Database

Optimization

in Django

part -1

Introduction

Django provides a various techniques to optimize your database. Let's explore all these techniques to optimized our database.

Use the with template tag

To make use of the caching behavior of QuerySet, you may need to use the with template tag.

```
1 {% with total=business.employees.count %}
2     {{ total }} employee
3 {% endwith %}
```

using with tag, will cache the complex variable, if you are using this multiple times

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Use iterator() method

When you have a lot of objects, the caching behaviour of the QuerySet can cause a large amount of memory to be used. In this case, we can use iterator().

```python
from .models import LargeData

data = LargeData.objects.all()

# Iterate over queryset using iterator
for obj in data.iterator(chunk_size=100):
    # Process each object
    print(obj)
```

The iterator() method is used to retrieve query results one at a time, rather than loading all the results into memory at once.

Use explain() method

explain() method gives you detailed information about how the database executes a query, including indexes and joins that are used.

```python
from .models import Student

# Get queryset
queryset = Student.objects.filter(name='john')

# Explain the query
explanation = queryset.query.explain()

# Print the explanation
print(explanation)
```

it will explain how database query executes.

Retrieve individual objects using a unique, indexed column

When using get method, try to retrieve objects, using its unique fields (like id) or indexed columns, don’t use non-indexed column to retrieve objects

```python
from .models import Student

studen = Student.objects.get(id=10)
```

Above query will return the faster result (as id by default is indexed) than this query

```python
from .models import Student

studen = Student.objects.get(name="john")
```

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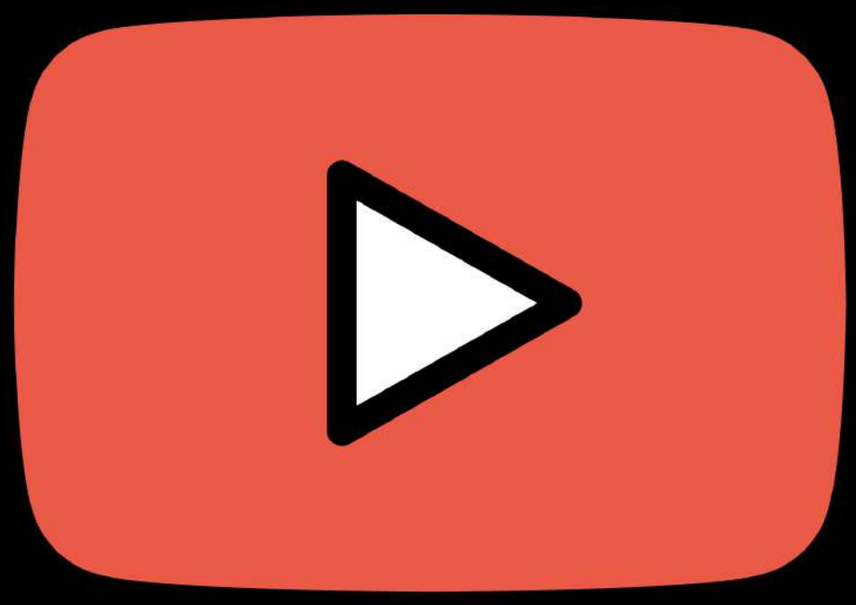

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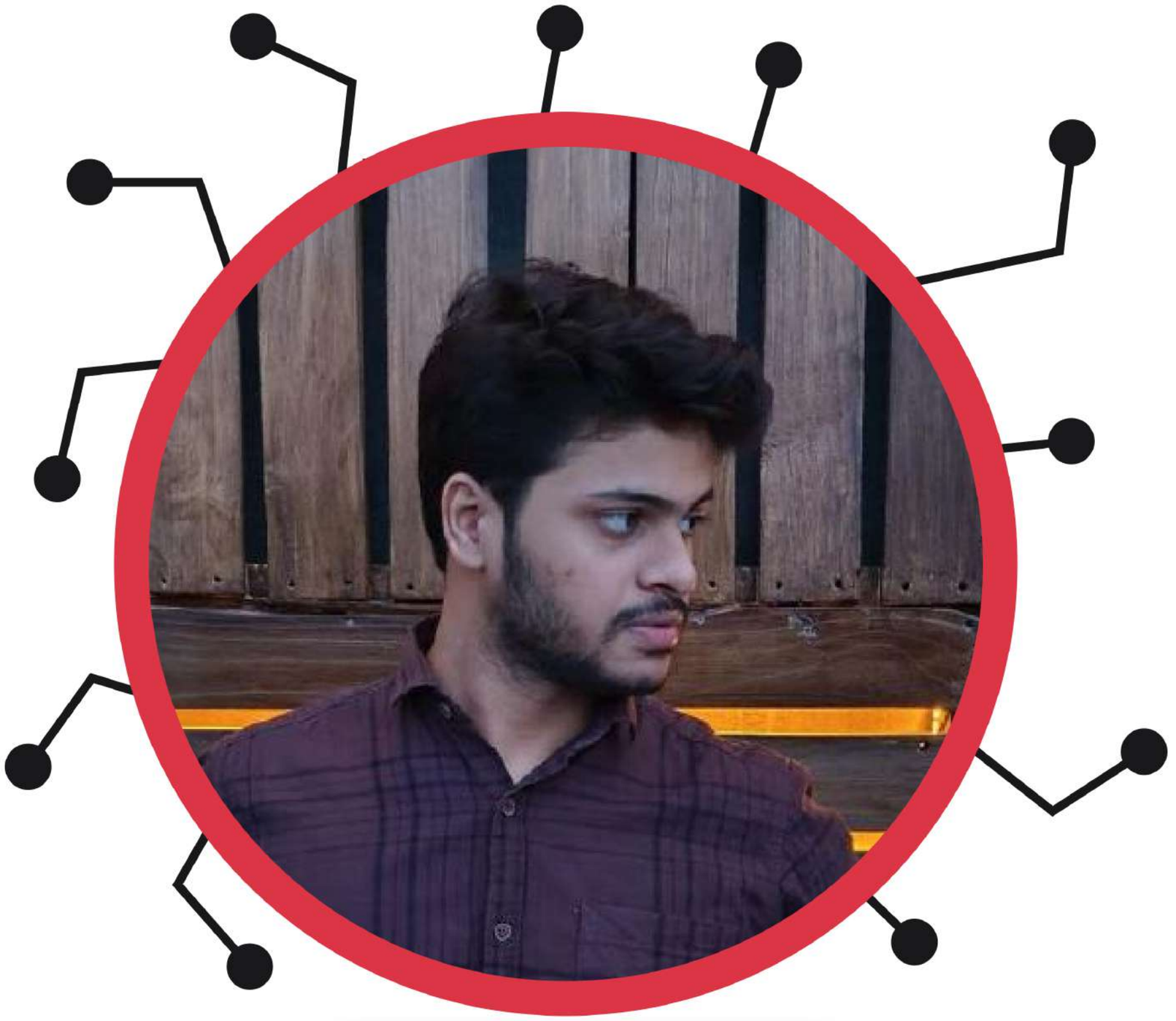

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