

# THUMBNAIL AND DYNAMIC CAPTIONS IN DIGITAL MEDIA TEMPLATES

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Django Developer @Hansu  
Teacher

## INTERESTS

- Teaching
- Software Development
- Community Engagement
- Open Source Development
- Research

# Objectives

- Understand some basic python code
- Gain knowledge on how to use bootstrap
- Build a complete digital media django website With dynamic captions
- Explore the power of bootstrap thumbnail for gallery in digital media files

# Why Python

- Python is great for backend web development
- data analysis, artificial intelligence and scientific computing
- Many developers have also used Python to build productivity tools, Games, and desktop apps

## Example (sequence of characters )

```
>>> "Harare" prints a string
>>> Print("Harare") prints a string
>>> Print("1" ) and >>> print(2). Identify the difference
```

## Example (Joining strings )

```
>>>"Harare is capital of " + "Zimbabwe"
>>>Print("writing pythonic " + "code")
```

# Data Types

str, int, float, list, dictionaries, etc

Example (Python can tell us the datatype by use of keyword type )

```
>>>type("Python class!!")
```

Example (We can convert words to certain datatypes )

```
>>>int(2.3)
>>>float(3)
>>>str(1)
>>>name="irene";
>>>list(name)
```

# Variables

Example (These store content for us )

```
>>> speed =2
>>> time = 20
>>>distance = speed * time
>>>print(distance)
>>>Conference = pycon zimbabwe
>>>print(conference)
```



Example (These are either True or False Type this and see what happens )

```
>>>2==3  
>>>2==2  
>>>names = (irene,caro,muhamed)  
>>>muhammed in names  
>>>jane in names
```

We express these in control structures like loops

# Built in Datatypes

- `Input()`
- `print()`
- Read more to learn more python built in functions.  
<https://docs.python.org/2/library/functions.html>

# Creating new Django Project

Example (fullstop means current directory )

```
>>>django-admin startproject mediasite .
```

Example (type these in console )

```
>>>python manage.py runserver  
>>>python manage.py runserver 0:8000  
>>>python manage.py migrate creating database  
>>>python manage.py createsuperuser
```

# Creating new Django Application

## Example (Creating new Django Application )

```
>>>python manage.py startapp mediapp
```

Adding digitalmediapp in settings.py file under INSTALLED APPS we are simply telling django to use the app

# Creating Models

Model is a python class that subclasses `django.db.models.Model`

- It is a special kind of object saved in database
- Model can be a table with rows and columns
- Each attribute of the model represents a database field

# Creating Models

- `null=True` means sets NULL (versus NOT NULL) on the column in your DB instead of giving us an error. keyword null is used to signify unknown values
- If `blank=True` then the field will not be required, whereas if it is False the field cannot be blank.
- `def str(self):` is a function or method that will return some string. We shall return `self.caption`

# Creating Models

## Example (Creating Models )

```
# Create your models here.
class Photo(models.Model):
    image = models.FileField(null=True, blank=True)
    caption = models.CharField(max_length=20, blank=True)
    created_date = models.DateTimeField(
        default=timezone.now)
    #what we return in the admin
    def __str__(self):
    return self.caption
```

# Migrations

## Example (Migrations )

```
>>>python manage.py makemigrations mediapp
```

- We get a NameError: name 'timezone' is not defined

## Example (Add code below in models.py file.)

```
from django.utils import timezone
```

## Example (type these in console )

```
>>>python manage.py makemigrations mediapp  
>>>python manage.py migrate
```



## Example (Django Admin )

```
>>>python manage.py runserver
```

## Example (Django Admin - register our model in admin.py )

```
from django.contrib import admin
from .models import Photo
# Register your models here.
admin.site.register(Photo)
```

Refresh the admin page

# Configuring URLs

Example (import code below in project/urls.py )

```
from django.conf.urls import url, include
```

Example (Redirect to mediapp/urls.py)

```
url(r'', include('mediapp.urls')),
```

Example (Create file mediapp/urls.py and paste code below)

```
from django.conf.urls import url
from . import views
urlpatterns = [
    url(r'^photos$', views.photos, name='photos'),

    ]
```

- We create now our method or function photos
- ( def ) mean this is a python function
- photos is the name of the function
- our function takes a request
- It then returns a function render (put together) our template mediapp/photos.html
- Add this code below in views.py.

## Example (Views )

```
from .models import Photo
# Create your views here.
def  photos(request):
    return render(request, "mediapp/photos.html", {})
```

# Templates

Create templates/mediapp/photos.html in the BASE DIR

Example (Copy code below and paste in photos.html )

```
<html>
<h1>Digital Media Files Project</h1>
</html>
```

Runserver and browse, we have Digital Media Files Project as our heading

Example (under views.py we import our Photo model from models.py)

```
from .models import Photo
```

To get the actual photos from Photo model we need querysets. Give our queryset a variable name photos and pass this to our template to use.

# Dynamic Templates

## Example (Copy code below and paste in views.py )

```
from django.shortcuts import render
from .models import Photo
# Create your views here.
def photos(request):
    photos = Photo.objects.all()
    return render(request, "mediapp/photos.html", {'photos': photos
})
```

- Under templates/mediapp/photos.html pass the photos variable in our template tags photos
- Exciting!! We can see our photos we posted in admin in a query set.
- Remember we want to see our real photos right?.we now need to write some code in photos.html

# Dynamic Templates

Example (Under templates/mediapp/photos.html paste )

```
<html>
<head>
<title>Photos</title>
<h1> Photos </h1> </head>
<body>
<div> {% for photo in photos %}
<div> {% if photo.image %}
<div> <img src='{ photo.image.url }'
'style="width: 300px; height: 300px" />
</div>
{% endif %}
</div>
{%endfor%}
</div>
</body> </html>
```

# Managing Static Files

## Example (in settings.py manage static files )

```
STATIC_URL = '/static/'
STATICFILES_DIRS = [
    os.path.join(BASE_DIR, "static"),

    #'/var/www/static/',

]
MEDIA_URL = '/media/'
#this is for any files uploaded by the user
MEDIA_ROOT = os.path.join(BASE_DIR, "media_root")
```

# Serving Static Files

## Example (In project/urls.py serve static files )

```
from django.conf.urls import url, include
from django.contrib import admin

from django.conf import settings
from django.conf.urls.static import static

urlpatterns = [
    url(r'^admin/', admin.site.urls),

    url(r'', include('mediapp.urls')),
] + static(settings.MEDIA_URL, document_root=
settings.MEDIA_ROOT)
```



Example (In photos.html create a div tag and add pass the dynamic urls )

```
<div class=page-header>
  <ul class="center">
    <li><a href="{% url "photos" %}">Photos</a></li>
  </ul>
</div>
```

make photo.html have some css.

- In static folder, create folder css and file mediafiles.css
- Add css links to head element in photos.html
- In the BASE DIR create folders media-root and static

## Example (Write an external css to mediafiles.css )

```
<link rel="stylesheet" href="static/css/mediafiles.css">
  In photos.html {% load staticfiles %} at the top of the page
\begin{itemize}
```

## Example (copy this code and paste to mediafiles.css )

```
.page-header {  
background-color:green;  
margin-top: 0 !important;  
padding: 20px 20px 20px 40px;  
}
```

```
.page-footer, footer{  
background-color:green;  
margin-top: 20px; /*space between content and footer*/  
padding: 20px 20px 20px 20px;  
color: hotpink;  
}
```

## Example (copy this code and paste to mediafiles.css )

```
/*removes the bullets on the lists*/  
li{  
list-style: none;  
display: inline;  
font-size: 50pt;  
/*space between the lists*/  
padding: 20px;  
}  
  
a,h1{  
font-family: 'Lobster', cursive;  
color: hotpink !important;  
}
```

# Bootstrap Thumbnail

- Download

<https://v4-alpha.getbootstrap.com/getting-started/download/>  
bootstrap.min.css and bootstrap.css and add this to static/css/

Example (add code below to photos.html )

```
<link rel="stylesheet" href="static/css/bootstrap.min.css">  
<link rel="stylesheet" href="static/css/bootstrap.css">
```

# Bootstrap Thumbnail

Example (edit photo.html to have thumbnail and dynamic captionsl )

```
<div class="row">
{% for photo in photos %}
<div class=" col-md-3 ">
<div class="thumbnail">
{% if photo.image %}
<div>
<img src='{{ photo.image.url }}' class='img-responsive'
style="width: 300px; height: 300px" /> </div>
{% endif %}
<div class="caption">
<h1><a href ='{{ photo.get_absolute_url }}'>
<a/> {{photo.caption}}</h1>
</div> </div> </div>
    {%endfor%}
</div>
```

## Example (add footer in your html page )

```
<footer > <div class="page-footer" >  
<h6 align = "center">copyright@digitalmediafiles2017</h6>  
    </div>          </footer>
```

# Template Inheritance

What Next?? Template extending/Inheritance

- Create file base.html, copy all code from photos.html to base.html
- Cut all content in body tag and paste it in photos.html within block tags.
- Make sure the same tag names appear in body tag of base.html
- extends base template in photos.html file



# Task-Video Model

Follow the same procedures we followed to pass Photo class to templates

Procedure1: create Video Object in models.py

## Example (TASK WRITE THE VIDEO MODEL AND PASS IT TO TEMPLATES )

```
class Video(models.Model):
    video = models.FileField(null=True, blank=True)
    caption = models.CharField(max_length=250, blank=True)
    created_date = models.DateTimeField(
        default=timezone.now)
    #what we return in the admin
    def __str__(self):

    return self.caption
```

# Task-Video Model

Procedure2: make migrations and migrate

Procedure3: Register the Video model in admin.py

```
admin.site.register(Video)
```

Runserver and add some videos in admin

Procedure4: create Video urls

Example (TASK WRITE THE VIDEO MODEL AND PASS IT TO TEMPLATES-In mediapp/urls.py add )

```
url(r'^videos$', views.videos, name='videos'),
```

Example (TASK WRITE THE VIDEO MODEL AND PASS IT TO TEMPLATES-In base.html add )

```
<li><a href="{% url 'videos' %}">Videos</a></li>
```

# Task-Video Model

Procedure5: Write videos function in views

## Example (TASK WRITE THE VIDEO MODEL AND PASS IT TO TEMPLATES )

```
def videos(request):  
    videos = Video.objects.all()  
    return render(request, "mediapp/videos.html",{ 'videos':  
    videos})
```

- Copy all code from photos.html to video.html
- Replace words from Photo to video and from Photos to videos

## Example (Remove the image tag and replace it with the video tag )

```
<div> <video controls="controls"class='img-responsive'  
style="width: 300px; height: 300px">  
<source src='{{ video.video.url }}' type="video/mp4" />  
</video> </div>
```

# Home Page or Default Page

- When we check `http://127.0.0.1:8000/` we get 404 error
- We edit our photos or videos url to be homepage

Example (In `medapp/urls` edit to)

```
url(r'^$', views.photos, name='photos'),
```

We now no longer browse `http://127.0.0.1:8000/photos`

```
GitHub="https://github.com/Nandutu/digitalmediafiles.git"
```

# References

```
"https://learnpythonthehardway.org/"  
"http://getbootstrap.com/"  
"https://tutorial.djangogirls.org/en/"  
"https://docs.djangoproject.com/en/1.11/"
```

# QUESTIONS??

# THANK YOU!!