

Possible Database Project Topics and Lessons Learned

Possible Database Project Topics

Each student can select any topic for his/her database project. It is not allowed to choose the sample database. The following is a list of possible database project topics:

- Ordering and managing products
- Inventory management
- Handling shipments and receiving
- Billing and invoicing
- Accounting and budgeting
- Human resources management
- Employee qualifications and performance management
- Contact management
- Project management
- Call center management
- Environmental management
- Bio/gene research management
- Library operation system
- Diagnosis, medication, test results for patients
- Tumor registry
- Chemical assays
- Research experiments or clinical trials system
- Customer relation management
- Survey information
- Inventory, capital equipment tracking
- Grant applications and award data
- Fraudulent case tracking system
- IT security event management

You can create your own database project. You also can combine above items for your database project. Other work-related database systems are also allowed.

The Term Project Sample – A Bookstore is only for a reference to show database project description and functional requirements; and it is NOT recommended for any students to use it as the term project..

Water Utility Database:

Billing Process, Payment Process, Meter Reading, and Service Start/Stop

Entities: CUSTOMER, METER, BILL, PAYMENT, and METER READING

Relationships: Bills sent to customers, customers make payments, customers use meters, ...

Hospital Database:

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Treatment, Symptom Monitoring, Diagnostics, Patient Care, Prescription.

Entities: PATIENT, PROVIDER, TREATMENT, DIAGNOSES, SYMPTOM, and PRESCRIPTION.

Relationships: Patients have symptoms, providers make diagnoses, providers provide treatments, and providers provide prescriptions.

Term Projects in the Past:

DC Metro Go Database Project
Gertry's Gambling
Small Business Enterprise for Web
Social Security Bulletin
Car Rental (2)
Global Video (5)
Software License Tracking Tool
Pediatrician Office Management Informatics System
Mrs. P's Computer Store
Chef Paolino Restaurant Management System
Teacher's Pet
Employee Payroll and Employment Verification System (3)
Consulting Company Management Tool
Human Resource (2)
Library Management System (6)
Project Management System (3); SCRUM Project Management Database Application
Purchase Order Tracking System
Course Training Database
Online Library System
CCMZ Bookstore (2)
Car Dealer Database
Relay for Life
The Youth Risk Behavior Survey (YRBS)
Action Item Tracking Tool
System Component Database
Accident Investigation System
Condo Options Management System
Travel Agency System; Vacation Resort Reservation System
Security Information Database
School Scheduling System (2), Event Scheduling System
Triathlon Training Website; Fitness for Life Aerobic Center (3)
Annual Conference Contact List Browser
Product Development DB

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Local Realty Database (3)
The Hotel Mini-mart Management System (2)
Hospital Database (3)
Preventive Maintenance Tracking System
Service Rifle Data Book
Rate A Restaurant/Waiter
Export and Import Database
Organ Donation DBMS
Freight Forward Company System
Advanced Life Support Education and Evaluation Tracking System Project
Researcher interconnectivity database and social network
JHMT MP3 Online Music Store (5)
Recipe & meal planning database (5)
Mid-Atlantic Dancers
Friends-R-Us
Kung Fu School Database Project
Home Care Service Company or Apartment Management
Softball League Stats
Vulnerability Management
Happy Hour Hunter
Horse Racing
Online Stock Trading (2)
Xtrainer - Fitness Manager
The Basic Blog System
Professor Dar-Ning's Group Project
Massive Multiplayer Online Role Playing Game Database Design
Sun Calendar
Intern Management Database
CZ Critter Care
Quilter's Show Room
Pest Data Collection and Monitoring System In Agriculture Industry
Wedding Photography/Photography Database
Fantasy NASCAR System
Laboratory Ordering Management System
Squadron Flight Log
Database of Information Pertaining to Alcohol (DIPA)
Calorie/Nutrition Tracking Website
An Online Collectible Card Game
Home improvement And Maintenance Database System
Web-based Widget Framework Application

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Electronic Checklist Tracking System
Data Visualization Tool
Grocery Store DB
Airline Baggage Service DB
Prescription Refill System
Pokemon Database
Collectible Card Database
Mobile Librarian Database
A Mutual Fund Management Database
Online Customer, Agreement, Sales, Service, and Delivery Tracking Subsystem
Animal Adoption Center Database
Machine Learning Model Database
Clinical Data Management System (2)
Property Listing Service Database (2)
MIDN Intramural System
Dental Healthcare Database
Early Alert, Capture and Follow-up System for Patients with Cancer
Classified System and Closed Area Administrative Tracking Database
Social Flag Football League Database
Media Sharing Service Database
Fitness Center Management Database
Wine Inventory Database
Simple Netflix Database
Broker Transaction Database
Clinical Trials Database
Massively Multiplayer Online Role-Playing Game Database
Company Alternative and Financial Database
Wealth Management System
Logistics Tracking System

Lessons Learned from the Database Term Projects:

Students can learn the lessons on database term projects of previous students took this course before. Below is the list of their lessons learned.

- **Start early (Procrastination)**
 - Don't be over ambitious
 - Keep your design simple
 - Distribute the workload evenly (by the functional units associated with GUIs of the system)

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- Use team members' expertise/skill sets wisely (to avoid the time spent on integration of different units)
- Plan correlation between queries and reports
- All inserts / updates / deletes are done through forms
- In Access, the Wizards are your friends
- VB knowledge would also be helpful for making Access DB
- You can reach functions in queries and reports through the Expression Builder with Access
- Don't lose project members due to vacation or business trip
- Pick a database and language that all group members have access to
- Pick members by 'location' and keep everyone on the same page
- Is important for your final grade regardless about a group or individual project
- Keep track of the project timeline and make steady progress to meet deadline
- Database design will change with better understanding or requirements
- Implement some form of configuration management for a group project
- Refine the ERD before launching the logical database design
- Internet services aid collaboration (yahoo groups)
- A good design at the start averts a bad headache at the end
- SQL is *not* standard
 - Access requires explicit null for number fields
 - QBE had to be used to compose queries with subqueries
- Effective communication is important
- Define tasks well
- Learning curves may be larger than anticipated
- Extra time is needed to work within everyone's schedule
- There are many design solutions
- Set early dates to accomplish tasks
 - Time to complete tasks may be much larger than anticipated
 - Documentation should begin early and be maintained at every step
 - Considerable time is needed for polishing a systems look and feel for consistency
- Access is NOT a real database and is not a good choice for developing a robust database
- Team members learned VBA
- DB design can be continuously revised due to implementation features.
- Problems due to development tool inconsistencies
- Problems to coordinate group meetings
- Having a well-defined ERD helped facilitate development
- Develop requirements that are reasonable based on the time frame to complete the project
- Use configuration management
- Develop project schedule with milestones
- Use DBMS tool that all team members have access to
- Leave time for thorough integration testing

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- Develop sample data sets early, this will cause you to ask questions about your database design that can be fixed before actual development
- Develop software to load, find, update and delete table data using simple function calls first, then create your GUI
- Don't create the perfect app, instead create perfect scenarios then you can fix weird test cases later
- Make sure everyone is using the same version of the same tool and software
- CVS really helps with file organization and having a central repository for all files and data
- It is important to have a solid design before any coding starts
- It is important to consider many different ERD designs and then decide which will best meet the requirements
- Having a well-defined problem statement or requirements helps to identify key entities
- Weekly meetings and constant and open communication works well
- Think simple and small with a basis for expansion and growth later if there is time
- GUI interface creation required a significant effort