How to use aggregation and annotation in Django ORM?

"In Django ORM: Aggregation is used to compute a summary value (like sum, average, min, max, count) over the entire queryset. Annotation is used to compute summary values for each object in the queryset, like total orders per customer."

**✅ Examples:**

**🔹 1. Aggregation – aggregate()**

from django.db.models import Avg, Sum

# Example: Get average age of all students

Student.objects.aggregate(Avg('age'))

# Example: Get total marks of all students

Student.objects.aggregate(Sum('marks'))

**Explanation:** Returns a dictionary like:  
{'age\_\_avg': 21.3} or {'marks\_\_sum': 980}

**🔹 2. Annotation – annotate()**

from django.db.models import Count

# Example: Get number of books per author

Author.objects.annotate(book\_count=Count('book'))

**Explanation:** Each Author object will have a new field book\_count.  
You can access it like:

for author in authors:

print(author.name, author.book\_count)