#### **Case-Study Discussion on Dream Home**

**Determine the mission of the database system project:**

The purpose of the Dream Home Database System is to maintain the data that is used and generated to support the residential property rental business for our clients and property owners, and to facilitate the cooperation and sharing of information between our branch offices and staff across the United Kingdom.

**Dream Home DBMS – Mission Objectives :**

1. Branch Manager – Dream Home

* **To Maintain (Enter, Update and Delete) data on** branches, staff, properties for rent, property owners, and client registrations.
* **To Perform searches on** branch staff, available properties, client preferences, and property advertisements.
* **To Track the status of** staff assignments, lease agreements, property availability, and newspaper advertisements.
* **To Report on** branch performance, staff salary summaries, property rental trends, client registrations, and lease expirations.

## Leasing Agent / Staff – Dream Home

* **To Maintain (Enter, Update and Delete) data on** client profiles, property viewings, leases, and feedback/comments.
* **To Perform searches on** available properties, client preferences, lease agreements, and owner details.
* **To Track the status of** leases, property availability, client viewings, and rental payments.
* **To Report on** upcoming lease expirations, unrented properties, rental trends, and client engagement.

## Property Owner Relations / Admin – Dream Home

* **To Maintain (Enter, Update and Delete) data on** property owners (private & business), ownership records, and contact details.
* **To Perform searches on** owners, properties owned, and rental status of listed properties.
* **To Track the status of** ownership changes, property performance (rented vs. unrented), and owner communications.
* **To Report on** active vs. inactive owners, owner-based property portfolio performance, and unresolved issues.

## Client Services / Customer Support – Dream Home

* **To Maintain (Enter, Update and Delete) data on** client registrations, preferences, communication records, and feedback.
* **To Perform searches on** clients by budget, preferred property type, or city/branch.
* **To Track the status of** client registrations, inquiries, viewings, and lease progression.
* **To Report on** client acquisition trends, satisfaction feedback, missed follow-ups, and service timelines

## 5. Marketing / Advertising Department – Dream Home

* **To Maintain (Enter, Update and Delete) data on** newspaper advertisements, property listings, ad costs, and publisher details.
* **To Perform searches on** advertised properties, ad frequency, media channels, and costs.
* **To Track the status of** ads published, repeat listings, and ad performance per branch.
* **To Report on** advertising ROI, frequently advertised properties, and publication effectiveness.

## Finance & Accounting – Dream Home

* **To Maintain (Enter, Update and Delete) data on** rental payments, deposits, lease contracts, and staff salaries.
* **To Perform searches on** rental revenue, deposit collections, staff compensation, and lease values.
* **To Track the status of** rent collections, unpaid leases, salary payouts, and bonus eligibility.
* **To Report on** revenue per branch, property profitability, overdue payments, and payroll summaries.

## **System Definition Table for Marketing / Advertising Department – Dream Home :**

|  |  |
| --- | --- |
| System | Entity Names |
| Marketing Managers | Campaign\_Strategy, Property\_Listing\_Plans, Media\_Plans, Budget\_Allocations, ROI\_Reports, Branch\_Coverage |
| Advertising Executives | Advertisements, Property\_IDs, Newspapers, Publishing\_Schedules, Ad\_Costs, Ad\_Copies |
| Media Analysts | Ad\_Performance\_Reports, Media\_Channel\_Reach, Advertisement\_Effectiveness, Cost\_Per\_Lead, Repeat\_Ad\_Frequency |
| Brand & Communications Specialists | Creative\_Assets, Marketing\_Messages, Visual\_Design\_Files, Branding\_Guidelines, Publishing\_History |
| Vendor & Newspaper Relations Coordinators | Newspaper\_Contacts, Publisher\_Contracts, Ad\_Rates, Publication\_Slots, Payment\_Statuses |
| Marketing Finance Liaisons | Media\_Budgets, Ad\_Spend\_Reports, Cost\_Allocation\_Sheets, ROI\_Analytics, Vendor\_Invoice\_Records |
| Digital Marketing Analysts (if applicable) | Digital\_Campaign\_Reports, Click\_Through\_Rates, Web\_Impressions, Property\_Landing\_Pages, Engagement\_Insights |

### **User Views Table – Marketing / Advertising BU – DreamHome :**

|  |  |  |
| --- | --- | --- |
| Role Title | Description | Entities Used |
| Marketing Manager | Oversees overall strategy for property promotion and advertising ROI across all branches. | Campaign\_Strategy, Media\_Plans, Budget\_Allocations, ROI\_Reports, Property\_Listing\_Plans |
| Advertising Executive | Handles the planning and execution of newspaper advertisements for properties. | Advertisements, Property\_IDs, Newspapers, Publishing\_Schedules, Ad\_Costs, Ad\_Copies |
| Media Analyst | Analyzes advertisement effectiveness, channel performance, and ROI across multiple campaigns. | Ad\_Performance\_Reports, Advertisement\_Effectiveness, Media\_Channel\_Reach, Repeat\_Ad\_Frequency, Cost\_Per\_Lead |
| Brand & Communications Specialist | Designs creatives and manages messaging consistency across ads and publications. | Creative\_Assets, Marketing\_Messages, Branding\_Guidelines, Publishing\_History, Visual\_Design\_Files |
| Vendor & Newspaper Coordinator | Manages relationships with newspaper publishers and ensures ad slots are scheduled and paid. | Newspaper\_Contacts, Publisher\_Contracts, Ad\_Rates, Payment\_Statuses, Publication\_Slots |
| Marketing Finance Liaison | Coordinates media spending, invoice verification, and tracks ad budget utilization. | Media\_Budgets, Ad\_Spend\_Reports, Vendor\_Invoice\_Records, Cost\_Allocation\_Sheets, ROI\_Analytics |
| Digital Marketing Analyst | (If applicable) Monitors digital ad channels and property engagement through online campaigns. | Digital\_Campaign\_Reports, Click\_Through\_Rates, Web\_Impressions, Property\_Landing\_Pages, Engagement\_Insights |

### **Access Type Chart :**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Data | Access Type | Marketing Manager | Advertising Executive | Media Analyst | Brand Specialist | Vendor Coordinator | Finance Liaison |
| Campaign Strategy | Maintain | X |  |  |  |  |  |
|  | Query | X | X |  |  |  |  |
|  | Report | X |  | X |  |  |  |
| Advertisements | Maintain | X | X |  |  |  |  |
|  | Query | X | X | X |  |  |  |
|  | Report | X | X | X |  |  |  |
| Newspapers | maintain |  | X |  |  | X |  |
|  | Query | X | X | X |  | X | X |
|  | Report |  |  | X |  | X | X |
| Ad Performance Reports | maintain |  |  |  |  |  |  |
|  | Query | X |  | X |  |  | X |
|  | Report | X |  | X |  |  | X |
| ROI Reports | maintain | X |  |  |  |  | X |
|  | Query | X |  | X |  |  | X |
|  | Report | X |  | X |  |  | X |
| Creative Assets | maintain |  |  |  | X |  |  |
|  | Query |  |  |  | X |  |  |
|  | Report |  |  |  | X |  |  |

### **Data Usage Chart :**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Data Entity | Marketing Manager | Advertising Executive | Media Analyst | Brand Specialist | Vendor Coordinator | Finance Liaison |
| Campaign Strategy | X | X | X |  |  |  |
| Advertisements | X | X | X | X | X | X |
| Newspapers | X | X | X |  | X | X |
| Ad Performance Reports | X |  | X |  |  | X |
| ROI Reports | X |  | X |  |  | X |
| Creative Assets |  |  |  | X |  |  |
| Vendor Contracts / Rates |  |  |  |  | X | X |

## **System Specification – Marketing / Advertising BU – DreamHome :**

### 1. Initial Database Size

**Estimated Size**: ~1–2 GB

**Justification**:

* + ~5,000 records of historical property advertisements
  + 500+ newspaper contacts
  + 300–500 campaign plans annually
  + 1,000+ media cost entries
  + Creative assets stored as references (paths), not full files

### 2. Database Rate of Growth

**Estimated Annual Growth**: ~25%–35%

**Drivers**:

* + New property listings and advertisements each month
  + Rising number of newspaper entries and campaign assets
  + Increased media ROI/performance reports for analytics

### 3. Types and Average Number of Record Searches

|  |  |
| --- | --- |
| **Search Type** | **Avg. Daily Queries** |
| Search Ads by Property ID | 50–100 |
| Ad Cost Report by Newspaper | 20–30 |
| Campaign Performance by Region | 10–15 |
| ROI Queries by Campaign | 25–40 |
| Vendor Payment Lookup | 10–20 |

### 4. Networking and Shared Access Requirements

* **Access Type**: Web-based or LAN-based client access via secure VPN
* **Concurrent Users**: ~10–20 (across regional branches and HQ)
* **Multi-user Editing**: Yes (controlled access with role-based locks)
* **Data Replication**: Periodic sync with central database (e.g., nightly)

### 5. Performance

**Response Time Requirement**:

* Simple search queries: <2 seconds
* Report generation: <5 seconds
* **High Availability**: 99.5% uptime
* **Peak Hours**: 10:00 AM – 6:00 PM (working hours across branches)

### 6. Security

**Role-Based Access Control (RBAC)**:

* Maintain: Only for authorized creators (e.g., Marketing Managers)
* Query/Report: Broader access
* **Audit Trails**: Required for all data updates
* **Encryption**: All transmissions and sensitive fields (e.g., vendor payments)

### 7. Backup and Recovery

**Frequency**:

Daily incremental backup

Weekly full backup

* **Recovery Time Objective (RTO)**: <4 hours
* **Recovery Point Objective (RPO)**: <24 hours
* **Storage Location**: Offsite + Cloud redundancy

### 8. Legal Issues

### **Compliance**:

* GDPR-compliant handling of vendor/partner data
* Copyright adherence for ad creatives and campaign assets
* Contractual data retention for ad vendor agreements
* **Record Retention**: Minimum of 5 years for media spend and campaign performance.

## **Conceptual Database Design (ER Model Overview) :**

### Entities & Key Attributes

1. **Advertisement**
   * **Ad\_ID** (PK)
   * Property\_ID (FK)
   * Newspaper\_Name (FK)
   * Ad\_Date
   * Ad\_Cost
   * Publishing\_Schedule
   * Campaign\_ID (FK)
2. **Property**
   * **Property\_ID** (PK)
   * Address
   * Type
   * Monthly\_Rent
3. **Newspaper**
   * **Newspaper\_Name** (PK)
   * Contact\_Person
   * Phone
   * Address
4. **Campaign**
   * **Campaign\_ID** (PK)
   * Campaign\_Name
   * Start\_Date
   * End\_Date
   * Budget
5. **Ad\_Performance\_Report**
   * **Report\_ID** (PK)
   * Ad\_ID (FK)
   * Reach
   * Clicks (if digital)
   * Engagement\_Score
   * Cost\_Per\_Lead
6. **Creative\_Asset**
   * **Asset\_ID** (PK)
   * File\_Name
   * Format
   * Linked\_Ad\_ID (FK)
   * Created\_By (FK → Brand\_Specialist)
7. **Brand\_Specialist**
   * **Employee\_ID** (PK)
   * Name
   * Department
   * Role
8. **Vendor\_Contract**
   * **Contract\_ID** (PK)
   * Newspaper\_Name (FK)
   * Start\_Date
   * End\_Date
   * Rate\_Per\_Column
   * Status
9. **Media\_Budget**
   * **Budget\_ID** (PK)
   * Campaign\_ID (FK)
   * Allocated\_Amount
   * Actual\_Spend

**Relationships :**

|  |  |
| --- | --- |
| Entity Relationship | Cardinality |
| One Campaign has many Advertisements | 1:M |
| One Property can be advertised many times | 1:M |
| One Newspaper can run many Advertisements | 1:M |
| One Advertisement can have one Creative\_Asset | 1:1 or 1:M |
| One Advertisement has one Performance Report | 1:1 |
| One Newspaper may have multiple Contracts | 1:M |
| One Campaign has one Budget record | 1:1 |

### 

# ERD for Marketing / Advertising BU – Dream Home :

# A diagram of a company AI-generated content may be incorrect.

|  |  |  |  |
| --- | --- | --- | --- |

|  |  |
| --- | --- |
|  |  |