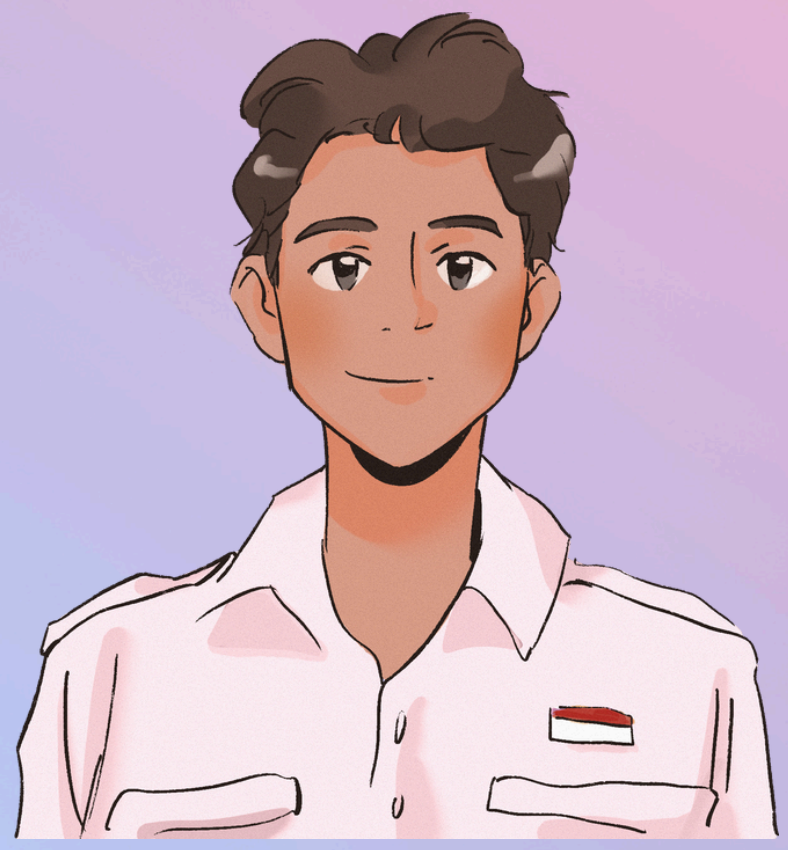
ROW_NUMBER()

VS

RANK()

VS

DENSE_RANK()



ROW_NUMBER()

Purpose: Assigns a unique sequential number to each row, starting from 1, without any gaps, even if there are ties

During ties: When there are multiple rows with the same value, ROW_NUMBER() will still assign them unique sequential numbers.

```
SELECT
        Name
      , Score
      , ROW_NUMBER() OVER (ORDER BY Score DESC) AS RN
FROM
      Students;
```

Name	Score	RN
Tom	100	1
Harry	100	2
John	90	3
Bill	80	4

RANK()

Purpose: Assigns a rank to each row, starting from 1. It handles ties by giving the same rank to rows with identical values but leaves gaps in the ranking sequence.

During ties: If there are ties, rows with the same value will receive the same rank, and the next rank will skip the number(s) of the tied ranks.

```
SELECT
        Name
      , Score
      , RANK() OVER (ORDER BY Score DESC) AS RN
FROM
      Students;
```

Name	Score	RN
Tom	100	1
Harry	100	1
John	90	3
Bill	80	4

DENSE_RANK()

- **Purpose:** Similar to RANK(), but does not leave gaps in the ranking sequence when there are ties.
- **During ties:** If there are ties, all rows with the same value will receive the same rank, and the next rank will be consecutive (i.e., no gaps).

```
SELECT
        Name
      , Score
      , DENSE_RANK() OVER (ORDER BY Score DESC) AS RN
FROM
      Students;
```

Name	Score	RN
Tom	100	1
Harry	100	1
John	90	2
Bill	80	3