

# Migrations

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You must have seen the following issues when you ran Django development server -

```
Watching for file changes with StatReloader
Performing system checks...

System check identified no issues (0 silenced).

You have 17 unapplied migration(s). Your project may not work properly until you apply the migrations for app(s): admin, auth, contenttypes, sessions.
Run 'python manage.py migrate' to apply them.

July 18, 2019 - 16:34:23
Django version 2.2.3, using settings 'hello_world.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
```

Let's now study these issues in detail.

## Built-in apps

Django has built-in apps which provides us with a lot of functionality, which we would otherwise have to code from start, e.g, Django ships with sessions and user authentication.

Open 'settings.py', it has the following built-in apps

```
INSTALLED_APPS = [
    'pages', # Our App
    'django.contrib.admin',
    'django.contrib.auth',
    'django.contrib.contenttypes',
    'django.contrib.sessions',
    'django.contrib.messages',
    'django.contrib.staticfiles',
]
```

However, for these apps to work, they need to be synced with the database.

## Database Migrations

Django ships with **sqlite** which can be used as our development database, it provides us with an easy development environment. However, in production it is advisable not to use sqlite, instead **Mysql** or **Postgresql** are preferred.

Its very easy to sync our database, database migration will create all the required tables defined in the schema of the built-in apps.

```
$ python manage.py migrate
```

The output would be as follows -

```
Operations to perform:
  Apply all migrations: admin, auth, contenttypes, sessions
Running migrations:
  Applying contenttypes.0001_initial... OK
  Applying auth.0001_initial... OK
  Applying admin.0001_initial... OK
  Applying admin.0002_logentry_remove_auto_add... OK
  Applying admin.0003_logentry_add_action_flag_choices... OK
  Applying contenttypes.0002_remove_content_type_name... OK
  Applying auth.0002_alter_permission_name_max_length... OK
  Applying auth.0003_alter_user_email_max_length... OK
  Applying auth.0004_alter_user_username_opts... OK
  Applying auth.0005_alter_user_last_login_null... OK
  Applying auth.0006_require_contenttypes_0002... OK
  Applying auth.0007_alter_validators_add_error_messages... OK
  Applying auth.0008_alter_user_username_max_length... OK
  Applying auth.0009_alter_user_last_name_max_length... OK
  Applying auth.0010_alter_group_name_max_length... OK
  Applying auth.0011_update_proxy_permissions... OK
  Applying sessions.0001_initial... OK
```

Now if you run the development server, we will no longer get those warnings.

```
Watching for file changes with StatReloader
Performing system checks...

System check identified no issues (0 silenced).
July 18, 2019 - 16:58:05
Django version 2.2.3, using settings 'hello_world.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
```