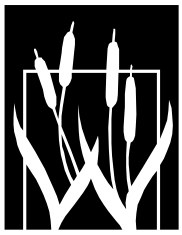

Whitemarsh
Information Systems Corporation

Section of DBMS Selection & Evaluation Questionnaire

Whitemarsh Information Systems Corporation
2008 Althea Lane
Bowie, Maryland 20716
Tele: 301-249-1142
Email: mmgorman@wiscorp.com
Web: www.wiscorp.com

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LOGICAL DATABASE

2.1 Database schema

1. Can a database schema be named
2. Can a database schema contain a version
3. Can a database schema contain an author
4. Can a database schema contain a restricted user access
5. Can a database schema contain a description
6. Can a database schema utilize copy from clauses

2.2 Tables

2.2.1 Table description naming

1. Can a table be named
2. Can a table contain a version
3. Can a table contain an author
4. Can a table contain a restricted user access
5. Can a table contain a description
6. Can a table utilize copy from clauses
7. Does the table definition clause contain options for declaring the various DBMS strategies for row storage and selection, for example, hash/calc, direct, sorted, and so forth

8. Does the DBMS support derived columns, whose values are affected algorithmically through value changes to other columns, row insertions, and the like

9. Are there any restriction on the number of columns that can be defined in a table

2.2.2 Table integrity

1. Can table based procedures be defined that are automatically invoked whenever rows are inserted, deleted, or modified by any and all interrogation languages

2. Can table integrity procedures be defined that are automatically invoked whenever certain conditions resulting from the insertion, deletion, or modification of the row is not met.

3. Can table integrity procedures be defined that are automatically invoked whenever certain conditions resulting from the insertion, deletion, or modification of the row are met.

4. Can compiler languages, such as COBOL, be used to define these procedures

5. Can natural languages be used to define these procedures

6. Are procedure definition clauses specified in the logical database's schema definition languages

7. Are procedure definition clauses specified in the physical database

8. Can table integrity clauses be defined that evaluate column values individually, or in collections of column values through unary, binary, ternary, and boolean operators prior to the storage of a row in a database

2.3 Columns

2.3.1 Column descriptions

1. Version

2. Author

3. Restricted user access

4. Description

5. Copy from clauses

6. Can column names be at least 15 characters

7. Can a column name contain any ASCII character

8. Can a column be defined to only represent only a single value, known as a single-valued column

9. Can a column reference a domain relieving the DBA from having to define the characteristics of the column's data

2.3.2 Column data types

1. Fixed length character

2. Variable length character

3. Fixed

4. Integer

5. Packed decimal

6. Float, single precision

7. Float, double precision

8. Complex Numeric

9. Date

10. Money

11. Boolean
12. Binary Large Object

13. Character Large Object

14. Is there a maximum size or value for each column's data type

15. Are there corresponding data types from third generation languages such as COBOL, Fortran, C, etc. to which each data type does not translate.

16. Is the translation to the corresponding programming language data type automatically performed by the DBMS rather than requiring the programmer create the routines in the application program

2.3.3 Column Data Structures

1. Can a column within a row represent multiple values configured as an array.

2. Can the sequence of the values in the array be defined.

3. Is the sequence of the values in the array persistent

4. Can a column contain subordinate columns each of which is defined as a column and that the collection of values represented by the contained column set is equivalent to a row in a table.

5. Can a column within a subordinate set of columns contain subordinate columns

6. Is there any limit to the quantity of levels of subordinate collections of columns.

2.3.4 Column Editing & Validation

1. Does the proposed DBMS contain the ability to define automatic data editing and validation clauses such that these editing and validation clauses are automatically invoked whenever data is entered from any and all interrogation languages

2. Can this facility prohibit duplicate values

3. Can this facility specify valid values

4. Can this facility specify invalid values

5. Can this facility specify ranges of valid or invalid values

6. Can this facility specify combinations of valid and invalid values

7. Is there any situation under which data, represented by a column, that is to be stored in a table, can trespass its column defined characteristic boundaries and overwrite an adjacently stored column

8. Does the DBMS recognize the difference between the character column value of blank or a numeric column value of zero and a column that has not been valued, i.e., Null

9. Does the DBMS support three-way logic in support of nulls

10. Does the DBA have the ability to establish default values--other than blank, zero, or null--for columns that are not valued during an update or insert

11. Can column names be the same when they appear in different table within the same schema

12. Can certain columns be defined to automatically contain the O/S time and date stamps whenever the row is inserted or modified

2.3.5 Column use types

2.3.5.1 Primary keys

1. Are multiple columns able to participate in this use designation

2. If multiple columns participate in this use designation, does the DBMS redundantly store the column's data, once for each participating column, and once for the compound column use designation

3. Can columns from different data types participate in compound use designations

4. Can the columns participating in a primary key be defined in the table in any order

5. Can duplicate values be allowed

6. Can duplicate values be disallowed

2.3.5.2 Candidate keys

1. Are multiple columns able to participate in this use designation

2. If multiple columns participate in this use designation, does the DBMS redundantly store the column's data, once for each participating column, and once for the compound column use designation

3. Can columns from different data types participate in compound use designations

4. Can the columns participating in a candidate key be defined in the table in any order

5. Can duplicate values be allowed

6. Can duplicate values be disallowed

2.3.5.3 Secondary keys

1. Are multiple columns able to participate in this use designation

2. If multiple columns participate in this use designation, does the DBMS redundantly store the column's data, once for each participating column, and once for the compound column use designation

3. Can columns from different data types participate in compound use designations

4. Can the columns participating in a secondary key be defined in the table in any order

2.3.5.4 Foreign keys

1. Are multiple columns able to participate in this use designation

2. If multiple columns participate in this use designation, does the DBMS redundantly store the column's data, once for each participating column, and once for the compound column use designation

3. Can columns from different data types participate in compound use designations

4. Can the columns participating in a foreign key be defined in the table in any order

5. Can duplicate values be disallowed

2.3.5.5 Multiple Use Designators

1. Can a single column be both a primary key and foreign key
2. Can a single column be both a candidate key and foreign key

2.4 Relationships

2.4.1 Relationship Definition

1. Can a relationship be named
2. Can a relationship contain a version
3. Can a relationship contain an author
4. Can a relationship contain a restricted user access
5. Can a relationship contain a description
6. Can a relationship utilize copy from clauses

2.4.2 Relationship Types

1. Can a one-to one relationship be defined between two tables
2. Can a single table relationship be defined that has no owner
3. Can a multiple table relationship be defined that has no owner
4. Can a single owner table with single member table relationship be defined
5. Can a single owner table with multiple member table relationship be defined
6. Can a many to many relationship between two tables be defined
7. Can an inferential relationship be defined
8. Can a recursive relationship be defined

2.4.3 Relationship Persistence

1. Can the sequence of the rows within a defined relationship be defined on an arbitrary basis

2. Can the sequence of the rows within a defined relationship be defined on the basis of a defined column within the member table.

3. Can the sequence of the rows within a defined relationship be defined on the basis of a multiply identified columns within the member table.

2.5 Relationship Integrity

2.5.1 Ambiguity Detection

1. Does the DBMS examine all the then-defined referential integrity definitions, rejecting those that could result in ambiguous insert, delete or modify situations

2.5.2 Value-Based Referential Integrity Definition

1. Can the DBMS DDL explicitly declare that an owner row and one or more member rows are related by the value of the primary key of the owner being equal in value to a column value contained in the member rows

2. Can the DBMS DDL explicitly declare that a member row will not be allowed to be stored if the corresponding owner row (member's foreign key value = owner's primary key value) is not already stored

3. Can the DBMS DDL explicitly declare that a member row is allowed to be stored with its foreign key being set to null, notwithstanding the owner's row failure to exist

4. Can the DBMS DDL explicitly declare that an owner row will not be allowed to be deleted if the corresponding member row (primary key value = foreign key value) is still stored

5. Can the DBMS DDL explicitly declare that an owner row will be allowed to be deleted only after the corresponding member row's foreign key value is set to null

6. Can the DBMS DDL explicitly declare that when a member table instance's foreign key is updated that it will only allow the update if the foreign key's value already matches an existing primary key

7. Can the DBMS DDL explicitly declare that when a member table instance's foreign key is updated to a value not represented by any existing primary key that the update will be accepted and the foreign key value will be set to null

2.5.3 NonValue-Based Referential Integrity Definition

1. Can the DBMS DDL explicitly declare that an owner row and one or more member rows are related

2. Can the DBMS DDL explicitly declare that a member row will not be allowed to be stored if the related owner row is not already stored

3. Can the DBMS DDL explicitly declare that a member row is allowed to be stored with its foreign key being set to null, notwithstanding the owner's row failure to exist

4. Can the DBMS DDL explicitly declare that an owner row will not be allowed to be deleted if the corresponding member row is still stored

5. Can the DBMS DDL explicitly declare that an owner row will be allowed to be deleted only after the corresponding member row relationship indicator is set to null

6. Can the DBMS DDL explicitly declare that when a member table row's relationship membership is updated that it will only allow the update if the member is then related to an already existing owner record

7. Can the DBMS DDL explicitly declare that when a member table row's relationship membership is updated that it will allow the update even if the member is not then related to an already existing owner record

2.6 Data Definition Language

1. Can the DBMS's central version know of multiple databases, and have these multiple schemas operate independently and concurrently

2. Can the table names for different databases within the same central version be named the same

3. Upon submittal, are schema DDL error messages returned, and is the flawed clauses then able to be modified to correct any syntax errors

2.7 Schema maintenance

2.7.1 Table maintenance

1. Can new tables be interactively added/deleted/modified to a schema

2. Can a column within a table be declared to be its primary key

3. Can one or more columns within a table be declared to be secondary keys

4. Can one or more table check clauses or procedures be added, deleted, or modified