

Systems, Roles, and Development Methodologies, 8e (Kendall/Kendall)
Chapter 8 Analyzing Systems Using Data Dictionaries

8.1 Multiple Choice

1) What is a reference work of data about data compiled by systems analysts?

- A) data dictionary
- B) data flow diagrams
- C) structured analysis
- D) design

Answer: A

Diff: 1 Page Ref: 228

2) What become(s) important for large systems that produce several thousand data elements requiring cataloging and cross-referencing?

- A) data dictionary
- B) structured analysis
- C) data flow diagrams
- D) automated data dictionaries
- E) design

Answer: D

Diff: 1 Page Ref: 228

3) Which of the following is not contained in the repository?

- A) procedural logic
- B) use cases
- C) generated computer code
- D) screen and report design

Answer: C

Diff: 1 Page Ref: 229

4) A data flow that contains data that are used between processes is called:

- A) internal.
- B) derived.
- C) base.
- D) iterative.

Answer: A

Diff: 1 Page Ref: 230

5) Data structures are described using _____ notation.

- A) relational
- B) metadatic
- C) geometric
- D) algebraic

Answer: D

Diff: 2 Page Ref: 231

6) What does this symbol represent []?

- A) either/or alternative
- B) optional
- C) iteration
- D) selection

Answer: A

Diff: 3 Page Ref: 232

7) Braces { } are used to indicate:

- A) either/or alternative.
- B) optional.
- C) iteration.
- D) selection.

Answer: C

Diff: 2 Page Ref: 231

8) Which of the following is included in a physical data structure?

- A) codes that identify the status of a master record.
- B) expansion area for file records.
- C) the type of data structure, either for a screen or report.
- D) editing criteria for the structure.

Answer: A

Diff: 3 Page Ref: 233

9) A synonym or other name for an element is called a(n):

- A) common element
- B) structural element
- C) attributive element
- D) alias

Answer: D

Diff: 2 Page Ref: 234

10) A base element is one that:

- A) was initially keyed into the system.
- B) does not change over a period of time.
- C) is used within one and only one subsystem.
- D) is the result of a calculation or some other logic.

Answer: A

Diff: 1 Page Ref: 234

11) A derived element is one that:

- A) is keyed, derived by the users.
- B) has several different meanings, one for each user group.
- C) is created by processes as a result of calculations or a series of decision-making statements.
- D) has the displayed length and the stored length the same.

Answer: C

Diff: 2 Page Ref: 234

12) When determining the length for elements:

- A) look at what the current length of data is and use that value.
- B) use values that other corporations have for similar elements.
- C) figure the amount of a numeric element and add a few characters for reasonable expansion.
- D) keep the value for the length small to save file space.

Answer: C

Diff: 1 Page Ref: 235

13) The symbol X(8) represents:

- A) eight digits.
- B) eight alphanumeric characters.
- C) a data structure or element that repeats eight times.
- D) an element that is found within eight data structures.

Answer: B

Diff: 1 Page Ref: 236

14) A varchar data type:

- A) is used to represent elements for which the analyst needs to determine the length.
- B) is an element that contains a check digit.
- C) is used to represent a floating point number with an indeterminate number of decimal positions..
- D) is used for data that can contain any number of characters (up to the database limit).

Answer: D

Diff: 1 Page Ref: 235

15) A default value on a GUI screen may be used for:

- A) drop-down lists.
- B) radio buttons.
- C) check boxes.
- D) all of the above.

Answer: D

Diff: 1 Page Ref: 236

16) Data stores are used to store:

- A) all base elements and some derived elements.
- B) all derived elements and some base elements.
- C) all base and derived elements.
- D) only some base elements and some derived elements (the most critical ones in the system).

Answer: A

Diff: 1 Page Ref: 236

17) Since a single data flow may only show part of the collective data,

- A) the data store may be linked to several external structures defining the different data flows.
- B) many data flows may have to be examined to determine the contents of a data store.
- C) data stores must contain multiple redundant elements within repeating groups indicated by braces { }.
- D) an alias must be used.

Answer: B

Diff: 2 Page Ref: 241

18) An analyst may develop the data flow diagram using a top-down method by using:

- A) algebraic notation.
- B) structural records.
- C) algebraic notation and structural records.
- D) vertical expansion methodology.

Answer: C

Diff: 2 Page Ref: 238

19) The data dictionary may be used to create:

- A) screens.
- B) reports.
- C) forms.
- D) all of the above.

Answer: D

Diff: 2 Page Ref: 238

20) The following is a flaw in the system design that is detected by analyzing the data dictionary entries:

- A) All derived elements on an output flow must be present on an input data flow.
- B) The data store may contain elements that are not present on any data flow to or from the data store.
- C) All base elements on an output data flow must be present on a data flow into the process.
- D) All elements that are discrete must have a table of codes definition.

Answer: C

Diff: 3 Page Ref: 243

21) Elements on a data flow going into or out from a data store:

- A) must be created by the process linking to the data store.
- B) must be base elements.
- C) must be on a data flow that is input to the process that creates the output that is going to the data store
- D) must be contained by the data store.

Answer: D

Diff: 3 Page Ref: 243

22) What is not a characteristic of the ideal data dictionary?

- A) automated
- B) efficient
- C) interactive
- D) online
- E) evolutionary

Answer: B

Diff: 1 Page Ref: 242

23) Which of the following may be created by transforming an XML document?

- A) A Web page.
- B) A portable document format (PDF) file.
- C) Output for a handheld device.
- D) All of the above.

Answer: D

Diff: 1 Page Ref: 244

24) Which of the following is not included in an XML document type definition?

- A) The number of times an element repeats.
- B) An element that is optional.
- C) The rules for transforming the XML document into standard output.
- D) The attributes of an XML element.

Answer: C

Diff: 1 Page Ref: 246

25) Which of the following is a more precise way to define the content of an XML document?

- A) A schema.
- B) A document attribute list.
- C) An IDREF, listing the identifiable elements of a document.
- D) An XML repository specifications document.

Answer: A

Diff: 1 Page Ref: 246

8.2 True/False

1) The data dictionary is a reference work of data about data.

Answer: TRUE

Diff: 1 Page Ref: 228

2) Data about data is called metadata.

Answer: TRUE

Diff: 1 Page Ref: 228

3) The data dictionary can be used as a starting point for creating XML documents.

Answer: TRUE

Diff: 1 Page Ref: 229

4) Automated data dictionaries are useful for only printing summary lists of data.

Answer: FALSE

Diff: 1 Page Ref: 229

5) A data dictionary contains information about a data flow diagram, but not entities or use cases.

Answer: FALSE

Diff: 2 Page Ref: 229

6) Databases are usually the first component of a data dictionary to be defined.

Answer: FALSE

Diff: 1 Page Ref: 230

7) An internal data flow is one that connects two processes.

Answer: TRUE

Diff: 1 Page Ref: 230

8) Data structures are usually described using a binary notation.

Answer: FALSE

Diff: 1 Page Ref: 231

9) An alias for each element is another name for the data used by different users in different systems.

Answer: TRUE

Diff: 1 Page Ref: 234

10) Brackets [] represent repetitive elements.

Answer: FALSE

Diff: 1 Page Ref: 232

11) Parenthesis represent an optional element in the data dictionary.

Answer: TRUE

Diff: 1 Page Ref: 232

12) Data structures are those data items within the system that are not meaningful if broken down further.

Answer: FALSE

Diff: 1 Page Ref: 233

13) A default value is one that never changes on a report.

Answer: FALSE

Diff: 1 Page Ref: 236

14) A discrete data element is one that has certain fixed values.

Answer: TRUE

Diff: 1 Page Ref: 236

15) When a **V** is used as a formatting character for an element, it indicates where the decimal point should occur, even though the actual decimal point is not included.

Answer: TRUE

Diff: 2 Page Ref: 236

16) All derived elements must be stored on a data store.

Answer: FALSE

Diff: 1 Page Ref: 236

17) Each level of a data flow diagram should use data appropriate for the level.

Answer: TRUE

Diff: 1 Page Ref: 238

18) The ideal data dictionary is automated, interactive, online, and evolutionary.

Answer: TRUE

Diff: 1 Page Ref: 242

19) The data dictionary may be used to generate computer source code.

Answer: TRUE

Diff: 1 Page Ref: 243

20) One of the rules for analyzing a data dictionary is that elements present on a data flow coming or going to a data store must be contained within the data store.

Answer: TRUE

Diff: 1 Page Ref: 243

21) Extensible markup language (XML) is a language that can be used to exchange data between businesses.

Answer: TRUE

Diff: 1 Page Ref: 244

22) XML is used when other systems or external organizations use the same software.

Answer: FALSE

Diff: 2 Page Ref: 244

23) XML is a way to define, sort, filter and translate data into a universal data language.

Answer: TRUE

Diff: 2 Page Ref: 244

24) In XML, tags become the metadata.

Answer: TRUE

Diff: 1 Page Ref: 244

25) An XML schema is a more precise way to define the content of an XML document.

Answer: TRUE

Diff: 2 Page Ref: 245

8.3 Fill-in-the-Blank

1) An _____ is a synonym or another name for the element, used by different users of systems.

Answer: alias

Diff: 1 Page Ref: 234

2) A _____ is a large collection of information that is larger than a data dictionary.

Answer: repository

Diff: 2 Page Ref: 229

3) _____ is usually the first component to be stored in the data dictionary.

Answer: Data flow

Diff: 2 Page Ref: 230

4) A _____ is composed of related elements.

Answer: data structure

Diff: 1 Page Ref: 231

5) A _____ is one that is contained within a larger data structure and consists of further subdivisions.

Answer: structural record

Diff: 1 Page Ref: 232

6) _____ data structures include additional elements necessary for implementing the system.

Answer: Physical

Diff: 1 Page Ref: 233

7) A data type of _____ is used for elements that can contain any number of characters up to the limit set by the database software.

Answer: varchar

Diff: 2 Page Ref: 235

8) The correct determination of an _____ length is important to avoid truncation.

Answer: element

Diff: 2 Page Ref: 235

9) A _____ value for an element is one that has certain fixed values.

Answer: discrete

Diff: 2 Page Ref: 236

10) A _____ element is one that has a smooth range of values.

Answer: continuous

Diff: 1 Page Ref: 236

11) A _____ value for an element is one that is automatically displayed on a screen to reduce the amount of keystrokes the user must make.

Answer: default

Diff: 1 Page Ref: 236

12) All _____ on an output data flow must be present on a data flow coming into the process.

Answer: base elements

Diff: 1 Page Ref: 236

13) A _____ must be output from at least one process that it is not input to.

Answer: derived element

Diff: 1 Page Ref: 234

14) The data structure and elements are commonly used to generate _____.

Answer: computer source code

Diff: 1 Page Ref: 243

15) _____ is a language that can be used to exchange data between businesses.

Answer: Extensible markup language (XML)

Diff: 1 Page Ref: 243

16) XML is used when users have different computer (systems) and _____.

Answer: software

Diff: 1 Page Ref: 243

17) XML is a way to define, sort, filter and translate data into a _____ language.

Answer: universal data

Diff: 1 Page Ref: 244

18) In XML, _____ become the metadata.

Answer: tags

Diff: 1 Page Ref: 244

19) A _____ is used to determine if the XML document content is valid.

Answer: document type definition

Diff: 2 Page Ref: 244

20) An _____ describes an XML attribute in the DTD.

Answer: !ATTLIST

Diff: 3 Page Ref: 245

21) A _____ is a more precise way to define the content of an XML document.

Answer: schema

Diff: 2 Page Ref: 245

22) The advantage of using XML to define data is that, in the xml format, data are stored in a pure text format and not dependent on any _____.

Answer: proprietary software

Diff: 3 Page Ref: 248

23) There are three standard formats for mainframe computers: _____, packed decimal, and binary.

Answer: zoned decimal

Diff: 3 Page Ref: 236

24) A _____ is used to determine whether the XML document content is valid, that is, whether it conforms to the order and type of data that must be present in the document.

Answer: document type definition

Diff: 2 Page Ref: 245

25) The _____ format is commonly used to save space on file layouts and for elements that require a high level of arithmetic to be performed on them.

Answer: packed decimal

Diff: 3 Page Ref: 236

8.4 Short Answer

1) (a) Define the term *data dictionary*. (b) Define *metadata*.

Answer: (a) A data dictionary is a reference work of data about data (metadata) created by the systems analyst based on data flow diagrams. It collects and coordinates specific data terms, confirming what each term means to different people in the organization.

(b) Metadata is data about data

Diff: 1 Page Ref: 228

2) Why are structural records used?

Answer: Structural records allows the analyst to develop the data dictionary and the data flow diagrams using a top-down approach.

Diff: 2 Page Ref: 238

3) Describe the difference between base elements and derived elements.

Answer: A base element is one that is initially keyed into the system, such as a customer name, address, or city. Base elements must be stored in files. Derived elements are created by processes as the result of a calculation or a series of decision-making statements.

Diff: 2 Page Ref: 234

4) List three of the five main ways in which to use a data dictionary.

Answer: 1. Validate the data flow diagram for completeness and accuracy.

2. Provide a starting point for developing screens and reports.

3. Determine the contents of data stored in files.

4. Develop the logic for data flow diagram processes.

5. Create XML (extensible markup language).

Diff: 3 Page Ref: 229

5) Give two examples of elements that can be found in a data dictionary; one that has a standard length and one that does not have a standard length.

Answer: In the United States lengths for state name abbreviations, zip codes, and telephone numbers are all standard. Examples of elements found in a data dictionary that do not have standard lengths include names, addresses, city names, long narratives, etc.

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