

## Django Model Inheritance

Model Inheritance is the process of deriving the fields from one model to another model.

Django Inheritance is nothing but the Python inheritance means we can derive the fields of Parent model into Child model.

Django models support different types of Inheritance:

1. Abstract Model Inheritance
2. Proxy Model Inheritance
3. Multilevel Model Inheritance
4. Multiple Model Inheritance

### Abstract Model Inheritance:

- When we are creating models with some common fields then we can create abstract model and in that abstract model we take common fields.
- Django will derive the common fields from abstract model to non-abstract models at runtime.
- We have to create a Meta class for a specific model then only it is called abstract.
- We have to set `abstract = True` value in the Meta class model to make a normal model class as abstract model class.
- Abstract model will not have its own fields . So Django doesnot create database table to the abstract model

### Example:

```
class Person(models.Model):
```

```
    name =
```

```
    mobile =
```

```
    address =
```

```
    class Meta:
```

```
        abstract = True
```

## Create a Project using Abstract Model Inheritance

**Step1:** Create a Django ProjectName like **Abstract\_Project**

**Step2:** Create a Application Name like **Abstract\_App**

**Step3:** Create Database Name like **7am\_abstractdb**

**Step4:** Goto settings.py file and configure database details under DATABASE section.

i) Add our application name inside INSTALLED\_APPS section,

ii) Configure the database details in DATABASE section.

```
DATABASES = {  
    'default': {  
        'ENGINE' : 'django.db.backends.mysql',  
        'NAME' : '7am_abstractdb',  
        'USER' : 'root',  
        'PASSWORD' : 'root',  
    }  
}
```

**Step5:** Open models.py file and create required models

```
from django.db import models  
  
class Person(models.Model):  
    name = models.CharField(max_length=30)  
    mobile = models.BigIntegerField() #  
    address = models.TextField()  
  
    class Meta:  
        abstract = True  
  
class Student(Person):  
    marks = models.IntegerField()  
  
    def __str__(self):  
        return self.name  
  
class Employee(Person):  
    salary = models.IntegerField()  
  
    def __str__(self):  
        return self.name
```

**Step6:** Goto **admin.py** file and write the following code

```
from django.contrib import admin
from Abstract_App.models import Student,Employee

class StudentAdmin(admin.ModelAdmin):
    list_display = ['name', 'mobile','marks','address']

class EmployeeAdmin(admin.ModelAdmin):
    list_display = ['name', 'mobile','salary','address']

admin.site.register(Student,StudentAdmin)
admin.site.register(Employee,EmployeeAdmin)
```

**Step8:** Execute the makemigrations command to convert model code into SQL code format  
**python manage.py makemigrations**

**Step9:** Execute the migrate command to execute SQL code in database site and creating tables more models.

**python manage.py migrate**

**Step10:** Execute the createsuperuser command for creating admin credentials.  
**python manage.py createsuperuser**

Then it will ask like below details,

Username: Virat

Email : virat@gmail.com

Password: admin123

Password (again): admin123

**Step11:** Now execute the runserver command for running the project  
**python manage.py runserver 8000**

**Step12:** Now open the required browser and then send admin/ url request from the browser then we will get admin login page response like below

Note: Here, three models have all the fields which are taken inside itself and also which are taken inside abstract model.

**Step13:** Give the some data to customer, student and emp model like below.

NOTE: Now we can check the database for the data and write all tables data in our notes.

```
mysql> select * from abstract_app_student;
```

id	name	mobile	address	marks
1	Raamu	111122222	Pune	90
2	Raaju	2222233333	Mumbai	5000
3	Ravi	3333344444	Hyderabad	40000

```
mysql> select * from abstract_app_employee;
```

id	name	mobile	address	salary
1	Kiran	5555522222	Mumbai	90000
2	Kumar	6666633333	Chennai	50000
3	Surya	7777744444	Hyderabad	40000