System Operation Analysis

# Bank System

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operation | Example | Direct or Business Role | Frontend | Backend | Database |
| Insert | Open new account | Extra (Manager approval) | Form submission | Validation, create ID | Insert into Accounts |
| Delete | Close account | Extra (Pending dues check) | Request delete | Check dues | Remove from Accounts |
| Update | Change contact info | Direct | Edit profile | Validate, log changes | Update Customers table |
| Query | View balance | Direct | Display dashboard | Call API | Fetch from Accounts |

# Hospital System

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| --- | --- | --- | --- | --- | --- |
| Operation | Example | Direct or Business Role | Frontend | Backend | Database |
| Insert | Add new patient | Direct | Registration form | ID generation | Insert into Patients |
| Delete | Remove discharged record | Extra (Doctor approval) | Button | Check discharge summary | Delete from Admissions |
| Update | Change treatment plan | Extra (Doctor role) | Doctor panel | Log change | Update Treatment |
| Query | View patient history | Direct | Search field | Fetch records | Join Visits, Medications |

# Hotel System

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operation | Example | Direct or Business Role | Frontend | Backend | Database |
| Insert | Book a room | Direct | Booking form | Room check, reserve | Insert into Reservations |
| Delete | Cancel booking | Direct | Cancel button | Check policy | Delete from Reservations |
| Update | Modify reservation date | Direct | Edit option | Recheck availability | Update Reservations |
| Query | View available rooms | Direct | Date picker | Filter logic | Fetch from Rooms |

# Airline System

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operation | Example | Direct or Business Role | Frontend | Backend | Database |
| Insert | Book a flight | Direct | Search + booking UI | Seat allocation | Insert into Bookings |
| Delete | Cancel flight | Extra (Refund policy) | Cancel request | Validate timing | Delete from Bookings |
| Update | Change passenger info | Direct | Profile update | Validate | Update Passengers |
| Query | View flight schedule | Direct | Filter UI | Process request | Select from Flights |

# E-Commerce System

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operation | Example | Direct or Business Role | Frontend | Backend | Database |
| Insert | Add to cart | Direct | Product page | Store session/cart ID | Insert into CartItems |
| Delete | Cancel order | Extra (Warehouse check) | Cancel button | Check status | Remove from Orders |
| Update | Change shipping address | Direct | Address form | Update validation | Update Customers |
| Query | Search product | Direct | Search bar | Query parser | Select from Products |

# YouTube System

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operation | Example | Direct or Business Role | Frontend | Backend | Database |
| Insert | Upload new video | Direct | Upload UI | File compression, save | Insert into Videos |
| Delete | Remove video | Direct | Delete button | Remove file, log | Delete from Videos |
| Update | Change video title | Direct | Edit info | Validation | Update Videos |
| Query | Search videos | Direct | Search bar | Keyword match | Select from Videos, Tags |