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A detailed guide to Django Forms

Working with Django forms in a Django application

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A form is considered to be functional if it meets the following criteria.

- A form should validate the data entered by the user before it goes to the server
- The form should show errors when invalid data has been submitted.
- The form should also inform the user of successful submission.

Working with forms in any application can be a tedious process. Luckily, Django forms take care of all the complicated processes of validation of data, showing error messages and communication to the user when a form is successfully submitted. This tutorial will create a membership application to add, update, read, and delete their data.

Create a directory for the project

```
mkdir Forms
```

If you wish to work in a virtual environment, create and activate a virtual environment for this project. You must have virtualenv installed.

```
python3.8 -m venv env
source env/bin/activate
```

Install Django using pip

```
pip3 install Django
```

Create a Django project called django_forms

```
django-admin startproject django_forms
```

Create a Django app called members

```
cd django_forms
django-admin startapp members
```

Add the app to the list of INSTALLED_APPS in `settings.py`.

```
INSTALLED_APPS = [
    'django.contrib.admin',
    'django.contrib.auth',
    'django.contrib.contenttypes',
    'django.contrib.sessions',
    'django.contrib.messages',
    'django.contrib.staticfiles',
    'members',
]
```

settings.py hosted with ❤ by GitHub view raw

Create models

We know that a membership application form takes in personal information, so we will create a member model with the following fields:

- first_name
- last_name
- email
- address
- phone
- age

The member's app has a file `models.py` . Add the following code for the `Member` model.

```
from django.db import models

# Create your models here.
class Member(models.Model):
    first_name = models.CharField(max_length= 30)
    last_name = models.CharField(max_length= 30)
    email = models.EmailField()
```

```python
    address = models.CharField(max_length= 200)
    phone = models.CharField(max_length= 30)
    age = models.IntegerField(default =0)


    def __str__(self):
        return self.first_name + " " + self.last_name
```

models.py hosted with ❤ by GitHub view raw

Apply migrations

```
python3.8 manage.py makemigrations
python3.8 manage.py migrate
```

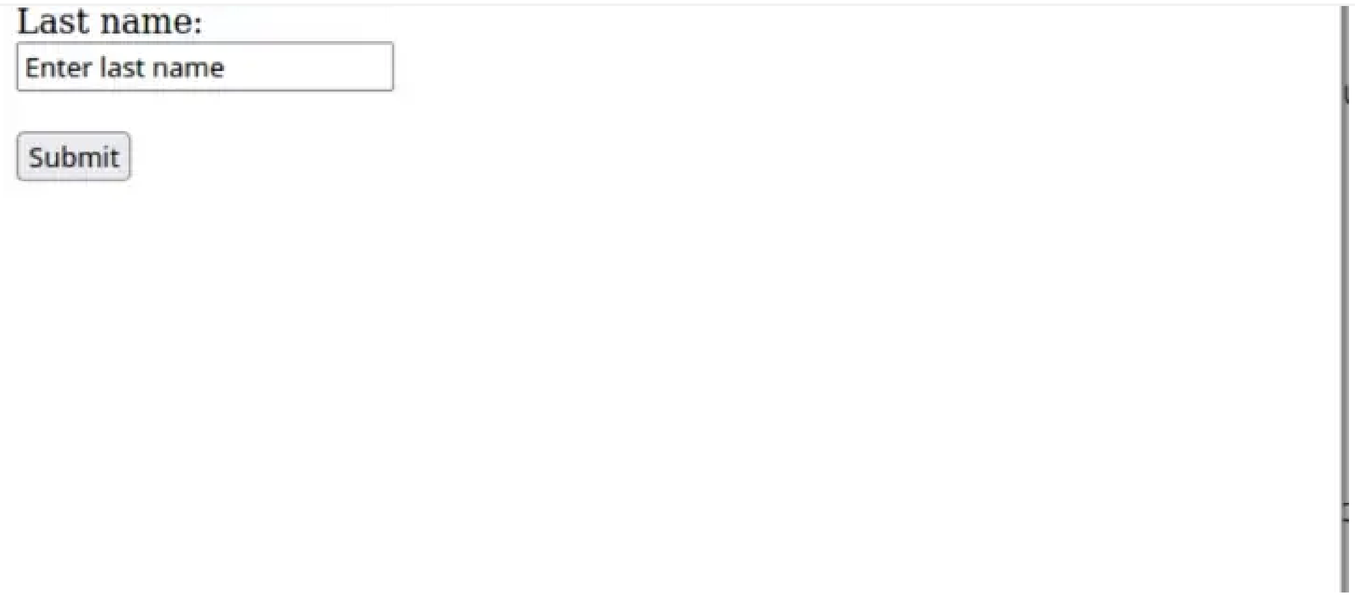
Forms

A simple HTML form looks like this:

```html
<form action=" ">
  <label for="firstname">First name:</label><br>
  <input type="text" id="firstname" name="firstname" value="Enter first name"><br>
  <label for="lastname">Last name:</label><br>
  <input type="text" id="lastname" name="lastname" value="Enter last name"><br><br>
  <input type="submit" value="Submit">
</form>
```

form.html hosted with ❤ by GitHub view raw

When rendered on a browser, it looks like this:



A simple form

Creating Forms from Models

Django forms help the form creation easier since they take care of most of the heavy lifting for us. To use Django forms in our application, we first need to create a file `forms.py` in the members' directory.

Next, import the `Member` model as well as `forms` from `django`, as shown below.

```
from .models import Member
from django import forms
```

After the imports, we will then create a class for each form we wish to have. Since we need to have a page that allows members to submit their details, the first form will be a form that accepts user input.

```python
from django import forms
from .models import Member

class MemberCreateForm(forms.ModelForm):
    class Meta:
        model = Member
        fields = ("first_name","last_name","email","address","phone","age")
```

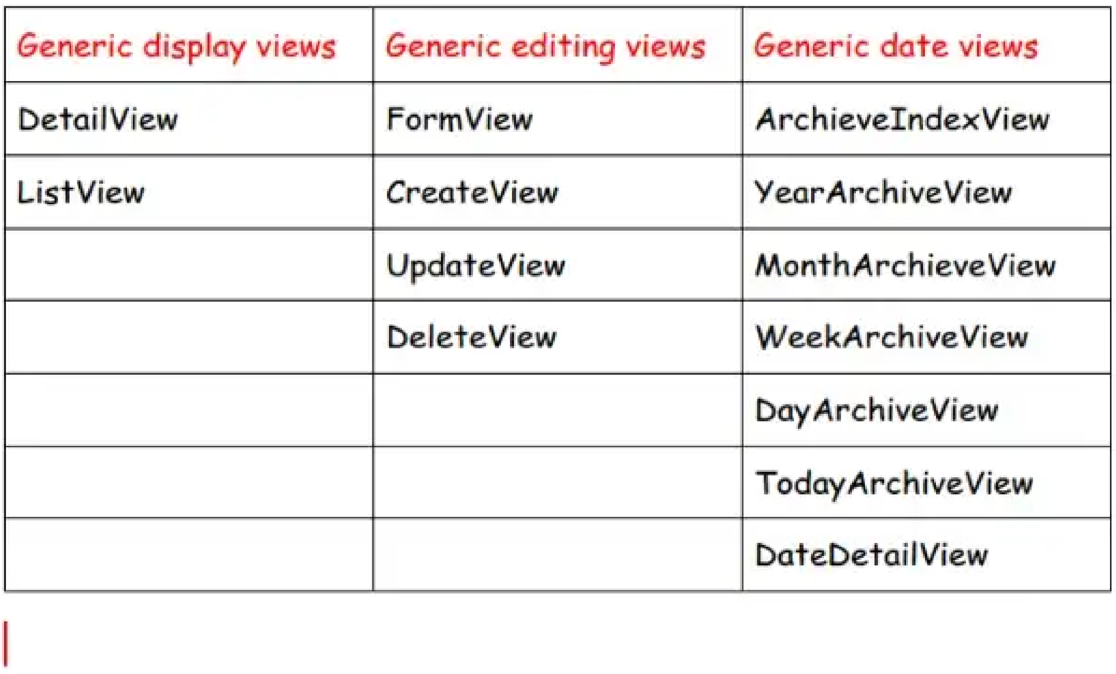
forms.py hosted with ❤ by GitHub view raw

The form takes in one parameter `forms.ModelForm`, `forms.ModelForm` is a Django helper class. Since we have already created our fields in the model, there is no need to create the fields again. The inner `Meta` class will tell the application the model and fields we will be using.

Using Forms in Views

Now that we are done with the `MemberCreate` form, we need to render it on a template with the help of generic class-based views. Django provides generic class-based views which handle form processing.

These classes are grouped as follows.



Generic display views	Generic editing views	Generic date views
DetailView	FormView	ArchieveIndexView
ListView	CreateView	YearArchiveView
	UpdateView	MonthArchieveView
	DeleteView	WeekArchiveView
		DayArchiveView
		TodayArchiveView
		DateDetailView

Generic views

The most commonly used views are :

- Generic display — these are `DetailView` and `ListView`
- Generic editing views - include `FormView`, `CreateView`, `UpdateView`, `DeleteView`

The first class we are going to create is `MemberCreate` view. Open `views.py` and import `Member` Model, `MemberCreateForm` and `CreateView`

```
from .models import Member

from .forms import MemberCreateForm

from generic.edit.views import CreateView
```

The `MemberCreate` class takes three properties, namely:

- model
- template_name
- form_class

```
class MemberCreate(CreateView):

    model = Member

    template_name = "members/member_create_form.html"

    form_class = MemberCreateForm
```

Go ahead and create the `member_create_form.html` template, which should be in the template directory of the member's app.

```
members

  -templates

    - members

       -member_create_form.html
```

Add the following code to the template we created above.

```
{% block content %}
<form method="POST">
{% csrf_token %}
{{ form.as_p }}
<input type="submit" value="Submit"/>
</form>
{% endblock %}
```

member_create_form.html hosted with ❤ by GitHub view raw

The tag `{{ form.as_p }}` renders the form using paragraphs while `{% csrf_token %}` protects our forms from CSRF attacks. You can also render the form using `{{form-as_table}}` which renders the form using a table.

Urls

We are almost there to see the form rendered on the browser. The last part is to hook the view in the path of our urls. Update the root `urls.py` file as follows

```
from django.contrib import admin
from django.urls import path,include
urlpatterns = [
path('admin/', admin.site.urls),
path("", include('members.urls')),
]
```

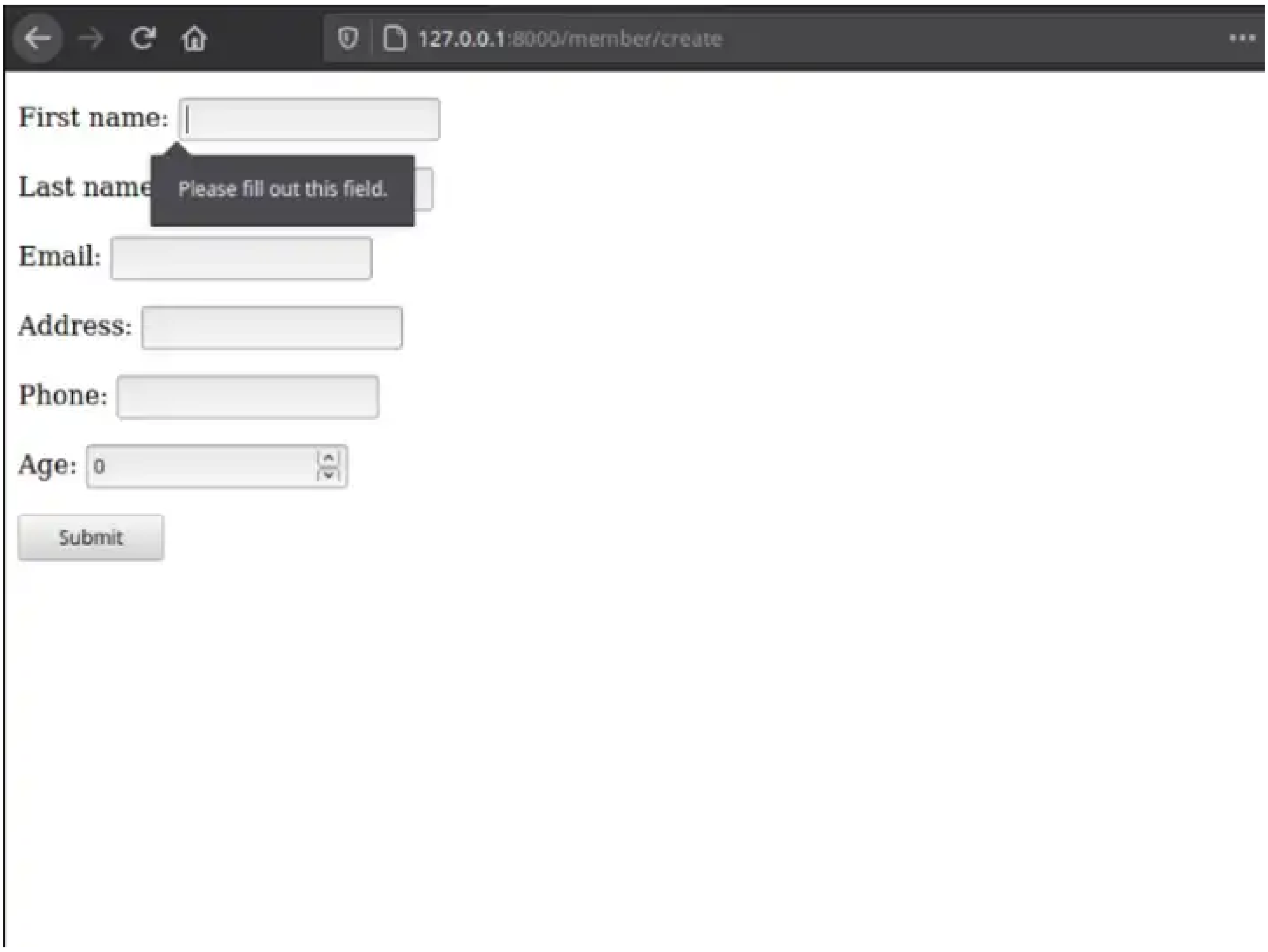
Create a file `members/urls.py` and add the path to `member/create` with the `MemberCreate` View and set the name to `createmember`.

```
from django.urls import path
from . import views

urlpatterns = [
    path('member/create', views.MemberCreate.as_view(), name="createmember"),
]
```

urls.py hosted with ❤ by GitHub view raw

The form is now complete. If you navigate to http:localhost:0.0.0.0:8000/members, you should see the form rendered as we intended.



create_member_form

The criteria for creating all other forms will be the same as the above, which is:

- Create a form class in forms.py and add the necessary properties
- Create a class in views.py and add the required properties
- Create a template for the form
- Hook the view in urls

So let's create the rest of the forms real quick.

Update and Delete Members Form

A member should also have the option to edit or delete their information, let's take care of that. Open `forms.py` , add the `MemberUpdate` class and specify which fields can be edited.

```
class MemberUpdateForm(forms.ModelForm):
    class Meta:
        model = Member
        fields = ("first_name","last_name","phone")
```

Views

Let's create the views for rendering. Open `views.py` and import the `UpdateView` and `DeleteView` class from `django.views.generic.edit`.
Create the `MemberUpdate` and `MemberDelete` classes and declare the necessary properties. In the `MemberDelete` class, we dont need to display any fields.

```
from django.views.generic.edit import CreateView,UpdateView,DeleteView

class MemberUpdate(UpdateView):
    model = Member
    template_name = "members/member_update_form.html"
    form_class = MemberUpdateForm



class MemberDelete(DeleteView):
    model = Member
    template_name = "members/member_delete_form.html"

```

views.py hosted with ❤ by GitHub view raw

Create the templates

Create the `member_update_form.html` and `member_delete_form.html` in the templates directory

member_update_form.html

```
{% block content %}
<h2>Update Member Details</h2>
<form method="post">
<div>
  {% csrf_token %}
  {{ form.as_p }}
  <input type="submit" value="Save" />
</div>
</form>
{% endblock %}
```

member_update_form.html hosted with ❤ by GitHub view raw

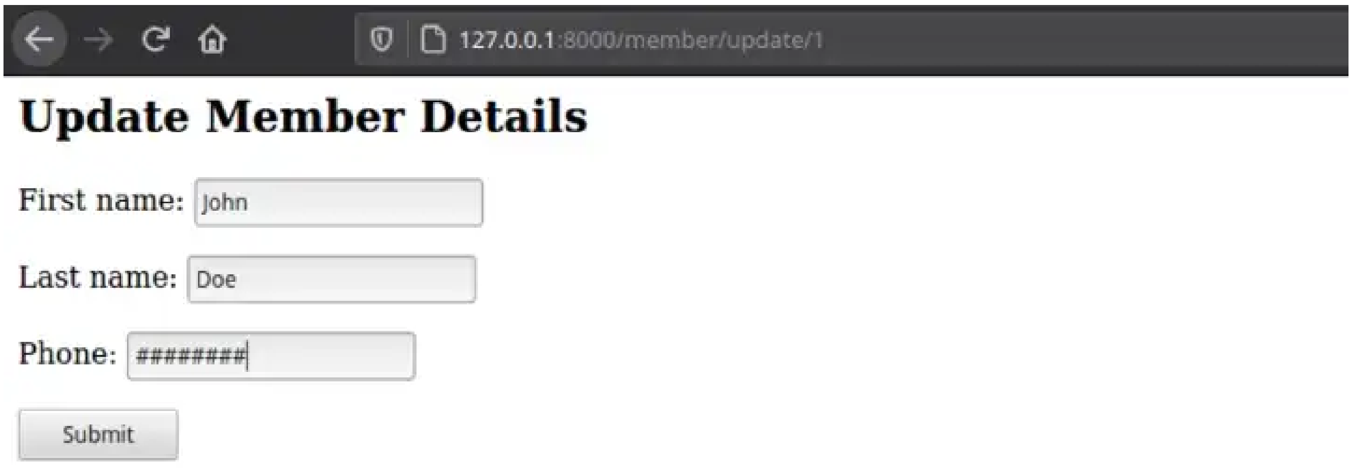
member_update_form.html

member_delete_form.html

Add the Urls

members/urls.py

Test the forms:



127.0.0.1:8000/member/update/1

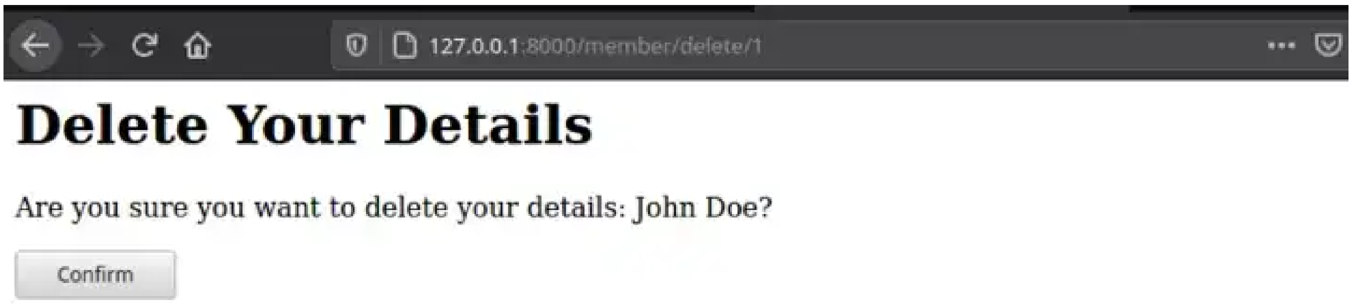
Update Member Details

First name: John

Last name: Doe

Phone: ########

update Form



127.0.0.1:8000/member/delete/1

Delete Your Details

Are you sure you want to delete your details: John Doe?

Delete Form

Redirecting

Our forms are working fine, but once submitted, the user should be redirected to another page, lets create a simple homepage that will show all the member details.

Open views.py and create a view that renders the homepage.

views.py

home.html template

update the urls.py.

```
path('', views.home, name="home"),
```

Update the views to include a `success_url`

You can also use the `get_absolute_url` method in models to provide a redirect link. get_absolute_url is a Django convention that ensures that the user does not resubmit data again.

```
#models.py
def absolute_url(self):
    return “member/list”
```

If you use `get_absolute_url()` on the `Member` model, you dont need to provide a success_url for `MemberUpdate` or `MemberDelete`

Conclusion

When creating forms with generic views, the data is submitted directly to the model. This ensures that you don’t have to worry about validation, incorrect data since all the heavy lifting has been done for you.

Congratulations, that all you need to create forms in Django. You can read more here on how to add authentication in Django.

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