Which one is more structured?

- [ ] Information is more structured, while data is not.
- [x] Data is more structured, while information is not.
- [ ] Both information and data are structured at the same level.
- [ ] Both information and data not structured at all.

✔

A reinterpretable representation of information in a formalized manner suitable for communication, interpretation, or processing is…

- [x] Data.
- [ ] Information.
- [ ] Drawings.
- [ ] SQL code.

✔

A collection of data organized according to a conceptual structure describing the characteristics of these data is…

- [x] Database.
- [ ] Database management system.
- [ ] Application.
- [ ] Operation system.

✔

A system, based on hardware and software, for defining, creating, manipulating, controlling, managing, and using databases…

- [ ] Database.
- [x] Database management system.
- [ ] Application.
- [ ] Operation system.

✔

Which ones are database management systems?

- [ ] Microsoft Windows, Linux.
- [x] MySQL, Microsoft SQL Server.
- [ ] T-SQL, PL/SQL.
- [ ] Sparx Enterprise Architect, MySQL Workbench.

✔

A database model is…

- [ ] A reinterpretable representation of information in a formalized manner suitable for communication, interpretation, or processing.
- [x] A pattern of structuring data in a database according to the formal descriptions in its information system.
- [ ] A system, based on hardware and software, for defining, creating, manipulating, controlling, managing, and using databases.
- [ ] A collection of data organized according to a conceptual structure describing the characteristics of these data.

✔

A conceptual (infological) database modelling level is…

- [x] A level of consideration at which all aspects deal with the interpretation and manipulation of information describing a particular universe of discourse or entity world in an information system. ✔
- [ ] A level of consideration at which all aspects deal with a database and its architecture, consistent with a conceptual schema and the corresponding information base, but abstract from its physical implementation.
- [ ] A level of consideration at which all aspects deal with the physical representation of data structures and with mapping them on corresponding storage organizations and their access operations in a data processing system.
- [ ] A collection of data organized according to a conceptual structure describing the characteristics of these data.

A logical (datalogical) database modelling level is…

- [ ] A level of consideration at which all aspects deal with the interpretation and manipulation of information describing a particular universe of discourse or entity world in an information system.
- [x] A level of consideration at which all aspects deal with a database and its architecture, consistent with a conceptual schema and the corresponding information base, but abstract from its physical implementation.
- [ ] A level of consideration at which all aspects deal with the physical representation of data structures and with mapping them on corresponding storage organizations and their access operations in a data processing system.
- [ ] A collection of data organized according to a conceptual structure describing the characteristics of these data.

✔

A physical database modelling level is…

- A level of consideration at which all aspects deal with the interpretation and manipulation of information describing a particular universe of discourse or entity world in an information system.
- A level of consideration at which all aspects deal with a database and its architecture, consistent with a conceptual schema and the corresponding information base, but abstract from its physical implementation.
- A level of consideration at which all aspects deal with the physical representation of data structures and with mapping them on corresponding storage organizations and their access operations in a data processing system. ✔
- A collection of data organized according to a conceptual structure describing the characteristics of these data.

A conceptual (infological) database modelling level describes…

- Subject matter regardless database type.
- Subject matter regarding database type or DBMS.
- Technical aspects regarding DBMS.
- Philosophical aspects regarding DBMS.

✔

A logical (datalogical) database modelling level describes…

- Subject matter regardless database type.
- Subject matter regarding database type or DBMS.
- Technical aspects regarding DBMS.
- Philosophical aspects regarding DBMS.

✔

A physical database modelling level describes…

- ○ Subject matter regardless database type.
- ○ Subject matter regarding database type or DBMS.
- ◉ Technical aspects regarding DBMS.
- ○ Philosophical aspects regarding DBMS.

✔

A relational model is…

- ◉ A data model whose structure is based on a set of relations.
- ○ A database management system configuration approach.
- ○ An application development design pattern.
- ○ A DevOps technique for high-loaded distributed databases management.

✔

Typical representation techniques for the conceptual (infological) database modelling level are…

- ◉ Lists, tables, schemas (semantic, graph, entity-relation).
- ○ Data specifications, special formats, UML schemas.
- ○ UML schemas, IDEF1X schemas, specific technics depending on particular DBMS.
- ○ User stories, use cases.

✔

Typical representation techniques for the logical (datalogical) database modelling level are…

- ○ Lists, tables, schemas (semantic, graph, entity-relation).
- ◉ Data specifications, special formats, UML schemas.
- ○ UML schemas, IDEF1X schemas, specific technics depending on particular DBMS.
- ○ User stories, use cases.

✔

Typical representation techniques for the physical database modelling level are…

- ○ Lists, tables, schemas (semantic, graph, entity-relation).
- ○ Data specifications, special formats, UML schemas.
- ◉ UML schemas, IDEF1X schemas, specific technics depending on particular DBMS.
- ○ User stories, use cases.

✔

Fundamental database requirements include…

- ☑ Subject matter adequacy.
- ☑ Performance.
- ☐ ISO 9001-012 compliance.
- ☐ UML representation.

✔

While creating any database you absolutely should pay attention to…

- [ ] IDEF1X schemas.
- [ ] Semantic representation.
- [x] Technical usability.
- [x] Data safety.

✔

The following may influence database performance…

- [x] Data types.
- [ ] Field names.
- [x] Materialized views configuration.
- [x] Fields size.

✔

An ordered collection of data in the form of records, each of which provides information about a database object, is…

- (•) Card-index database.
- ( ) Network (graph) database.
- ( ) Hierarchical database.
- ( ) Relational database.

✔

A database wherein multiple member records or files can be linked to multiple owner files and vice versa is…

- ○ Card-index database.
- ◉ Network (graph) database.
- ○ Hierarchical database.
- ○ Relational database.

✔

A database that uses a one-to-many relationship for data elements, i.e. a tree structure that links a number of several elements to one is…

- ○ Card-index database.
- ○ Network (graph) database.
- ◉ Hierarchical database.
- ○ Relational database.

✔

A database based on the relational model of data (which is based on a set of relations) is…

- ○ Card-index database.
- ○ Network (graph) database.
- ○ Hierarchical database.
- ◉ Relational database.

✔

A database that processes multi-dimensional analytical queries for business intelligence purposes is…

- ◉ OLAP database.
- ○ Object-oriented database.
- ○ Deductive database.
- ○ NoSQL database.

✔

A database that manipulates information represented by objects (literally like in OOP approach) is…

- [ ] OLAP database.
- [x] Object-oriented database.
- [ ] Deductive database.
- [ ] NoSQL database.

✔

A database that can make deductions (i.e. conclude additional facts) based on rules and facts that already stored in the database is…

- [ ] OLAP database.
- [ ] Object-oriented database.
- [x] Deductive database.
- [ ] NoSQL database.

✔

A database that can accommodate a wide variety of data models, including key-value, document, columnar and graph formats is…

- [ ] OLAP database.
- [ ] Object-oriented database.
- [ ] Deductive database.
- [x] NoSQL database.

✔

Typical modern analogies of card-index database are…

- [x] Excel spreadsheet, a single table in a relational database.
- [ ] AllegroGraph, Amazon Neptune, JanusGraph, Neo4j.
- [ ] Apache Directory, OpenLDAP, BaseX.
- [ ] MySQL, MariaDB, MS SQL Server, Oracle Database, PostgreSQL.

✔

Typical network (graph) database management systems are…

- ○ Excel spreadsheet, a single table in a relational database.
- ◉ AllegroGraph, Amazon Neptune, JanusGraph, Neo4j.
- ○ Apache Directory, OpenLDAP, BaseX.
- ○ MySQL, MariaDB, MS SQL Server, Oracle Database, PostgreSQL.

✔

Typical hierarchical database management systems are…

- ○ Excel spreadsheet, a single table in a relational database.
- ○ AllegroGraph, Amazon Neptune, JanusGraph, Neo4j.
- ◉ Apache Directory, OpenLDAP, BaseX.
- ○ MySQL, MariaDB, MS SQL Server, Oracle Database, PostgreSQL.

✔

Typical relational database management systems are…

- ○ Excel spreadsheet, a single table in a relational database.
- ○ AllegroGraph, Amazon Neptune, JanusGraph, Neo4j.
- ○ Apache Directory, OpenLDAP, BaseX.
- ◉ MySQL, MariaDB, MS SQL Server, Oracle Database, PostgreSQL.

✔

Typical OLAP database management systems are…

- [x] Dundas BI, Sisense, IBM Cognos Analytics, InetSoft, SAP Business Intelligence.
- [ ] InterSystems Cache, Google Cloud Storage for Firebase, dBASE PLUS, Apache OODT.
- [ ] CORAL, LDL++, SQUALID, TensorLog.
- [ ] Apache Ignite, Redis, MemcacheDB, MongoDB, Cassandra.

✔

Typical object-oriented database management systems are…

- [ ] Dundas BI, Sisense, IBM Cognos Analytics, InetSoft, SAP Business Intelligence.
- [x] InterSystems Cache, Google Cloud Storage for Firebase, dBASE PLUS, Apache OODT.
- [ ] CORAL, LDL++, SQUALID, TensorLog.
- [ ] Apache Ignite, Redis, MemcacheDB, MongoDB, Cassandra.

✔

Typical deductive database management systems are…

- [ ] Dundas BI, Sisense, IBM Cognos Analytics, InetSoft, SAP Business Intelligence.
- [ ] InterSystems Cache, Google Cloud Storage for Firebase, dBASE PLUS, Apache OODT.
- [x] CORAL, LDL++, SQUALID, TensorLog.
- [ ] Apache Ignite, Redis, MemcacheDB, MongoDB, Cassandra.

✔

Typical NoSQL database management systems are…

- ○ Dundas BI, Sisense, IBM Cognos Analytics, InetSoft, SAP Business Intelligence.
- ○ InterSystems Cache, Google Cloud Storage for Firebase, dBASE PLUS, Apache OODT.
- ○ CORAL, LDL++, SQUALID, TensorLog.
- ◉ Apache Ignite, Redis, MemcacheDB, MongoDB, Cassandra.

✔

Relational model is…

- ○ A database wherein multiple member records or files can be linked to multiple owner files and vice versa.
- ○ A data model whose structure is based on a set of graphs.
- ◉ A data model whose structure is based on a set of relations.
- ○ A database that uses a one-to-many relationship for data elements, i.e. a tree structure that links a number of several elements to one.

✔

Relational model describes…

- ☐ Hierarchical rules.
- ☑ Data structures.
- ☑ Data integrity rules.
- ☑ Data manipulation rules.

✔

Relational model is…

- ◉ A logical, not a physical one.
- ○ A physical, not a logical one.
- ○ Both semantic and graph.
- ○ Both network and hierarchical.

✔

Relational model pros are that…

- [ ] Relational databases require less of memory and CPU power, compared to other databases.
- [x] Relational model is based on a simple set of basic structures.
- [ ] Some structures (trees, graphs and so on) are easy to implement in this model.
- [x] Relational model implies independency from internal structures.

✔

Relational model cons are that…

- [ ] Relational model uses strict mathematical approaches.
- [x] Relational model is hard to deal with in case of large databases.
- [x] Relational databases require a lot of memory and CPU power.
- [ ] Relational model implies independency from internal structures.

✔