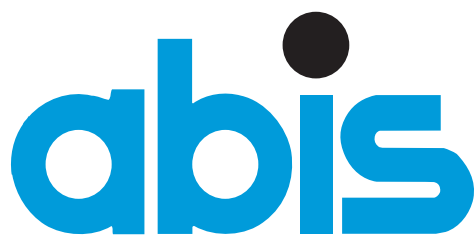


Self-test Database application programming with JDBC

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INTRODUCTION TO THE SELF-TEST DATABASE APPLICATION PROGRAMMING WITH JDBC

This test consists of multiple-choice questions. With some questions, multiple correct answers are possible. Write down your answer(s) and compare with the given solutions.

This test contains 20 questions. Note: if multiple answers are possible, this is explicitly indicated. A question is answered correctly only if all correct answers are given.

There are no catch-questions (not intended), but it is advised to read all questions and answers attentively. Count about 15 minutes to complete the test.

The correct answers and the guidelines for the evaluation are at the back of this document.

QUESTIONS SELF-TEST DATABASE APPLICATION PROGRAMMING WITH JDBC

1. Which statements about JDBC are true? (2 answers)
 - ☐ [a] JDBC is an API to connect to relational-, object- and XML data sources
 - ☐ [b] JDBC stands for Java DataBase Connectivity
 - ☐ [c] JDBC is an API to access relational databases, spreadsheets and flat files
 - ☐ [d] JDBC is an API to bridge the object-relational mismatch between OO programs and relational databases
2. Which packages contain the JDBC classes?
 - ☐ (a) java.jdbc and javax.jdbc
 - ☐ (b) java.jdbc and java.jdbc.sql
 - ☐ (c) java.sql and javax.sql
 - ☐ (d) java.rdb and javax.rdb
3. Which type of driver provides JDBC access via one or more ODBC drivers?
 - ☐ (a) Type 1 driver
 - ☐ (b) Type 2 driver
 - ☐ (c) Type 3 driver
 - ☐ (d) Type 4 driver
4. Which type of driver converts JDBC calls into the network protocol used by the database management system directly?
 - ☐ (a) Type 1 driver
 - ☐ (b) Type 2 driver
 - ☐ (c) Type 3 driver
 - ☐ (d) Type 4 driver
5. Which type of Statement can execute parameterized queries?
 - ☐ (a) PreparedStatement
 - ☐ (b) ParameterizedStatement
 - ☐ (c) ParameterizedStatement and CallableStatement
 - ☐ (d) All kinds of Statements (i.e. which implement a sub interface of Statement)

6. How can you retrieve information from a `ResultSet`?
- ☐ (a) By invoking the method `get(..., String type)` on the `ResultSet`, where `type` is the database type
 - ☐ (b) By invoking the method `get(..., Type type)` on the `ResultSet`, where `Type` is an object which represents a database type
 - ☐ (c) By invoking the method `getValue(...)`, and cast the result to the desired Java type.
 - ☐ (d) By invoking the special getter methods on the `ResultSet`: `getString(...)`, `getBoolean (...)`, `getClob(...)`,...
7. How can you execute DML statements (i.e. insert, delete, update) in the database?
- ☐ (a) By making use of the `InsertStatement`, `DeleteStatement` or `UpdateStatement` classes
 - ☐ (b) By invoking the `execute(...)` or `executeUpdate(...)` method of a normal `Statement` object or a sub-interface object thereof
 - ☐ (c) By invoking the `executeInsert(...)`, `executeDelete(...)` or `executeUpdate(...)` methods of the `DataModificationStatement` object
 - ☐ (d) By making use of the `execute(...)` statement of the `DataModificationStatement` object
8. How do you know in your Java program that a SQL warning is generated as a result of executing a SQL statement in the database?
- ☐ (a) You must catch the checked `SQLException` which is thrown by the method which executes the statement
 - ☐ (b) You must catch the unchecked `SQLWarningException` which is thrown by the method which executes the statement
 - ☐ (c) You must invoke the `getWarnings()` method on the `Statement` object (or a sub interface thereof)
 - ☐ (d) You must query the `ResultSet` object about possible warnings generated by the database
9. What is, in terms of JDBC, a `DataSource`?
- ☐ (a) A `DataSource` is the basic service for managing a set of JDBC drivers
 - ☐ (b) A `DataSource` is the Java representation of a physical data source
 - ☐ (c) A `DataSource` is a registry point for JNDI-services
 - ☐ (d) A `DataSource` is a factory of connections to a physical data source

10. What is the meaning of `ResultSet.TYPE_SCROLL_INSENSITIVE`
- ☐ (a) This means that the `ResultSet` is insensitive to scrolling
 - ☐ (b) This means that the `ResultSet` is sensitive to scrolling, but insensitive to updates, i.e. not updateable
 - ☐ (c) This means that the `ResultSet` is sensitive to scrolling, but insensitive to changes made by others
 - ☐ (d) The meaning depends on the type of data source, and the type and version of the driver you use with this data source
11. Are `ResultSet`s updateable?
- ☐ (a) Yes, but only if you call the method `openCursor()` on the `ResultSet`, and if the driver and database support this option
 - ☐ (b) Yes, but only if you indicate a concurrency strategy when executing the statement, and if the driver and database support this option
 - ☐ (c) Yes, but only if the `ResultSet` is an object of class `UpdateableResultSet`, and if the driver and database support this option
 - ☐ (d) No, `ResultSet`s are never updateable. You must explicitly execute DML statements (i.e. insert, delete and update) to change the data in the underlying database
12. What statements are correct about JDBC transactions (2 correct answers)?
- ☐ [a] A transaction is a set of successfully executed statements in the database
 - ☐ [b] A transaction is finished when `commit()` or `rollback()` is called on the `Connection` object,
 - ☐ [c] A transaction is finished when `commit()` or `rollback()` is called on the `Transaction` object
 - ☐ [d] A transaction is finished when `close()` is called on the `Connection` object.
13. How can you start a database transaction in the database?
- ☐ (a) By asking a `Transaction` object to your `Connection`, and calling the method `begin()` on it
 - ☐ (b) By asking a `Transaction` object to your `Connection`, and setting the `autoCommit` property of the `Transaction` to false
 - ☐ (c) By calling the method `beginTransaction()` on the `Connection` object
 - ☐ (d) By setting the `autoCommit` property of the `Connection` to false, and execute a statement in the database

14. What is the meaning of the transaction isolation level `TRANSACTION_REPEATABLE_READ`
- ☐ (a) Dirty reads, non-repeatable reads and phantom reads can occur
 - ☐ (b) Dirty reads are prevented; non-repeatable reads and phantom reads can occur
 - ☐ (c) Dirty reads and non-repeatable reads are prevented; phantom reads can occur
 - ☐ (d) Dirty reads, non-repeatable reads and phantom reads are prevented
15. What statements are correct about positioned updates (i.e. cursor updates) in `ResultSet`? (2 correct answers)
- ☐ [a] Using the cursor technique is currently the only possible way to change the data in the current row of a `ResultSet`
 - ☐ [b] Insert statements are only supported when using scrollable cursors.
 - ☐ [c] Only scrollable updateable `ResultSet`s can use this approach to change the data in the current row of a `ResultSet`
 - ☐ [d] The name of the cursor is specified by the `setCursorName(String name)` method the `Statement` object.
16. How can you execute a stored procedure in the database?
- ☐ (a) Call method `execute()` on a `CallableStatement` object
 - ☐ (b) Call method `executeProcedure()` on a `Statement` object
 - ☐ (c) Call method `execute()` on a `StoredProcedure` object
 - ☐ (d) Call method `run()` on a `ProcedureCommand` object
17. What happens if you call the method `close()` on a `ResultSet` object?
- ☐ (a) the method `close()` does not exist for a `ResultSet`. Only `Connections` can be closed.
 - ☐ (b) the database and `JDBC` resources are released
 - ☐ (c) you will get a `SQLException`, because only `Statement` objects can close `ResultSet`s
 - ☐ (d) the `ResultSet`, together with the `Statement` which created it and the `Connection` from which the `Statement` was retrieved, will be closed and release all database and `JDBC` resources
18. What happens if you call `deleteRow()` on a `ResultSet` object?
- ☐ (a) The row you are positioned on is deleted from the `ResultSet`, but not from the database.
 - ☐ (b) The row you are positioned on is deleted from the `ResultSet` and from the database
 - ☐ (c) The result depends on whether the property `synchronizeWithDataSource` is set to true or false
 - ☐ (d) You will get a compile error: the method does not exist because you can not delete rows from a `ResultSet`

19. What statements are correct about batched insert and updates? (2 answers)

- ☐ [a] To create a batch of insert and update statements, you create an object of type `Batch`, and call the method `addStatement(String statement)` for each statement you want to execute in the batch
- ☐ [b] Batch insert and updates are only possible when making use of parameterized queries.
- ☐ [c] To do a batched update/insert, you call `addBatch(String statement)` on a `Statement` object for each statement you want to execute in the batch
- ☐ [d] To execute a batched update/insert, you call the `executeBatch()` method on a `Statement` object

20. What is correct about DDL statements (create, grant,...)?

- ☐ (a) DDL statements are treated as normal SQL statements, and are executed by calling the `execute()` method on a `Statement` (or a sub interface thereof) object
- ☐ (b) To execute DDL statements, you have to install additional support files
- ☐ (c) DDL statements can not be executed by making use of JDBC, you should use the native database tools for this.
- ☐ (d) Support for DDL statements will be a feature of a future release of JDBC

EVALUATION.

Here are the correct answers to all questions:

1. b c
2. c
3. a
4. d
5. a
6. d
7. b
8. c
9. d
10. c
11. b
12. b d
13. d
14. c
15. b d
16. a
17. b
18. b
19. c d
20. a

Give 1 point per correct answer. For questions with multiple correct answers, all correct answers must be given before 1 point is earned. No half points are given.

If your score is more than 80%, you do not have to follow the course.

When you have a score between 50% and 80%, following the course can improve your knowledge.

When your score is less than 50%, we strongly suggest you follow this course.