

Quiz 8

Databases

11 May 2026

Full name:

You have 10 minutes to answer this quiz, directly on this sheet of paper. No electronic devices or material of any kind is allowed. Do not forget to add your name above. Every question amounts to 2 points; the quiz is graded out of 10 points.

Questions

Q1. Circle the only correct answer.

Consider the following Python code, where **genre** contains a string entered by the user:

```
cursor.execute(  
    "SELECT title FROM movie WHERE genre = '" + genre + "'"   
)
```

What is the main problem with this code?

- a. it is slower than using `%s` placeholders
- b. it is vulnerable to SQL injection: a malicious value of **genre** can alter the structure of the query
- c. it cannot return more than one row
- d. it does not work if **genre** contains uppercase letters

Q2. Circle all correct answers (there may be more than one).

Which of the following statements about **transactions** are correct?

- a. Atomicity guarantees that either all operations of a transaction take effect, or none of them do.
- b. Once `conn.commit()` has been called, the changes survive a subsequent crash of the DBMS.
- c. Calling `conn.rollback()` undoes every statement executed since the last commit.
- d. Calling `conn.rollback()` immediately after `conn.commit()` undoes the just-committed changes.

Q3. Explain briefly why using a parameterized query (`cursor.execute(sql, params)`) is preferable to building the SQL string with an f-string or string concatenation.

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Q4. Consider the following SQLAlchemy ORM code, where the relation `Movie.director` is loaded *lazily*:

```
movies = session.scalars(select(Movie)).all() # 50 movies
for movie in movies:
    print(movie.title, movie.director.name)
```

How many SQL queries are sent to the DBMS in total? Circle the only correct answer.

- a. 1
- b. 50
- c. 51
- d. 100

Q5. Circle the only correct answer.

A MySQL connection uses the default isolation level `REPEATABLE READ`. Which of the following anomalies is still possible at this level?

- a. dirty reads
- b. non-repeatable reads
- c. phantom reads
- d. none: `REPEATABLE READ` prevents every concurrency anomaly