

Web Development Paradigms and how djangoic approach to deal with them.

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Agiliq Solutions



September 25, 2010



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Programming paradigm

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(January 2009)

A **programming paradigm** is a fundamental style of [computer programming](#). (Compare with a [methodology](#), which is a style of solving specific [software engineering](#) problems.) Paradigms differ in the concepts and abstractions used to represent the elements of a program (such as objects, functions,

Programming paradigms

- Agent-oriented
 - Component-based
 - Concatenative
 - Concurrent computing
 - Declarative (contrast: Imperative)
 - Functional
 - Dataflow
 - Cell-oriented (spreadsheets)
 - Reactive
 - Constraint
 - Logic
 - Constraint logic
 - Abductive logic
 - Inductive logic
- Event-driven
 - Service-oriented
 - Time-driven
- Expression-oriented
- Feature-oriented
- Function-level (contrast: Value-level)
- Imperative (contrast: Declarative)
 - Procedural
- Non-structured (contrast: Structured)
 - Array (contrast: Scalar)

Concepts and abstractions used to represent elements of a program

Contents [hide]

- Overview
- Multi-paradigm programming language
- History
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Overview

[[edit](#)]

Programming model: Abstraction of a computer system, for example the "[von Neumann model](#)" used in traditional sequential computers. For [parallel computing](#), there are many possible models typically reflecting different ways processors can be interconnected. The most common are based on shared memory, distributed memory with message passing, or a hybrid of the two.

A [programming language](#) can support [multiple paradigms](#). For example programs written in C++ or [Object Pascal](#) can be purely [procedural](#), or purely [object-oriented](#), or contain elements of both paradigms. Software designers and programmers decide how to use those paradigm elements.

In [object-oriented programming](#), programmers can think of a program as a collection of interacting objects, while in [functional programming](#) a program can be thought of as a sequence of stateless function evaluations. When programming computers or systems with many processors, [process-oriented programming](#) allows programmers to think about applications as sets of concurrent processes




Web Development Paradigms: Modeling common web patterns

A stylized, glowing blue and orange head profile, possibly representing a brain or a human head, with a glowing white question mark on the forehead. The head is shown in profile, facing left, with a bright blue glow on the left side and a bright orange glow on the right side. A glowing white question mark is positioned on the forehead. The background is dark with a gradient of blue and orange.

Why?



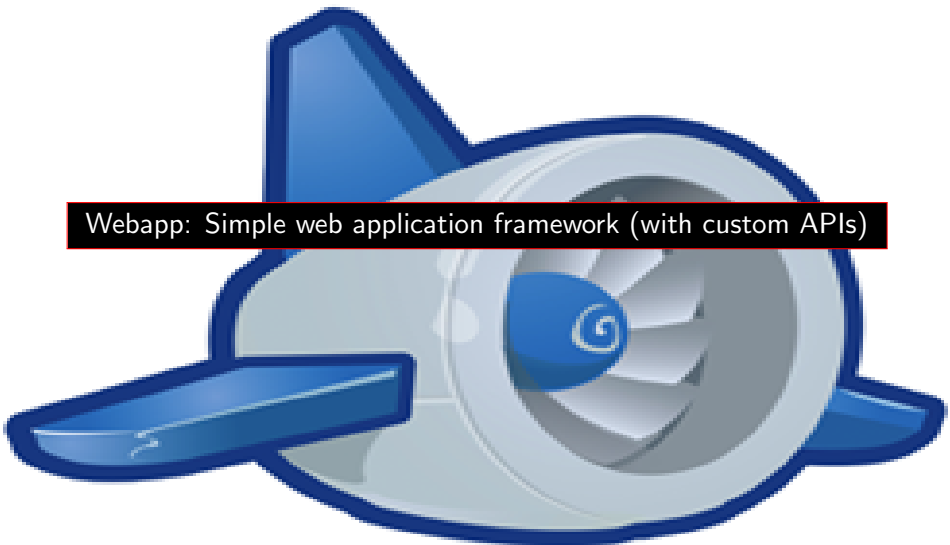


Batteries Included


Other batteries included

- [Admin site](#) | [Admin actions](#)
- [Authentication](#)
- [Cache system](#)
- [Conditional content processing](#)
- [Comments](#) | [Moderation](#) | [Custom comments](#)
- [Content types](#)
- [Cross Site Request Forgery protection](#)
- [Databrowse](#)
- [E-mail \(sending\)](#)
- [Flatpages](#)
- [GeoDjango](#)
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docs.djangoproject.com



Webapp: Simple web application framework (with custom APIs)

A large, dense pile of various brand batteries, including Duracell, Energizer, Eveready, and Panasonic. The batteries are of different sizes and colors, mostly cylindrical. A red-bordered text box is overlaid in the center of the image.

Lets examine the batteries

How do I know about web development or django

- Active Djangonaut
- Part of a few popular open source django applications
github.com/becomingGuru, github.com/agiliq
- Consulting and Development via **AGILIQ SOLUTIONS**
- Developed several custom proprietary django applications



- @becomingGuru

Introduction

Forms

Authentication

Generic Views

Caching

Others

Admin

Forms





No file selected

Choose File

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This is my profile

Account not verified

SEND VERIFICATION LINK

* Username :

whitekites

* E-mail address:

ashok.raavi@yahoo.co.in

First name :

Last name :

Date of birth

1980-06-19

Gender

Male

CHANGE PASSWORD

Save form data to a table

Company name :

clearthoughtsolutions

Company webpage :

http://www.clearthoughtsolutions

Banner image :

No file selected

Choose File

Phone number :

1234567890

Fax number :

123546789

Address Line 1 :

555 west kinzie st

Address Line 2 :

apt#E1712

City :

chicago

State :

IL

Zip code :

60654

Country :

USA

Daytime Phone :

5736804656

ext.

Evening Phone :

3127420983

ext.

SAVE PROFILE

Use a Model Form

```
>>> from django.forms import ModelForm
```

```
# Create the form class.
```

```
>>> class ArticleForm(ModelForm):
```

```
...     class Meta:
```

```
...         model = Article
```

```
# Creating a form to add an article.
```

```
>>> form = ArticleForm()
```

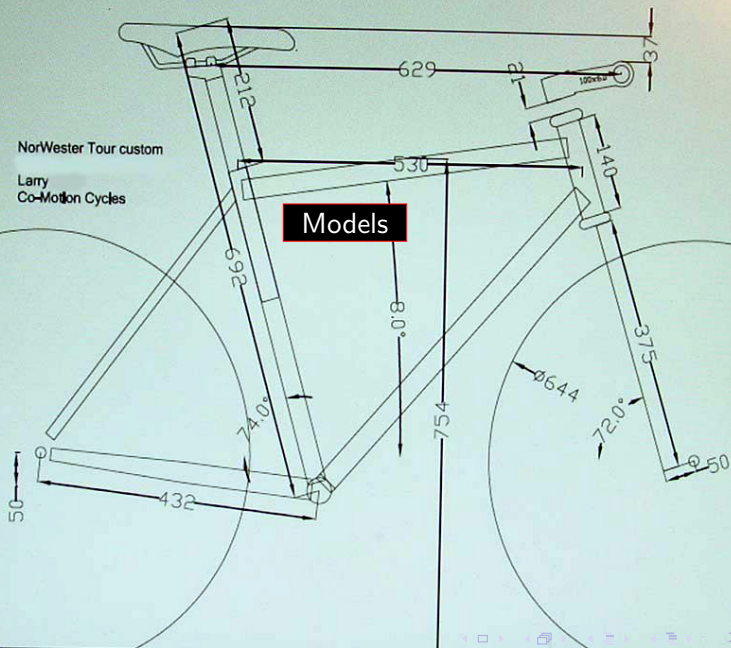
```
# Creating a form to change an existing article.
```

```
>>> article = Article.objects.get(pk=1)
```

```
>>> form = ArticleForm(instance=article)
```

Larry
Co-Motion Cycles

Models



Model Syntax

```
from django.db import models
```

```
class Post(models.Model):  
    title = models.CharField(max_length=100)  
    text = models.TextField()  
    datetime = models.DateTimeField()
```

```
    class Meta:  
        ordering = ('-datetime',)
```

```
    def __unicode__(self):  
        return self.title
```

```
class Comment(models.Model):  
    post = models.ForeignKey(Post)  
    text = models.TextField()
```

Model API

```
>>>from blog.models import Post, Comment  
>>>post = Post.objects.all()[0]  
>>>post_comments = post.comment_set.all()
```

Save Foreign Keys

POLL

Enter your question here [Media](#)

+ [Media](#)

+ [Media](#)

+ [Media](#)

+ [Media](#)

+ [Media](#)

+ Add Option

Use Model Formset

```
from django.forms.models import modelformset_factory
AuthorFormSet = modelformset_factory(Author)
formset = AuthorFormSet()
>>> print formset
<input type="hidden" name="form-TOTAL_FORMS"
value="1" id="id_form-TOTAL_FORMS" />
<input type="hidden" name="form-INITIAL_FORMS"
value="0" id="id_form-INITIAL_FORMS" />
<input type="hidden" name="form-MAX_NUM_FORMS"
id="id_form-MAX_NUM_FORMS" />
<tr><th>
<label for="id_form-0-name">Name:</label>
</th><td>
<input id="id_form-0-name" type="text"
name="form-0-name" maxlength="100" />
</td></tr>
```

Model Formset options

```
formset = AuthorFormSet(qs=Author.objects.all(),  
                        extra=5)
```

```
formset.is_valid()
```

```
formset.errors  
{ 'name': 'This field is required' }
```

```
formset.changed_forms
```

```
formset.save()
```

Form pre populated

POLL

Enter your question here [Media](#)

+ This is option one [Media](#)

+ This is option two [Media](#)

+ This is option three [Media](#)

+ [Media](#)

+ [Media](#)

[+ Add Option](#)

Forms dont have to save to a Model

```
from django import forms
```

```
class ContactForm(forms.Form):  
    subject = forms.CharField(max_length=100)  
    message = forms.CharField()  
    sender = forms.EmailField()  
    cc_myself = forms.BooleanField(required=False)  
  
    def save(self):  
        #Do anything  
        ...
```

Select "Submit" if this information is correct to complete Step 10: Review Electronic Funds Transfer (EFT)
Information. After submission, the Review Electronic Funds Transfer (EFT) Verification page will display requesting

Final Verification

Select "Cancel" to return to the Reconciliation Checklist and Step 10 will remain in an "Incomplete" status.

Account Information:

Bank Name: My Bank
Account Type: Savings
Company Name: Company 1
Associated with Account:
Account Number: 1233445566
Bank Routing Number: 112233448

Bank Contact

First Name: Joseph
Middle Initial: R
Last Name: Smith

Telephone: (123) 555-9292 ext.:
Fax: (123) 555-9293

E-mail Address:

Bank Address

Street Line 1: 123 Main Street
Street Line 2:
City: Boulder
State: COLORADO
Zip Code: 22222-1111

Confirm

Cancel

Form Preview

Form Preview

```
from django.contrib.formtools.preview import FormPreview
from myapp.models import SomeModel
```

```
#Add a url
(r'^post/$', SomeModelFormPreview(SomeModelForm)),
```

```
#Define form preview
```

```
class SomeModelFormPreview(FormPreview):

    def done(self, request, cleaned_data):
        # Do something with the cleaned_data, then
        # redirect to a "success" page.
        return HttpResponseRedirect('/form/success')
```



2

3

4

STEP 1: CREATE YOUR FORM

It will only take 4 simple steps for you to create and use your new form. To start, enter a name for your form below. If you have an existing form you want to import, select one of the import methods below. Otherwise, start with a pre-built or blank form.

Form Wizard

*Form Name

*Start With

- ☒ Pre-built form: Contact Form ▾
- ☐ Copy an existing form from a webpage
- ☐ Upload an HTML file containing a form
- ☐ Blank form

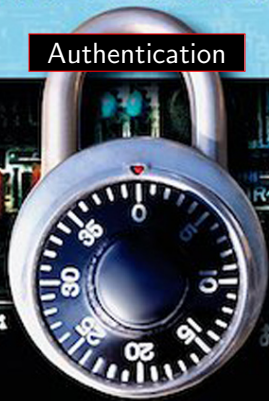
Next Step ►

Form Wizard

```
class ContactWizard(FormWizard):  
    def done(self, request, form_list):  
        do_something_with_the_form_data(form_list)  
        return HttpResponseRedirect('/redirect/')
```

PASSWORD

Authentication



Point to url pattern

```
urlpatterns += patterns('django.contrib.auth.views',  
    url(r'^login/$', 'login'),  
    url(r'^logout/$', 'logout'),  
    url(r'^register/$', 'register'),  
    url(r'^passreset/$', 'password_reset'),  
    url(r'^passreset2/$', 'password_reset_done'),  
    url(r'^passresetconfirm/(?P<uidb36>[-\w]+)/',  
        'password_reset_confirm'),  
    url(r'^passresetcomplete/$',  
        'password_reset_complete'),  
)
```

Login Required

```
from django.contrib.auth.decorators import \  
login_required  
  
@login_required(redirect_field_name='redirect_to')  
def my_view(request):  
    ...
```

Authentication backends

```
class SettingsBackend:
```

```
    """
```

```
    Authenticate against the settings ADMIN_LOGIN  
and ADMIN_PASSWORD.
```

```
    """
```

```
    def authenticate(self, username=None, password=None)
```

```
        if login_valid and pwd_valid:
```

```
            return user
```

```
        return None
```

```
    def get_user(self, user_id):
```

```
        try:
```

```
            return User.objects.get(pk=user_id)
```

```
        except User.DoesNotExist:
```

```
            return None
```

Dinette

Forum based on dinette. Discuss about web application development using django and the related tech stack.

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django-socialauth

Sign-in or Create New Account via twitter



DEAR Stephen,

THANK YOU SO MUCH FOR THE
LOVELY knife . IT IS VERY

sharp , AND IT WILL LOOK

Send to template

sharp , IN OUR kitchen.

I AM SURE IT WILL GIVE US
MANY HAPPY HOURS cutting things.

IT WAS nice TO SEE YOU AT

THE WEDDING, AND WE SHOULD

DEFINITELY MEET UP NEXT TIME WE

ARE IN Canada .

MUCH LOVE, PETER +
Victoria

Generic Views

```
from django.conf.urls.defaults import *  
from django.views.generic.simple \  
import direct_to_template  
  
urlpatterns = patterns('',  
    ('^about/$', direct_to_template, {  
        'template': 'about.html'  
    })  
)
```

Object based generic views




World Online administration
LJWorld.com, Lawrence.com, KUSports.com, 6News

Welcome, **Jacob**.
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	KU Environs president Emelia LaFortune	April 25, 2006, 11:13 a.m.

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www.6productions.com
www.lawrence.com

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Any date
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Past 7 days
This month
This year

Display objects and their lists

```
from django.views.generic.list_detail import \
    object_detail, object_list
url((r'^objects/page(?P<page>[0-9]+)/$',
    object_list,
    dict(info_dict)),
    (r'^objects/(?P<id>[0-9]+)/$',
    object_detail,
    dict(info_dict)),
)
```

List of generic views

```
django.views.generic.simple.direct_to_template  
django.views.generic.simple.redirect_to
```

```
django.views.generic.list_detail.object_list  
django.views.generic.list_detail.object_detail
```

```
django.views.generic.create_update.create_object  
django.views.generic.create_update.update_object  
django.views.generic.create_update.delete_object
```

reddit and friends



"Normalized data is for sissies" - Cal Henderson

reddit is down. it's turning out to be one of those days, again.

in the meantime, here's a simulated reddit to help you stave off the withdrawal symptoms:

- ⬆

178

submitted 13 minutes ago by katrains

⬇

no comments these links don't go anywhere
- ⬆

850

submitted 15 seconds ago by jedberg

⬇

no comments these links don't go anywhere
- ⬆

470

submitted 13 months ago by KeyserSosa

⬇

no comments these links don't go anywhere
- ⬆

873

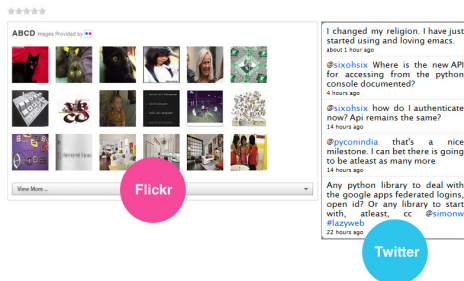
submitted 22 minutes ago by hueypriest

⬇

no comments these links don't go anywhere
- ⬆

- ⬆

Different blocks need different caching durations



Generally Memcache Every page

```
CACHE_BACKEND = 'memcached://127.0.0.1:11211/'
```

```
CACHE_BACKEND = 'memcached://172.19.26.240:11211;\n172.19.26.242:11212;172.19.26.244:11213/'
```

Implement a caching decorator

```
from django.core.cache import cache
def cache_for(seconds, fetch=0):
    def cache_it(func):
        def deco_func(self):
            val = cache.get(self.get_cache_key(fetch))
            if not val:
                val = func(self)
                cache.set(self.get_cache_key(fetch),
                           val, seconds)
            return val
        return deco_func
    return cache_it
```

Apply on the blocks

```
class TwitterBlock(TwitterSearchBlock):

    template_name = 'twitter_user_block.html'
    ajax_template = 'tweets_user.html'

    @cache_for(60*60, fetch=1)
    def fetch_data(self):
        tw = Twitter(email='umoja_com')
        user_tweets = tw.statuses.user_timeline(
            screen_name=self.data)
        return user_tweets, None
```

Different cache Backends

- Database
- File System
- Local Memory
- Dummy- For Development

More Paradigms

- Internationalization
- Localization
- Humanization
- CSRF Protection
- Pagination
- Sorting
- Data grid
- Sorl Thumbnail

One more thing...













Admin by models alone

Administracja stroną

Auth	
Grupy	 Dodaj  Zmień
Użytkownicy	 Dodaj  Zmień
Sites	
Strony	 Dodaj  Zmień
Tasks	
Zadania	 Dodaj  Zmień
News	
Słowa Kluczowe	 Dodaj  Zmień
Wiadomości	 Dodaj  Zmień
Myghtyboard	
Categories	 Dodaj  Zmień
Forums	 Dodaj  Zmień

Ostatnie akcje

Moje akcje

-  LinuxMint 2.1
News
-  Nowe phpSolutions z punBB już jest
News
-  Python full text search engines
News
-  Nowe artykuły
News
-  Nowe artykuły
News
-  Python full text search engines
News
-  Nowe artykuły
News
-  users
Group
-  Zrób sobie Auroxa
News
-  Zrzut Tygodnia
News

Admin Syntax

```
from django.contrib import admin
from models import Post, Comment




class PostAdmin(admin.ModelAdmin):
    list_display = ('title', 'datetime')

class CommentAdmin(admin.ModelAdmin):
    list_display = ('text',)

admin.site.register(Post, PostAdmin)
admin.site.register(Comment, CommentAdmin)
```

Select photo to change

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<input type="text"/> <input type="button" value="Go"/>		
<div>20002001200220032004</div> <div>20052006</div>		
Photo	Caption	Creation date
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	Ethan Nuss, KU senior and organizer of the "Powershift" energy security conference	April 25, 2006, 11:15 a.m.
	KU Environs president Emelia LaFortune	April 25, 2006, 11:13 a.m.

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Hold down "Control", or "Command" on a Mac, to select more than one.

Credit

Staff member:



One-off
photographer:

Credit:

Creation date:

Date: Today

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Add photo

 Please correct the errors below.



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Photo:

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Caption:

Auto Validation

 This field is required.

Sites:

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www2.kusports.com
www2.ljworld.com
www.6newslawrence.com
www.6productions.com
www.lawrence.com



Hold down "Control", or "Command" on a Mac, to select more than one.

Credit

Staff member:

