Structured Query Language (SQL) — Advanced

DataBase Foundations

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Outline

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Store Procedures

Store Procedures are a set of SQL statements that are stored in the database and can be executed by calling the procedure name.

PostgreSQL Example

```
CREATE OR REPLACE FUNCTION myFunction()
RETURNS SETOF myTable AS $$
BEGIN
  RETURN QUERY SELECT * FROM myTable;
END;
$$ LANGUAGE plpgsql;
```

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Store Procedures

Store Procedures are a set of SQL statements that are stored in the database and can be executed by calling the procedure name.

MySQL Example

```
DELIMITER $
CREATE PROCEDURE myProcedure()
BEGIN
  SELECT * FROM myTable;
END$$
DELIMITER ;
```

Store Procedures

Store Procedures can be executed by calling the procedure name.

PostgreSQL Example

```
SELECT * FROM myFunction();
```

MySQL Example

```
CALL myProcedure();
```

Store Procedures

Store Procedures can be deleted from the database.

PostgreSQL Example

```
DROP FUNCTION myFunction();
```

MySQL Example

```
DROP PROCEDURE myProcedure;
```

Outline

Triggers

Triggers are a set of SQL statements that are executed automatically when a specified event occurs in a database.

PostgreSQL Example

```
CREATE OR REPLACE FUNCTION my_trigger_function()
RETURNS TRIGGER AS $$
BEGIN
  INSERT INTO myLog VALUES (NEW.id, NEW.name);
  RETURN NEW;
END;
$$ LANGUAGE plpgsql;

CREATE TRIGGER myTrigger
AFTER INSERT ON myTable
FOR EACH ROW
EXECUTE FUNCTION my_trigger_function();
```

Triggers

Triggers are a set of SQL statements that are executed automatically when a specified event occurs in a database.

MySQL Example

```
DELIMITER $
CREATE TRIGGER myTrigger
AFTER INSERT ON myTable
FOR EACH ROW
BEGIN
  INSERT INTO myLog VALUES (NEW.id, NEW.name);
END$$
DELIMITER ;
```

Triggers

Triggers can be deleted from the database.

PostgreSQL Example

```
DROP TRIGGER myTrigger ON myTable;
```

MySQL Example

```
DROP TRIGGER myTrigger;
```

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Indexes

Indexes are data structures that are used to speed up the retrieval of data from a database.

PostgreSQL Example — MySQL Example

```
CREATE INDEX myIndex ON myTable (name);
```

Views

Views are virtual tables that are created by querying one or more tables in a database.

PostgreSQL Example — MySQL Example

```
CREATE VIEW myView AS
SELECT * FROM myTable WHERE country = 'USA';
```

Nested Queries

Nested Queries are queries that are embedded within other queries.

PostgreSQL Example — MySQL Example

```
SELECT * FROM myTable WHERE id IN
  (SELECT id FROM myTable WHERE country = 'USA');
```

Outline

Thanks!

Questions?

Repo: *https://github.com/EngAndres/ud-public/tree/main/courses/databases-foundations*

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