Django QuerySet & connection.queries Notes

1. QuerySet Basics
2. QuerySet = Django ORM থেকে database query result representation
3. Lazy Evaluation: QuerySet তখনই execute হয় যখন data দরকার হয় (iteration, list(), count(), etc.)

Example: posts = Student.objects.all() # Query yet to run print(posts.query) # Shows SQL query for student in posts: # Executes query print(student.surname)

1. Important QuerySet Attributes / Methods

Attribute / Method	Purpose	Example
query	Shows raw SQL query	print(posts.query)
model	Shows model class	print(posts.model)
count()	Number of rows in QuerySet	print(posts.count())
exists()	Checks if QuerySet has any rows	print(posts.exists())
first()	Returns first object	print(posts.first())
last()	Returns last object	print(posts.last())
values()	Returns list of dicts	print(list(posts.values()))
values_list()	Returns list of tuples	print(list(posts.values_list()))
only('field')	Fetch only selected field(s)	posts.only('surname')
defer('field')	Exclude certain field(s) from fetch	posts.defer('email')
order_by('field')	Order results	posts.order_by('surname')
distinct()	Remove duplicates	posts.distinct()

1. Using Q for Complex Queries

2. Q allows OR / AND / NOT conditions Example: from django.db.models import Q posts Student.objects.filter(Q(surname__startswith='austin') | Q(surname__startswith='baldwin')) SQL equivalent: SELECT * FROM student WHERE surname LIKE 'austin%' OR surname LIKE 'baldwin%';

3. connection.queries

4. from django.db import connection
5. Shows all executed queries (only if DEBUG=True)
6. Each entry = dict with 'sql' and 'time'

Example: from django.db import connection for q in connection.queries: print("SQL:", q['sql']) print("Execution Time:", q['time'])

- Combine with QuerySet inspection: print(posts.query) # Planned SQL print(list(posts)) # Executes query print(connection.queries) # Shows executed query log

- Tips

- Lazy vs Eager execution: posts.query lazy, iteration executes
- Efficient Queries: Use Q, only(), defer() for performance
- Debugging: Use connection.queries to detect N+ 1 problem
- Best Practices: Avoid unnecessary queries inside loops, combine filters with Q for readability and performance