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**Django Model Many to Many Relationship**

## Django Model Many-to-Many Relationship

* A **Many-to-Many relationship** allows **multiple objects of one model to be related to multiple objects of another model**.
* In Django, this is created using **ManyToManyField**.

### ✅ When to Use?

* When both sides can have multiple related objects.
* Example:
  + A **Student** can enroll in many **Courses**, and each **Course** can have many **Students**.
  + A **Book** can have many **Authors**, and an **Author** can write many **Books**.

### 🔑 Key Points:

1. Defined using:
2. models.ManyToManyField(OtherModel)
3. Django automatically creates a **junction table** (intermediate table) to store the relationship.
4. **Forward Access**: student.courses.all() → Courses for a student.
5. **Reverse Access**: course.students.all() → Students in a course.
6. You can also use through to define a **custom intermediate table** if you need extra fields.

👉 Example for notes:

from django.db import models

class Course(models.Model):

    name = models.CharField(max\_length=100)

class Student(models.Model):

    name = models.CharField(max\_length=100)

    courses = models.ManyToManyField(Course, related\_name="students")

# Usage:

# c1 = Course.objects.create(name="Math")

# c2 = Course.objects.create(name="Science")

# s1 = Student.objects.create(name="Ali")

# s2 = Student.objects.create(name="Ayesha")

# Add relationships:

# s1.courses.add(c1, c2)     # Ali enrolled in Math & Science

# c1.students.add(s2)        # Ayesha also enrolled in Math

# Forward:

# print(s1.courses.all())    # Ali's courses

# Reverse:

# print(c1.students.all())   # Students in Math

⚡ **Summary for Notes:**  
A Many-to-Many relationship in Django is defined with ManyToManyField. It allows multiple records on both sides of the relationship (e.g., Students ↔ Courses). Django manages this using an automatic intermediate table, or you can define a custom one with through.

Self doc :

Models.py:

from django.db import models

from django.contrib.auth.models import User

# Create your models here.

class Song(models.Model):

    user = models.ManyToManyField(User)

    title = models.CharField(max\_length=255)

    def written\_by(self):

        return ",".join(str(p) for p in self.user.all())