CRUD Operations and Forms

In the present document we will adapt our forms from the previous document in order to accept Create, Read, Update, and Delete (CRUD) operations that affect the database.

There are four verbs used in any web operation defined in the HTTP/HTTPS protocol:

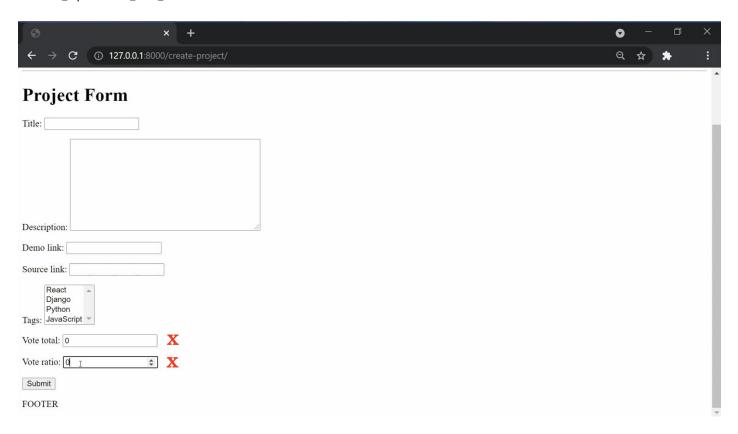
Verb	Description	Database Equivalent	Operation
POST	Informs the site that there's data being	INSERT	CREATE
	sent to it.		
GET	Informs the site that should send a response	SELECT	READ
	with the data indicated by the argument		
UPDATE	Informs the site that the data sent must	UPDATE	UPDATE
	update already existing data.		
DELETE	Informs the site that it should any data	DELETE	DELETE

indicated by the parameter

We need to modify our form views in order to respond to each one of the HTTP/HTTPS verbs and interact with our database accordingly.

Initial Modifications to our Forms

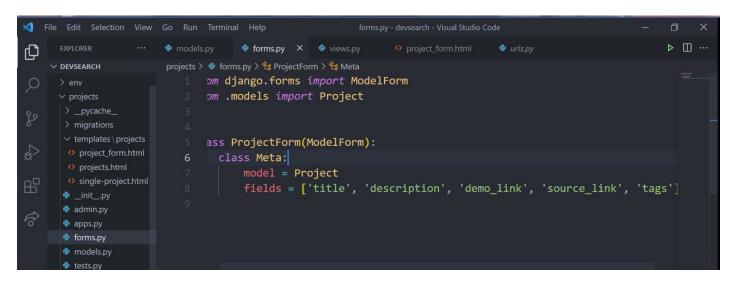
First, we are not interested in showing all the fields present in our /projects/models.py



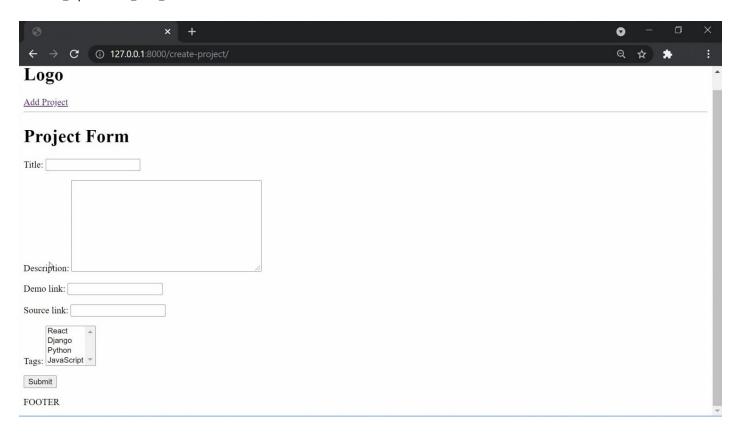
We want to leave Vote total and Vote ratio out of the form. With that in mind, let's modify our forms.py in /projects/forms.py to accept only the fields for:

- title
- description
- demo_link
- source_link
- tags

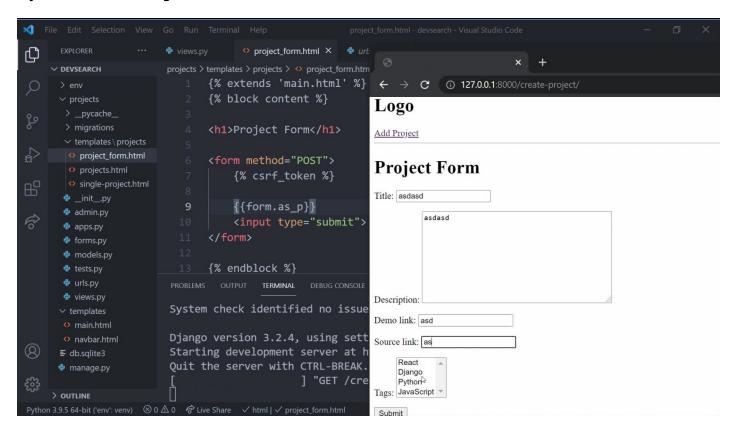
in our createProject class.



so, our form should look like this:



If you submit something into the form:



you should be able to see the POST method after the submission:

```
# urls.py
# views.py

* templates

* navbar.html

* bebug console

* Django version 3.2.4, using settings 'devsearch.settings'

* navbar.html

* on navbar.h
```

The reply for the POST method is given by the form argument method in the project_form.html, but the form doesn't do anything with the input data. The reason is that there's another argument missing:

```
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                                      projects > templates > projects > ↔ project_form.html > � form
    V DEVSEARCH
                                 {% extends 'main.html' %}
                                 {% block contant %}
                                         The URI of a program that processes the form information.
                                 <h1>Pr This value can be overridden by a formaction attribute on a
       > migrations

∨ templates \ projects

                                         <button> or <input> element.
       project_form.html
                                 <form action="" method="POST">
       projects.html
                                     {% csrf_token %}
       single-project.html
       init .pv
                                     {{form.as_p}}
                                     <input type="submit">
      apps.py
                                 </form>
       forms.py
       models.py
                                 {% endblock %}
```

This missing argument is the formaction attribute. The formaction attribute is the direction to the function that will process the form data.

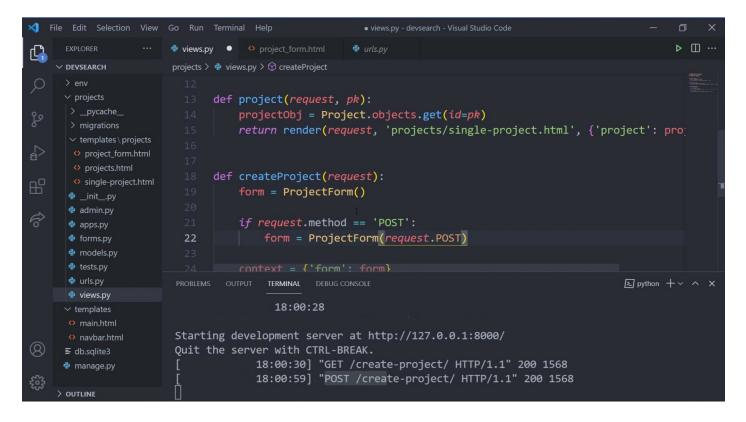
For the time being, we'll leave this argument empty (an empty string) since we have to define the processing function first. We'll return after we have defined such function.

Let's see how the data is passed from the html form to the function form createProject class. Our first order of business is to instanciate our ProjectForm class inside the createProject class in the /projects/views.py

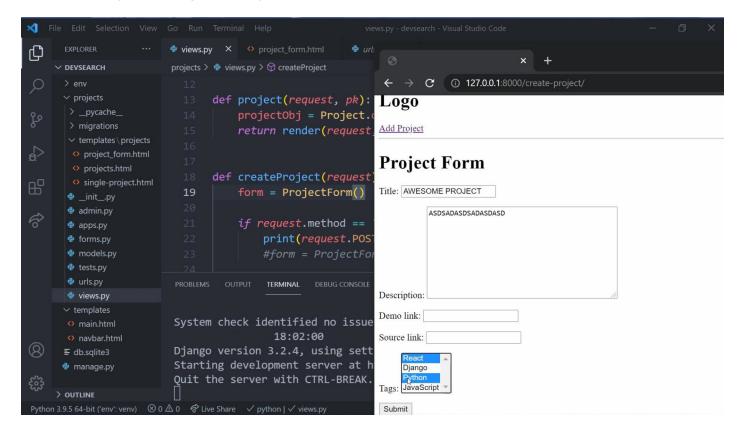
The *request* parameter contains information on the request type. The request type is identified by an enumerate:

```
request.POST
request.GET
request.UPDATE
request.DELETE
```

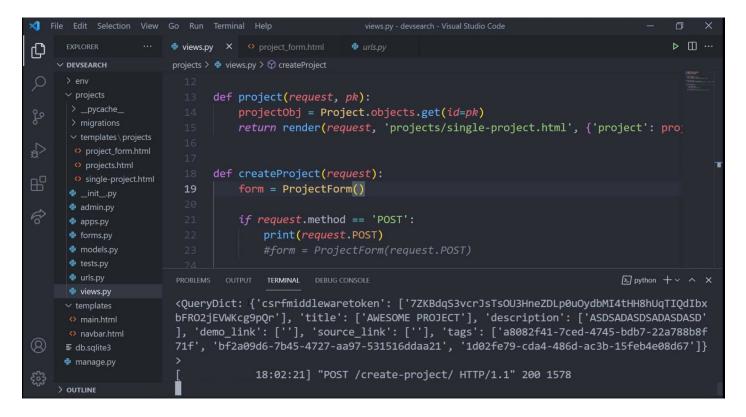
that we can use to redirect the function accordingly. In our case, we'll use *request.POST* and retreive the form input data on a variable *form*



But for demonstration purposes, let's comment the line which assigns the variable from inside the *if* statement and print the argument *request.POST* and introduce some data into the form:



The reply is an object of type QueryDict which contains all the data returned by the form



Going back to our /projects/views.py and add the following code:

```
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    views.py - devsearch - Visual Studio Code

                                                                                                             ▶ Ⅲ …
                        views.py  ○  project_form.html
                                                      durls.py
                        ∨ DEVSEARCH
      > env

∨ projects

                                   form = ProjectForm()

∨ templates\projects

                                   if request.method == 'POST':
       projects.html
       single-project.html
                                       form = ProjectForm(request.POST)
                                        if form.is_valid():
      _init_.py
      admin.py
                                            form.save()
      apps.py
                                            return redirect('projects')
      forms.pv
      models.py
                                   context = {'form': form}
      tests.pv
                                   return render(request, "projects/project_form.html", context)
      urls.py
      views.py

∨ templates

      o main.html
      o navbar.html

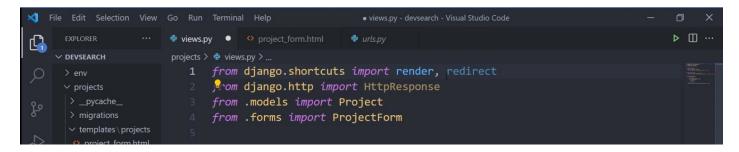
    db.sqlite3

     manage.py
    > OUTLINE
```

A beauty of django is its automatic form validation facilities. Django forms auto-check that the contents of each field do not inject code to tables and their data types correspond to each field. Hence, the member function *form.is_valid()* indicate to us that the form complies with all the fields we introduced in our model for that specific form.

If the form is valid, i. e., all the fields pass the default validation tests, we save the form and return to the main page *projects* through a redirection.

The *django.shortcuts.redirect* function is a facility that allow us to go to specific parts of the project. We need to include it via an import:



How does *redirect* work?

redirect works on dynamic assignment mechanisms we've seen before in our templates with url:

Notice that

```
<a href="{% url 'project' project.id %}">{{ project.title}} </a>
```

'project' is the *name = 'project'* in our /projects/urls.py file:

```
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                                                                                                                  ▶ Ⅲ …
                   ∨ DEVSEARCH
                        projects > 🕏 urls.py 🗎 ...
                               from django.urls import path
                               from . import views
      > migrations
                           4 urlpatterns = [
                         5 path('', views.projects', name="projects"),

✓ templates \ projects

       project_form.html
                                    path('project/<str:pk>/', views.project, name="project"),
       single-project.html
                                    path('create-project/', views.createProject, name="create-project"),
      urls.py
      views.py
      o main.html
      o navbar.html

    db.salite3

      manage.py
    > OUTLINE
Python 3.9.5 64-bit ('env': venv) ⊗ 0 ∆ 0 ♂ Live Share ✓ python | ✓ urls.py
                                                                    Ln 5, Col 44 (8 selected) Spaces: 4 UTF-8 CRLF Python P Go Live
```

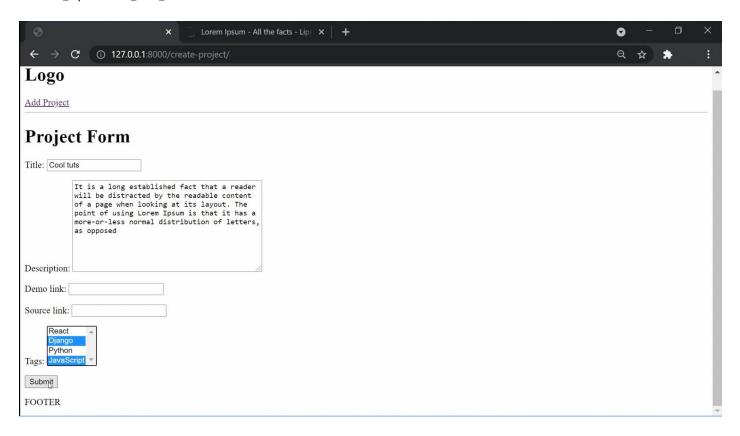
so, for returning to the main page ('projects') page, we use the redirection function

```
if form.is_valid:
   form.save()
   return redirect('projects')
```

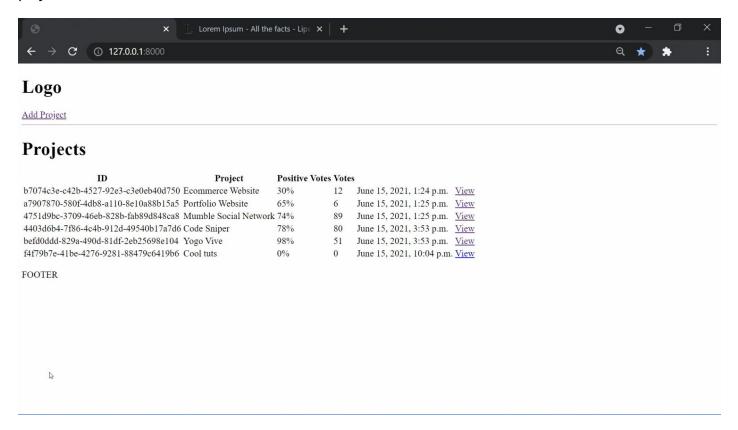
uses the path() with the *name = 'projects'*. The assigment is dynamic.

Insert Data to our Database

This is our testing phase for the form. Let's introduce some data into our form:



and after submitting the form, you should return to your projects page which should also include the new project:



Let's clean the view a little bit by removing the ID part of the table in the /projects/templates/projects/projects.html:

```
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                             □ …
   ∨ DEVSEA... [‡ 🛱 ひ 🗊
                            > migrations
                              --ID---

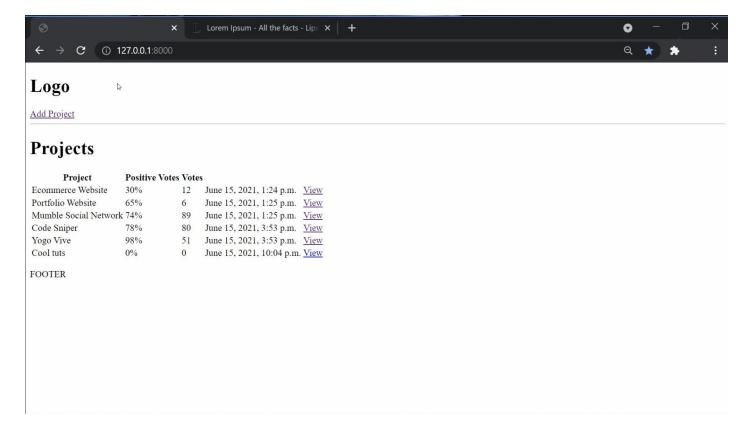
∨ templates \ projects

                               Project
     oproject_form.html
                               Positive Votes
     projects.html
                               Votes
     single-project.html
                               admin.py
                            {% for project in projects %}
     forms.py
     models.py
                               {{project.id}}-
     tests.py
                               {{project.title}}
     urls.py
                               {{project.vote_ratio}}%
                               {{project.vote_total}}
                               {{project.created}}
                               <a href="{% url 'project' project.id %}">View</a>

    db.sqlite3

                            {% endfor %}
    manage.py
                        OUTLINE
```

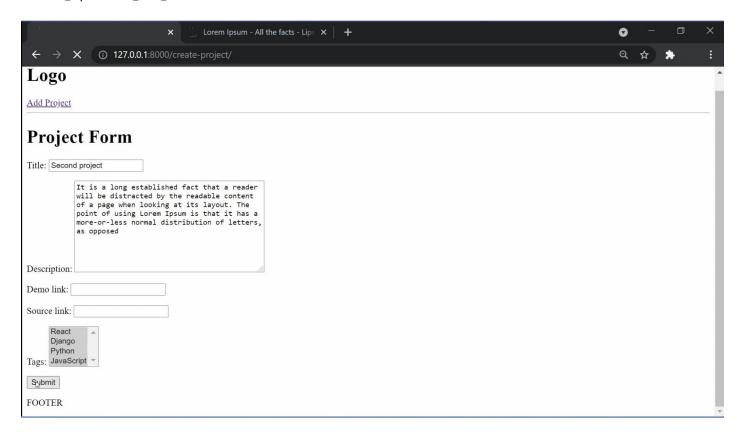
Our template should looks cleaner:



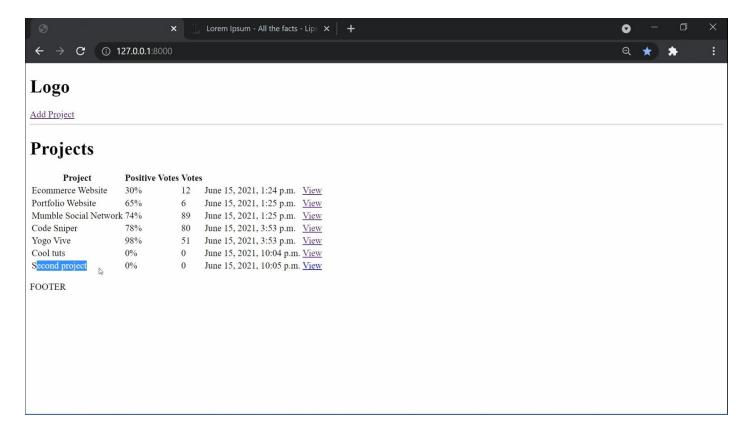
THAT'S IT!

The data is already stored in the database when we used the form.save() method.

Try more data:



With the new data:



If you enter the admin panel (127.0.0.1:8000/admin/projects/project) you should be able to see the new added projects to the database:

