PostgreSQL Book Proposal

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Preface

1. Introduction
   (a) History of PostgreSQL
      i. University of California at Berkeley
      ii. Michael Stonebraker
      iii. Jolly Chen and Andrew Yu
      iv. PostgreSQL Global Development Team
   (b) Open source software
      i. development methods
      ii. peer review
      iii. release process
      iv. problem reporting
      v. support
   (c) When to use a database
      i. large volume
      ii. rapid retrieval
      iii. frequent modification
      iv. reporting
2. Issuing Database Commands
   (a) Starting a database session
      i. choosing an access method
      ii. choosing a database
      iii. starting a session
   (b) Controlling a session
      i. typing in the query buffer
      ii. displaying the query buffer
      iii. editing the query buffer
      iv. erasing the query buffer
   (c) Sendinging queries
   (d) Getting help
   (e) Requesting server information
3. Introduction to SQL
   (a) Relational Databases
      i. tables, rows, and columns
      ii. column types
      iii. column selection
      iv. row restriction
   (b) Creating tables
      i. naming columns
      ii. column types
   (c) Adding data with Insert
      i. target columns
      ii. column types
      iii. missing values
   (d) Viewing data with Select
      i. target columns
      ii. From clause
   (e) Removing data with Delete
   (f) Modifying data with Update
   (g) Restricting with Where
   (h) Sorting data with Order By
   (i) Using Null values
4. Advanced SQL Commands
   (a) Inserting data using Select
   (b) Aggregates: Count, Sum, . . .
   (c) Group By with aggregates
   (d) Having with aggregates
   (e) Joining tables
   (f) Using table aliases
   (g) Union clause
   (h) Update with From

(i) Subqueries
   i. returning a single row
   ii. returning multiple rows
   iii. correlated Subqueries

(j) Transactions
   i. BEGIN...END
   ii. ABORT transaction

(k) Cursors
   i. DECLARE
   ii. FETCH
   iii. CLOSE

(l) Indexing
   i. usage
   ii. types
   iii. definition
   iv. functional indexes

(m) Views
   i. creation
   ii. limitations

(n) Column defaults

(o) Referential integrity
   i. primary keys
   ii. foreign keys

(p) AND/OR usage

(q) Pattern matching
   i. LIKE clause
   ii. regular expressions

(r) Temporary tables

(s) Importing data
   i. COPY
   ii. DELIMITERS
   iii. BINARY
   iv. frontend COPY

5. POSTGRESQL'S Unique Features

(a) Object ID'S (OID'S)
   i. unique row assignment
   ii. join usage

(b) Multi-Version Concurrency Control
   i. write locks
   ii. read locks
   iii. concurrency
   iv. solutions

(c) Locking and deadlocks
   i. need for locking
   ii. deadlocks

(d) Vacuum
   i. scheduling
   ii. ANALYZE

(e) Rules
   i. creation
   ii. limitations

(f) Sequences
   i. purpose
   ii. creation
   iii. management

(g) Triggers
   i. purpose
   ii. creation

(h) Large objects(BLOBS)
   i. applications
   ii. creation
   iii. management

(i) Adding user-defined functions
   i. purpose
   ii. creation
   iii. examples

(j) Adding user-defined operators
   i. arithmetic processing
   ii. creation

(k) Adding user-defined types
   i. purpose
   ii. creation
   iii. indexing

(l) Exotic pre-installed types
   i. date/time
   ii. geometric
   iii. character string
   iv. internet
   v. internal

(m) Arrays

i. creation
ii. access

(n) Inheritance

i. purpose
ii. creation
iii. examples

6. Interfacing to the POSTGRESQL Database

(a) C Language API (LIBPQ)
(b) Embedded C (ECPG)
(c) C++ (LIBPQ++)
(d) JAVA (JDBC)
(e) ODBC
(f) PERL (PGSQL_PERL5)
(g) TCL/TK (LIBPGTCL)
(h) PYTHON (PYGRESQL)
(i) Web access (PHP)
(j) Server-side programming

i. PLPGSQL
ii. PL/TCL
iii. SPI

(k) PGACCESS

7. POSTGRESQL Administration

(a) Creating users and databases
(b) Backup and restore
(c) Performance
(d) Troubleshooting
(e) Customization
(f) Access configuration

i. server access
ii. database access
iii. table access

(g) Internationalization

i. national character encodings
ii. date formats

8. Additional Resources

(a) Frequently Asked Questions (FAQ'S)
(b) Mailing list support
(c) Supplied documentation
(d) Commercial support
(e) Modifying the source code

9. Appendix: Installation

(a) Getting POSTGRESQL

i. FTP
ii. web
iii. CDROM

(b) Compiling

i. compiler
ii. RPM

(c) Initialization
(d) Starting the server
(e) Creating a database

10. Annotated Bibliography

(a) *The Practical SQL Handbook*, Bowman et al., Addison Wesley
(b) *Web Development with PHP and PostgreSQL*, . . . , Addison Wesley
(c) *A Guide to The SQL Standard*, *C.J. Date*, Addison Wesley
(d) *An Introduction to Database Systems*, C.J. Date, Addison Wesley
(e) *SQL For Smarties*, Joe Celko, Morgan, Kaufmann