Commit and Rollback:

COde :

```
UPDATE employees1
SET salary = salary - 1000
WHERE emp_no = 1001;
```

- - If satisfied, commit the change
  COMMIT;
- - If an error occurred, rollback the change
  -- ROLLBACK;

```
select * from employees1;
```

```
SET autocommit = 0;
```

```
UPDATE employees1
SET salary = salary - 1000
WHERE emp_no = 1001;
```

```
SELECT * FROM employees1 WHERE emp_no = 1001;
```

```
COMMIT;
```

```
UPDATE employees1
SET salary = salary - 1000
WHERE emp_no = 1001;
```

```
SELECT * FROM employees1 WHERE emp_no = 1001;
```

```
ROLLBACK;
```

```
SET autocommit = 1;
```

`COMMIT` vs `ROLLBACK` in SQL

Both `COMMIT` and `ROLLBACK` are commands in SQL used to manage transactions. They allow you to control the permanence of changes made by SQL statements in the database.

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1. `COMMIT`

- **Definition**: Saves all the changes made during the current transaction to the database permanently.
- Once committed, changes cannot be undone.
- Typically used after a sequence of `INSERT`, `UPDATE`, or `DELETE` operations when you are confident the operations are correct.

Syntax:

```
COMMIT;
```

Example of `COMMIT`

```
BEGIN TRANSACTION;

-- Insert a new record
INSERT INTO employees (emp_no, first_name, last_name, gender,
birth_date, hire_date)
VALUES (3001, 'Eve', 'Brown', 'F', '1995-07-10', '2022-01-15');

-- Update a record
UPDATE employees
SET hire_date = '2023-01-01'
WHERE emp_no = 3001;

-- Commit the changes
```

```
COMMIT;
```

Explanation:

- The changes made by the `INSERT` and `UPDATE` commands are saved permanently to the database when you execute the `COMMIT` command.
- If you exit the session after `COMMIT`, the changes will remain intact.

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2. `ROLLBACK`

- **Definition**: Reverts all the changes made during the current transaction.
- Typically used to undo any errors or unintended changes made during a transaction.
- A rollback can only undo changes within the current transaction (since the last `COMMIT` or `ROLLBACK`).

Syntax:

```
ROLLBACK;
```

Example of `ROLLBACK`

```
BEGIN TRANSACTION;

-- Insert a new record
INSERT INTO employees (emp_no, first_name, last_name, gender,
birth_date, hire_date)
VALUES (3002, 'Adam', 'Smith', 'M', '1992-05-21', '2021-12-01');

-- Update a record
```

```
UPDATE employees
SET hire_date = '2020-12-01'
WHERE emp_no = 3002;

-- Oops! A mistake occurred. Rollback the changes
ROLLBACK;
```

Explanation:

- The `ROLLBACK` command undoes both the `INSERT` and `UPDATE` operations.
- The database will return to its state before the `BEGIN TRANSACTION`.

Key Differences Between `COMMIT` and `ROLLBACK`

Feature	`COMMIT`	`ROLLBACK`
Function	Saves the transaction permanently.	Reverts the transaction changes.
Undo Capability	Cannot be undone.	Undoes changes made in the transaction.
Use Case	When all operations are correct.	When errors or mistakes occur in operations.
Persistence	Changes become permanent in the database.	Changes are not saved to the database.