cart of each customer like Customer id, Coupon id, quantity.
- e. **Order Table:** This table contains data related to order history of customer like order no., transaction id, payment status.
- f. **Membership Table:** This table contains the information of subscribed merchants by customers with attributes like Membership number, Merchant Id.
- g. **Coupon Review Table:** This table contains all the information related to the reviews provided by the customer to coupons.
- h. **Category Table:** This is a static table which contains different categories and subcategories which will be used to categorize customer interest, merchant and coupons and based on that it will be used to display relevant coupons to the targeted audience.
- i. **Customer Interest Table:** This table contains information provided by the customer which will be related to his/her interests like food, Lifestyle, Apparels etc. This information will be further used to display relevant coupons to the respective customer.

## 7. Entity Relationship Diagram



## 8. Relational Database Schema

### CUSTOMER TABLE

```
CREATE TABLE CUSTOMER (  
  CUSTOMER_ID          CHAR(11)      NOT NULL,  
  CUSTOMER_FIRSTNAME   VARCHAR(30)   NOT NULL,  
  CUSTOMER_LASTNAME    VARCHAR(30)   NOT NULL,  
  CUSTOMER_EMAIL       VARCHAR(30)   NOT NULL,  
  CUSTOMER_PHONENUMBER INTEGER       NOT NULL,  
  CUSTOMER_MOBILENUMBER INTEGER       NOT NULL,  
  CUSTOMER_ADDRESS1    VARCHAR(50)   NOT NULL,  
  CUSTOMER_CITY        VARCHAR(30)   NULL,  
  CUSTOMER_STATE       VARCHAR(30)   NOT NULL,  
  CUSTOMER_ZIP         INTEGER       NOT NULL,  
  CUSTOMER_REFERRER    CHAR(11)      NULL,  
  CUSTOMER_EARNCREDIT  INTEGER       NULL,  
  
  CONSTRAINT CUSTOMER_PK PRIMARY KEY (CUSTOMER_ID),  
  CONSTRAINT CUSTOMER_REFERRER_FK FOREIGN KEY (CUSTOMER_REFERRER) REFERENCES CUSTOMER  
    ON UPDATE CASCADE  
)  
Go
```

### MERCHANT TABLE

```
CREATE TABLE MERCHANT (  
  MERCHANT_ID          CHAR(11)      NOT NULL,  
  MERCHANT_NAME        VARCHAR(30)   NOT NULL,  
  MERCHANT_TYPE        CHAR(30)      NOT NULL,  
  Store_NAME          VARCHAR(30)   NOT NULL,  
  MERCHANT_ADDRESS     VARCHAR(100)  NOT NULL,  
  MERCHANT_CITY        VARCHAR(30)   NOT NULL,  
  MERCHANT_STATE       VARCHAR(30)   NOT NULL,  
  MERCHANT_ZIP         INTEGER       NOT NULL,  
  
  CONSTRAINT MERCHANT_PK PRIMARY KEY (MERCHANT_ID)  
)  
go
```

### MEMBERSHIP TABLE

```
CREATE TABLE MEMBERSHIP  
(  
  MEMBERSHIP_ID  INTEGER    NOT NULL  
  CUSTOMER_ID    INTEGER    NOT NULL,  
  Start_DATE     DATETIME   NOT NULL,  
  END_DATE       DATETIME   NOT NULL,
```

```

MERCHANT_ID      INTEGER      NOT NULL
CONSTRAINT MEMBERSHIP_PK PRIMARY KEY(MMEMBERSHIP_ID),
CONSTRAINT CUSTOMER_FK FOREIGN KEY (CUSTOMER_ID) REFERENCES CUSTOMER,
CONSTRAINT MERCHANT_FK FOREIGN KEY (MERCHANT_ID) REFERENCES MERCHANT
) go

```

#### COUPON TABLE

```

CREATE TABLE COUPON (
COUPON_ID          INTEGER          NOT NULL,
COUPON_NAME        VARCHAR(50)      NOT NULL,
COUPON_DESC        VARCHAR(100)     NOT NULL,
COUPON_TYPE        CHAR(50)         NOT NULL,
COUPON_CATEGORY    VARCHAR(30)      NOT NULL,
COUPON_BEGINDATE   DATETIME         NULL,
COUPON_EXPIRYTIME   DATETIME         NULL,
COUPON_ORIGNAL_PRICE DECIMAL(10,2)  NOT NULL,
COUPON_DISCOUNT_PRICE DECIMAL(10,2) NOT NULL,
MERCHANT_ID        INTEGER          NOT NULL,

CONSTRAINT COUPON_PK PRIMARY KEY (COUPON_ID),
CONSTRAINT MERCHANT_FK FOREIGN KEY (MERCHANT_ID) REFERENCES MERCHANT
) go

```

#### CATEGORY TABLE

```

CREATE TABLE CATEGORY (
CATEGORY_ID        INTEGER          NOT NULL,
CATEGORY_NAME      VARCHAR(50)      NOT NULL,
CATEGORY_DOMAIN    CHAR(50)         NOT NULL,

CONSTRAINT CATEGORY_PK PRIMARY KEY (CATEGORY_ID)
)go

```

#### COUPON\_REVIEW TABLE

```

CREATE TABLE COUPON_REVIEW (
REVIEW_ID          INTEGER          NOT NULL,
COUPON_ID          INTEGER          NOT NULL,
CUSTOMER_ID        INTEGER          NOT NULL,
RATING             INTEGER          NOT NULL,
REVIEW             VARCHAR (255)    NOT NULL,
CONSTRAINT COUPN_REVIEW_PK PRIMARY KEY (REVIEW_ID)
CONSTRAINT CUSTOMER_FK FOREIGN KEY (CUSTOMER_ID) REFERENCES CUSTOMER,
CONSTRAINT COUPON_FK FOREIGN KEY (COUPON_ID) REFERENCES COUPON
) go

```

#### ORDER TABLE



```

CREATE TABLE DEAL_ORDER (
ORDER_ID          INTEGER          NOT NULL,
ORDER_STATUS      VARCHAR(50)      NOT NULL,
CART_ID           INTEGER          NOT NULL,
ORDER_DATE        DATETIME         NOT NULL,
PAYMENT_TYPE      CHAR(50)         NOT NULL,
CART_ID           INTEGER          NOT NULL,
CUSTOMER_ID       INTEGER          NOT NULL,
PAYMENT_DATE      DATETIME         NOT NULL,
CONSTRAINT ORDER_PK PRIMARY KEY (ORDER_ID),
CONSTRAINT SHOPPINGCART_FK FOREIGN KEY (SHOPPINGCART_ID) REFERENCES SHOPPING_CART,
CONSTRAINT CUSTOMER_FK FOREIGN KEY (CUSTOMER_ID) REFERENCES CUSTOMER,
CONSTRAINT CARTCOUPON_FK FOREIGN KEY (CART_ID) REFERENCES CART_COUPON
) go

```

#### CUSTOMER TABLE CARTCOUPON

```

CREATE TABLE CART_COUPON (
CART_ID           INTEGER          NOT NULL,
COUPON_ID         INTEGER          NOT NULL,
QUANTIY          INTEGER          NOT NULL,
UNITPrice        DECIMAL(10,2)    NULL,
DISCOUNTEDPrice DECIMAL(10,2)    NULL,
TOTAL_COST       DECIMAL(10,2)    NOT NULL,
CONSTRAINT CART_PK PRIMARY KEY (CART_ID),
CONSTRAINT COUPON_FK FOREIGN KEY (COUPON_ID) REFERENCES COUPON
)
go

```

#### CUSTOMER TABLE SHOPPINGCART

```

CREATE TABLE SHOPPING_CART (
CART_ID           INTEGER          NOT NULL,
CUSTOMER_ID       INTEGER          NOT NULL,

CONSTRAINT CART_PK PRIMARY KEY (SHOPPINGCART_ID),
CONSTRAINT CUSTOMER_FK FOREIGN KEY (CUSTOMER_ID) REFERENCES CUSTOMER
)
go

```

#### COUPON CATEGORY TABLE

```

CREATE TABLE CouponCategory (
COUPON_ID         INTEGER          NOT NULL,
CATEGORY_ID       INTEGER          NOT NULL,
CONSTRAINT COUPON_FK FOREIGN KEY (COUPON_ID) REFERENCES COUPON
CONSTRAINT CATEGORY_PK FOREIGN KEY (CATEGORY_ID) REFERENCES CATEGORY)
go

```

### CUSTOMER COUPON (ASSOCIATE) TABLE

```
CREATE TABLE CustomerCoupon (  
  COUPON_ID      INTEGER      NOT NULL,  
  CUSTOMER_ID    INTEGER      NOT NULL,  
  CONSTRAINT COUPON_FK FOREIGN KEY (COUPON_ID) REFERENCES COUPON  
  CONSTRAINT CUSTOMER_FK FOREIGN KEY (CUSTOMER_ID) REFERENCES CUSTOMER  
)  
Go
```

### CUSTOMER INTEREST TABLE

```
CREATE TABLE CustomerInterest (  
  CATEGORY_ID    INTEGER      NOT NULL,  
  CUSTOMER_ID    INTEGER      NOT NULL,  
  CONSTRAINT CATEGORY_PK FOREIGN KEY (CATEGORY_ID) REFERENCES CATEGORY  
  CONSTRAINT CUSTOMER_FK FOREIGN KEY (CUSTOMER_ID) REFERENCES CUSTOMER  
)  
Go
```

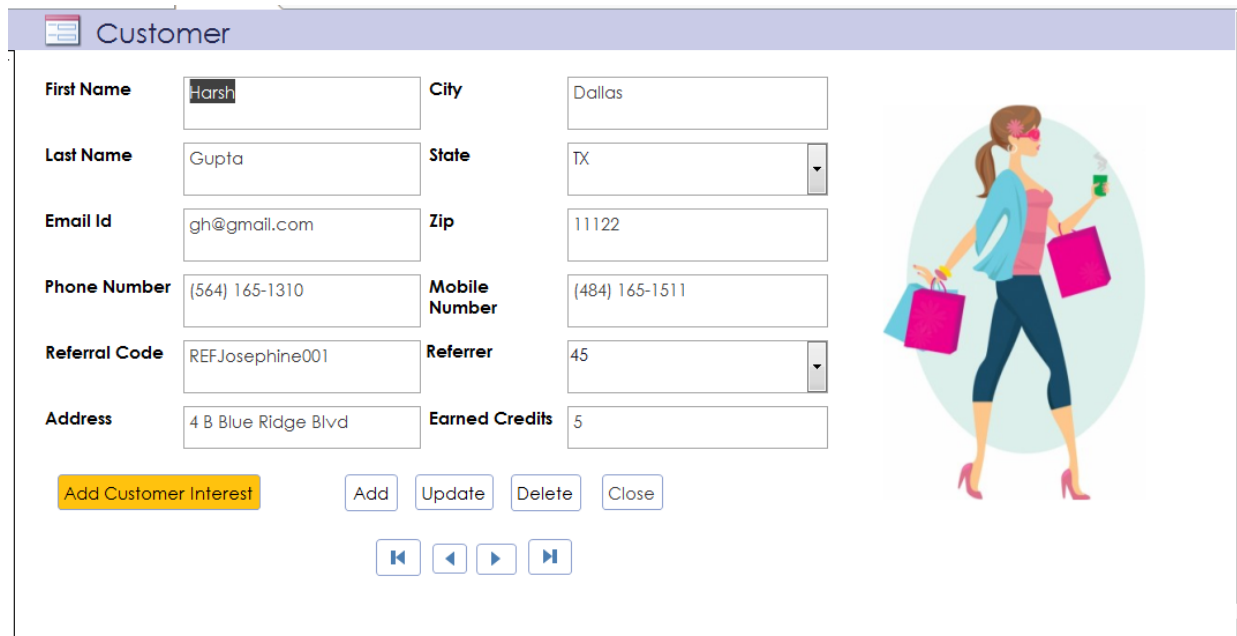
## 9. DEALFOREST Main Menu

The main menu shown below helps DEALFOREST employees to store Customer, Merchant and other relevant information. They can choose from the following options to view, add, and edit data, as well as print reports. This Switchboard allows easy navigation across the database and helps track Coupons, Orders, Membership information etc. The Reports tab generate useful reports to track highest rated coupons, customer monthly bill.



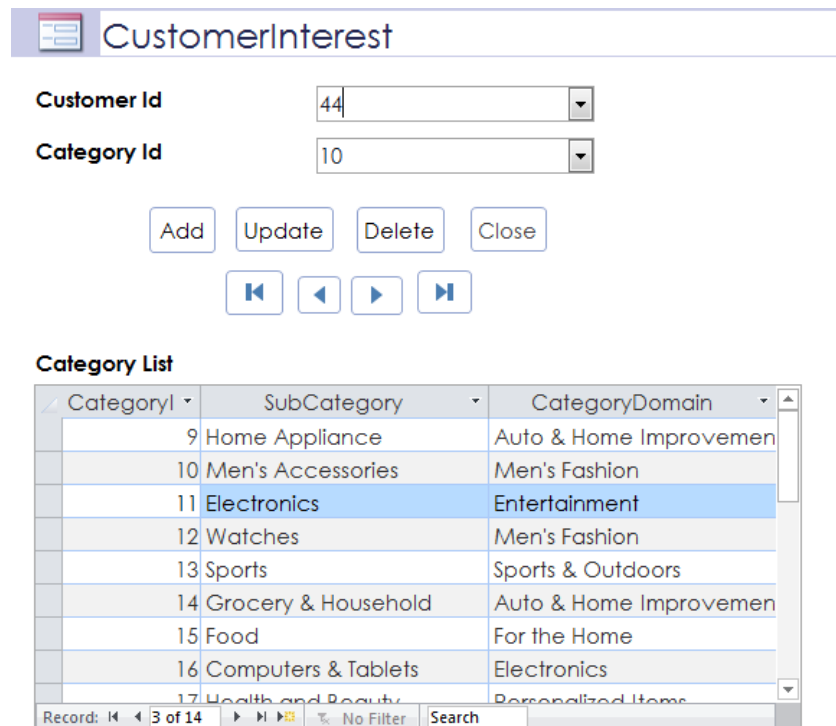
## 9. Data Input and Manipulation Screen Forms

**Customers Form:** This form allows the employees to add new customer along with a customer interest. The Add customer interest button navigates to the customer interest form which can be used after the customer is added.



The screenshot shows a web form titled "Customer". It contains several input fields for customer information: First Name (Harsh), Last Name (Gupta), Email Id (gh@gmail.com), Phone Number ((564) 165-1310), Referral Code (REFJosephine001), Address (4 B Blue Ridge Blvd), City (Dallas), State (TX), Zip (11122), Mobile Number ((484) 165-1511), Referrer (45), and Earned Credits (5). There are buttons for "Add Customer Interest", "Add", "Update", "Delete", and "Close". A navigation bar at the bottom has arrows for navigating between records. To the right of the form is an illustration of a woman shopping with bags and a phone.

**Customers Interest Form:** This form is used to add, delete, update customer interest. The subform displays the complete list of categories available for the selection.



The screenshot shows a web form titled "CustomerInterest". It contains two dropdown menus: "Customer Id" (44) and "Category Id" (10). There are buttons for "Add", "Update", "Delete", and "Close". A navigation bar at the bottom has arrows for navigating between records. Below the form is a table titled "Category List" with columns "Category", "SubCategory", and "CategoryDomain". The table lists various categories and subcategories, with "Electronics" and "Entertainment" highlighted. A search bar and a "No Filter" button are also present.

Category	SubCategory	CategoryDomain
9	Home Appliance	Auto & Home Improvemen
10	Men's Accessories	Men's Fashion
11	Electronics	Entertainment
12	Watches	Men's Fashion
13	Sports	Sports & Outdoors
14	Grocery & Household	Auto & Home Improvemen
15	Food	For the Home
16	Computers & Tablets	Electronics
17	Health and Beauty	Personalized Items

**Merchant Form:** This form allows the employees to add new merchant along with a in what category does a customer fall into like DELL will be having electronics as category. A merchant can have multiple categories as well. The Add Merchant category button navigates to the Merchant Category form which can be used after the Merchant is added.

Merchant

MerchantName

FOSSIL

MerchantType

InStore

StoreName

FOSSIL Dallas

Address

13350 N Dallas Pkwy

City

Dallas

State

TX

ZIP

75240

Add

Update

Delete

Close

◀

◁

▷

▶

Add Category to a Merchant

**Merchant Category Form:** This form is used to add, delete, update Merchant Category. The subform displays the complete list of categories available for the selection.

MerchantCategory

Merchant Id

17

Category ID

16

Add

Update

Delete

Close

◀

◁

▷

▶

List of Categories

CategoryID	SubCategory	CategoryDomain
9	Home Appliance	Auto & Home Improvemen
10	Men's Accessories	Men's Fashion
11	Electronics	Entertainment
12	Watches	Men's Fashion
13	Sports	Sports & Outdoors
14	Grocery & Household	Auto & Home Improvemen

Record: 1 of 14
No Filter
Search

**Coupon Form:** The below form is used to add, update, delete different coupons information which are available with merchants in the system. The add review button navigates employee to the coupon review form.

Coupon

CouponName

FOSSIL Bumper Offer

CouponDesc

40% Off Smart Watches

CouponType

InStore

CouponBeginDate

12/10/2017

CouponExpDate

1/1/2018

OriginalPrice

10

DiscountedPrice

4

Merchant ID

27

Review

Add

Update

Delete

Close

✂

✂

✂

✂

✂

★ SAVE 50% ★

COUPON

✂

✂

✂

**Coupon review Form:** This form is used to add, delete, update coupon reviews. Multiple customer can give reviews to a single coupon & single customer can give reviews to multiple coupons.

CouponReview

Coupon ID

21

Customer ID

44

Rating

5

Review

"This is amazing app"

Add

Update

Delete

Close

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**Membership Form:** The form displayed below lets the employee to add, update, delete different merchant membership which a customer is having. A customer can have multiple membership, this information can be further used to provide customers with coupons which are relevant to his/hers membership

## Membership

Customer Id	<input type="text" value="43"/>
Merchant Id	<input type="text" value="16"/>
Start Date	<input type="text" value="11/30/2017"/>
End Date	<input type="text" value="12/5/2017"/>



**Shopping Cart Form:** This form lets the employee to add, update, delete a cart to the customer. The form also has a 'Add coupon to the Existing Cart' button which navigates the employee to the coupon Cart form, where coupons can be added to the cart.

 **ShoppingCart**

Customer Id	<input type="text" value="46"/>
-------------	---------------------------------



**Coupon Cart Form:** This form allows the employee to add, update, delete coupons to the cart. Multiple coupons can be added to a single cart.

### Coupons In Cart Form



CartId	14
CouponId	19
Quantity	12
Unit Price	\$5.00
Discount Price	\$4.00

Add Update Delete Close

⏮ ⏪ ⏩ ⏭

**Order Form:** The form displayed below lets the employee add order for the customer. The order is a completion process of cart coupon activity i.e coupons added to the cart are checked out using order form. This form allows employee to add payment type, transaction id and the payment status also.




Cart Id	22
OrderStatus	Pending
OrderDate	11/27/2017
PaymentType	BitCoin
PaymentDate	11/29/2017
Customer ID	50
Transaction Id	512151511

Add Update Delete Close

⏮ ⏪ ⏩ ⏭



**Category Form:** The system database already has lots of categories but if in case DealForest wish to expand its scope then more categories can be added using this form.



## Category

**CategoryDomain**

**SubCategory**



Add
Update
Delete
Close

⏮

⏪

⏩

⏭

## 10. Reports

**Customer Average Ratings report:** This report displays list of customers and the rating they has given to the coupons till date. You can search based on customer Id to find the complete list of coupons and its rating which the selected customer has given.

Average Customer Rating					Close
CustomerID	FirstName	LastName	CouponId	Rating	
44	Art	Venere	21	5	
Summary for 'CustomerID' = 44 (1 detail record)					
Average Rating 5					
45	Lenna	Paprocki	18	5	
Summary for 'CustomerID' = 45 (1 detail record)					
Average Rating 5					
46	Donette	Foller	19	3	

**Customer Expenditure on coupon report:** This report displays the list of customers and their spending on coupons.

Customer Total Spent On Coupon					Close
CustomerID	FirstName	LastName	CouponId	TotalPrice	
43	Harsh	Gupta			
			18	\$9.00	
Summary for 'CustomerID' = 43 (1 detail record)					
Sum	\$9.00				
45	Lenna	Paprocki			
			20	\$20.00	
			19	\$56.00	
Summary for 'CustomerID' = 45 (2 detail records)					
Sum	\$76.00				
47	Mitsue	Tollner			

**Maximum Original Price by Merchant report:**

Maximum Original Price By Merchant					Close
MerchantId	MerchantName	StoreName	CouponId	OriginalPrice	
17	Samsung	Samsung Online Store			
			17		
		Samsung Seasonal Offer		12	
Summary for 'MerchantId' = 17 (1 detail record)					
Max	12				
18	StubHub	StubHub Online Store			
			18		
		StubHub BOGO		20	
Summary for 'MerchantId' = 18 (1 detail record)					
Max	20				
19	Intuit	QuickBooks Self-Employed			

## 11. Contributions

- Arun Kumar:
  - ❖ Wrote first draft of Report
  - ❖ Worked on Data Entry
  - ❖ Created initial ERD in Lucid Chart
  - ❖ Designed and developed the database architecture
  - ❖ Formatted and aligned forms and reports in Access
  - ❖ Formatted Final Word Report
  
- Anurag Laddha:
  - ❖ Proposed the idea of the project
  - ❖ Finalized First draft of Project Report
  - ❖ Finalized ERD for the project
  - ❖ Worked on Data Entry
  - ❖ Designed and Created Switch Board Menu and Forms
  - ❖ Developed Queries and Business Reports
  - ❖ Finalized Word report
  
- Prakhar Sharma:
  - ❖ Wrote first draft of Report
  - ❖ Created Relational Database Schema
  - ❖ Worked on Data Entry
  - ❖ Finalized Word report
  
- Kushagra Aggarwal:
  - ❖ Wrote first draft of Report
  - ❖ Relational Database Schema
  - ❖ Worked on Data Entry
  - ❖ Finalized Word report