

AVERAGE, MEAN AND AGGREGATE

A short theory note with a worked example, Excel and SQL.

1. What each word means

Aggregate means to combine many separate values (or records) into one summary. The summary can be a total, a count, a highest value, a lowest value, or an average. Aggregate is the process — and also the combined result.

Average is the everyday word for a typical value in a set. In CAT we treat “average” as a family name that includes mean, median and mode.

Mean is one specific average: add all the values and divide by how many there are. This is the arithmetic mean. In Excel it is AVERAGE. In SQL it is AVG.

Classroom line: Average is the idea of a typical value. Mean is the add-and-divide version. Aggregate is combining many records into a summary — and the mean is only one of those summaries.

2. Worked example — four test marks

Marks: 60, 70, 80, 90

Term	Calculation	Result and meaning
Aggregate (sum)	$60 + 70 + 80 + 90$	300 — all marks combined into one total
Aggregate (count)	4 values	4 — how many marks were recorded
Mean (average)	$300 \div 4$	75 — typical mark if every test counted equally
Median	middle of 60, 70, 80, 90	75 — the middle once sorted
Mode	no value repeats	none — there is no most common mark
Max / Min	highest / lowest	90 and 60 — also aggregates, not averages

Important: 75 is the mean. 300 is an aggregate total. Both come from aggregating the same four marks.

3. Excel

Assume marks sit in cells B2:B5.

Mean: =AVERAGE(B2:B5)

Sum (an aggregate): =SUM(B2:B5)

Count: =COUNTA(B2:B5)

Highest / lowest: =MAX(B2:B5) =MIN(B2:B5)

Median: =MEDIAN(B2:B5)

AGGREGATE() is an Excel function that can run several summaries and skip errors or hidden rows. Example mean that ignores errors:

=AGGREGATE(1,6,B2:B5)

Function number 1 = AVERAGE. Option 6 = ignore error values. So AGGREGATE in Excel is a toolbox of aggregates, not a different kind of average.

4. Quick check for tests

- If the question asks for a typical value, they usually want the mean (AVERAGE / AVG).
- If it asks you to combine or summarise many records, that is aggregation — name the function (SUM, COUNT, AVG, MAX, MIN).
- Do not write “aggregate = average”. Average is one possible aggregate.
- A mean can be pulled by one extreme mark. That is why we also learn median.

Keep this page with your spreadsheet and database notes.