

Московский государственный технический университет им. Н.Э. Баумана
Факультет «Информатика и системы управления»
Кафедра «Автоматизированные системы обработки информации и
управления»



Отчет
Лабораторная работа № 4
По курсу «Разработка интернет приложений»

ИСПОЛНИТЕЛЬ:

Группа ИУ5Ц-73Б

Фоминский Г. В.

ПРЕПОДАВАТЕЛЬ:

Гапанюк Ю.Е.

"__" _____ 2021 г.

1. Общее задание

1. Создайте прототип веб-приложения с использованием фреймворка Django:
 - Создайте виртуальное окружение.
 - Установите в него Django.
 - Создайте проект и приложение Django.
2. Создайте представления и шаблоны (по желанию можно использовать модели), реализующие концепцию master/detail со следующей функциональностью:
 - На странице master в виде списка HTML выводится информация о трех объектах (например, о трех сортах мороженого). Каждая строка списка представляет собой гиперссылку, при нажатии на которую происходит переход к странице detail.
 - Страница detail содержит детальное описание объекта (сорта мороженого), фотографию, гиперссылку на master-страницу.
 - Фотография относится к статическому содержимому сайта.
 - Страница detail должна выводить данные с использованием таблицы HTML.
 - Шаблон страницы detail получает от представления данные о детальном объекте с использованием контекста.
 - НЕОБЯЗАТЕЛЬНЫЙ ПУНКТ. По желанию можно использовать верстку с применением Bootstrap (или аналогичного фреймворка), а также представления на основе классов (class-based views).

2. Текст программы

manage.py

```
#!/usr/bin/env python
"""Django's command-line utility for administrative tasks."""
import os
import sys

def main():
    """Run administrative tasks."""
    os.environ.setdefault('DJANGO_SETTINGS_MODULE', 'LAB_4.settings')
    try:
        from django.core.management import execute_from_command_line
    except ImportError as exc:
        raise ImportError(
            "Couldn't import Django. Are you sure it's installed and "
            "available on your PYTHONPATH environment variable? Did you "
            "forget to activate a virtual environment?"
        ) from exc
    execute_from_command_line(sys.argv)
```

```
if __name__ == '__main__':
    main()
```

asgi.py

```
For more information on this file, see
https://docs.djangoproject.com/en/3.2/howto/deployment/asgi/
"""

import os

from django.core.asgi import get_asgi_application

os.environ.setdefault('DJANGO_SETTINGS_MODULE', 'LAB_4.settings')

application = get_asgi_application()
```

settings.py

```
"""
Django settings for LAB_4 project.

Generated by 'django-admin startproject' using Django 3.2.8.

For more information on this file, see
https://docs.djangoproject.com/en/3.2/topics/settings/

For the full list of settings and their values, see
https://docs.djangoproject.com/en/3.2/ref/settings/
"""

from pathlib import Path
import os

# Build paths inside the project like this: BASE_DIR / 'subdir'.
BASE_DIR = Path(__file__).resolve().parent.parent

# Quick-start development settings - unsuitable for production
# See https://docs.djangoproject.com/en/3.2/howto/deployment/checklist/

# SECURITY WARNING: keep the secret key used in production secret!
SECRET_KEY = 'django-insecure-jf4pbm$v0bz&_!un9j4a3zvzgplu%6845txtdvhtq9^av4y6e5'

# SECURITY WARNING: don't run with debug turned on in production!
DEBUG = True

ALLOWED_HOSTS = []
```

```

# Application definition

INSTALLED_APPS = [
    'django.contrib.admin',
    'django.contrib.auth',
    'django.contrib.contenttypes',
    'django.contrib.sessions',
    'django.contrib.messages',
    'django.contrib.staticfiles',
    'master.apps.LabAppConfig',
]

MIDDLEWARE = [
    'django.middleware.security.SecurityMiddleware',
    'django.contrib.sessions.middleware.SessionMiddleware',
    'django.middleware.common.CommonMiddleware',
    'django.middleware.csrf.CsrfViewMiddleware',
    'django.contrib.auth.middleware.AuthenticationMiddleware',
    'django.contrib.messages.middleware.MessageMiddleware',
    'django.middleware.clickjacking.XFrameOptionsMiddleware',
]

ROOT_URLCONF = 'LAB_4.urls'

TEMPLATES = [
    {
        'BACKEND': 'django.template.backends.django.DjangoTemplates',
        'DIRS': [BASE_DIR / 'templates']
    },
    {
        'APP_DIRS': True,
        'OPTIONS': {
            'context_processors': [
                'django.template.context_processors.debug',
                'django.template.context_processors.request',
                'django.contrib.auth.context_processors.auth',
                'django.contrib.messages.context_processors.messages',
            ],
        },
    },
]

WSGI_APPLICATION = 'LAB_4.wsgi.application'

# Database
# https://docs.djangoproject.com/en/3.2/ref/settings/#databases

DATABASES = {
    'default': {

```

```

        'ENGINE': 'django.db.backends.sqlite3',
        'NAME': BASE_DIR / 'db.sqlite3',
    }
}

# Password validation
# https://docs.djangoproject.com/en/3.2/ref/settings/#auth-password-validators

AUTH_PASSWORD_VALIDATORS = [
    {
        'NAME':
'django.contrib.auth.password_validation.UserAttributeSimilarityValidator',
    },
    {
        'NAME': 'django.contrib.auth.password_validation.MinimumLengthValidator',
    },
    {
        'NAME':
'django.contrib.auth.password_validation.CommonPasswordValidator',
    },
    {
        'NAME':
'django.contrib.auth.password_validation.NumericPasswordValidator',
    },
]

# Internationalization
# https://docs.djangoproject.com/en/3.2/topics/i18n/

LANGUAGE_CODE = 'ru-ru'

TIME_ZONE = 'UTC'

USE_I18N = True

USE_L10N = True

USE_TZ = True

# Static files (CSS, JavaScript, Images)
# https://docs.djangoproject.com/en/3.2/howto/static-files/

STATIC_URL = '/static/'

STATICFILES_DIRS = [
    os.path.join(BASE_DIR, "static"),
]

```

```
# Default primary key field type
# https://docs.djangoproject.com/en/3.2/ref/settings/#default-auto-field

DEFAULT_AUTO_FIELD = 'django.db.models.BigAutoField'
```

urls.py

```
"""LAB_4 URL Configuration

The `urlpatterns` list routes URLs to views. For more information please see:
    https://docs.djangoproject.com/en/3.2/topics/http/urls/
Examples:
Function views
    1. Add an import:  from my_app import views
    2. Add a URL to urlpatterns:  path('', views.home, name='home')
Class-based views
    1. Add an import:  from other_app.views import Home
    2. Add a URL to urlpatterns:  path('', Home.as_view(), name='home')
Including another URLconf
    1. Import the include() function: from django.urls import include, path
    2. Add a URL to urlpatterns:  path('blog/', include('blog.urls'))
"""
from django.contrib import admin
from django.urls import path, include

urlpatterns = [
    path('master/', include('master.urls')),
    path('admin/', admin.site.urls)
]
```

wsgi.py

```
"""
WSGI config for LAB_4 project.

It exposes the WSGI callable as a module-level variable named ``application``.

For more information on this file, see
    https://docs.djangoproject.com/en/3.2/howto/deployment/wsgi/
"""

import os

from django.core.wsgi import get_wsgi_application

os.environ.setdefault('DJANGO_SETTINGS_MODULE', 'LAB_4.settings')

application = get_wsgi_application()
```

admin.py

```
from django.contrib import admin
from .models import Animal

# Register your models here.
admin.site.register(Animal)
```

apps.py

```
from django.apps import AppConfig

class LabAppConfig(AppConfig):
    default_auto_field = 'django.db.models.BigAutoField'
    name = 'master'
    verbose_name = 'ЛР-4'
```

models.py

```
from django.db import models

# Create your models here.
class Animal(models.Model):
    animal_type = models.CharField('Вид животного', max_length=50)
    animal_name = models.CharField('Кличка животного', max_length=50)
    animal_photo = models.URLField('Фото животного', max_length=200)

    def __str__(self):
        return f'Тип: {self.animal_type}; Имя: {self.animal_name}; URL фото: {self.animal_photo}'

    class Meta:
        verbose_name = 'Животное'
        verbose_name_plural = 'Животные'
```

tests.py

```
from django.test import TestCase

# Create your tests here.
```

urls.py

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

app_name = 'master'
urlpatterns = [
    path('', views.index, name='index'),
```

```
path('<int:animal_id>', views.detail, name='detail')
```

```
]
```

views.py

```
from django.http import Http404, HttpResponseRedirect
from django.shortcuts import render
from .models import Animal

def index(request):
    a_list = Animal.objects.all()
    return render(request, 'master/list.html', dict([('a_list', a_list)]))

def detail(request, animal_id):
    try:
        a = Animal.objects.get(id=animal_id)
    except:
        raise Http404('Животное не найдено!')
    return render(request, 'master/detail.html', dict([('animal', a)]))
```

3. Экранные формы с примерами выполнения программы

```
PowerShell 7.1.5
Copyright (c) Microsoft Corporation.

https://aka.ms/powershell
Type 'help' to get help.

PS C:\Users\arsec\Downloads\LAB_4\LAB_4> & C:/Users/arsec/AppData/Local/Microsoft/WindowsApps/python3.9.exe c:/Users/arsec/Downloads/
LAB_4/LAB_4/LAB_4/__init__.py
PS C:\Users\arsec\Downloads\LAB_4\LAB_4> █
```



```
https://aka.ms/powershell
Type 'help' to get help.
```

```
PS C:\Users\arsec\Downloads\LAB_4\LAB_4>
```

Python +

```
https://aka.ms/powershell
Type 'help' to get help.
```

```
PS C:\Users\arsec\Downloads\LAB_4\LAB_4>
```

```
Traceback (most recent call last):
  File "c:\Users\arsec\Downloads\LAB_4\LAB_4\LAB_4\urls.py", line 20, in <module>
    path('master/', include('master.urls')),
  File "C:\Users\arsec\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.9_qbz5n2kfra8p0\LocalCache\local-packages\Python39\site-packages\django\urls\conf.py", line 34, in include
    urlconf_module = import_module(urlconf_module)
  File "C:\Program Files\WindowsApps\PythonSoftwareFoundation.Python.3.9_3.9.2032.0_x64_qbz5n2kfra8p0\lib\importlib\_init_.py", line 127, in import_module
    return _bootstrap._gcd_import(name[level:], package, level)
  File "<frozen importlib._bootstrap>", line 1030, in _gcd_import
  File "<frozen importlib._bootstrap>", line 1007, in _find_and_load
  File "<frozen importlib._bootstrap>", line 972, in _find_and_load_unlocked
  File "<frozen importlib._bootstrap>", line 228, in _call_with_frames_removed
  File "<frozen importlib._bootstrap>", line 1030, in _gcd_import
  File "<frozen importlib._bootstrap>", line 1007, in _find_and_load
  File "<frozen importlib._bootstrap>", line 984, in _find_and_load_unlocked
```

```
ModuleNotFoundError: No module named 'master'
```

```
PS C:\Users\arsec\Downloads\LAB 4\LAB 4>
```

```

PowerShell 7.1.5
Copyright (c) Microsoft Corporation.

https://aka.ms/powershell
Type 'help' to get help.

PS C:\Users\arsec\Downloads\LAB_4\LAB_4> & C:/Users/arsec/AppData/Local/Microsoft/WindowsApps/python3.9.exe c:/Users/arsec/Downloads/LAB_4/LAB_4/LAB_4/wsgi.py
Traceback (most recent call last):
  File "c:\Users\arsec\Downloads\LAB_4\LAB_4\LAB_4\wsgi.py", line 16, in <module>
    application = get_wsgi_application()
  File "C:\Users\arsec\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.9_qbz5n2kfra8p0\LocalCache\local-packages\Python39\site-packages\django\core\wsgi.py", line 12, in get_wsgi_application
    django.setup(set_prefix=False)
  File "C:\Users\arsec\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.9_qbz5n2kfra8p0\LocalCache\local-packages\Python39\site-packages\django\__init__.py", line 19, in setup
    configure_logging(settings.LOGGING_CONFIG, settings.LOGGING)
  File "C:\Users\arsec\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.9_qbz5n2kfra8p0\LocalCache\local-packages\Python39\site-packages\django\conf\__init__.py", line 82, in __getattr__
    self.setup(name)
  File "C:\Users\arsec\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.9_qbz5n2kfra8p0\LocalCache\local-packages\Python39\site-packages\django\conf\__init__.py", line 69, in _setup
    self._wrapped = Settings(settings_module)
  File "C:\Users\arsec\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.9_qbz5n2kfra8p0\LocalCache\local-packages\Python39\site-packages\django\conf\__init__.py", line 170, in __init__
    mod = importlib.import_module(self.SETTINGS_MODULE)
  File "C:\Program Files\WindowsApps\PythonSoftwareFoundation.Python.3.9_3.9.2032.0_x64__qbz5n2kfra8p0\lib\importlib\__init__.py", line 127, in import_module
    return _bootstrap._gcd_import(name[level:], package, level)
  File "<frozen importlib._bootstrap>", line 1030, in _gcd_import
  File "<frozen importlib._bootstrap>", line 1007, in _find_and_load
  File "<frozen importlib._bootstrap>", line 972, in _find_and_load_unlocked
  File "<frozen importlib._bootstrap>", line 228, in _call_with_frames_removed
  File "<frozen importlib._bootstrap>", line 1030, in _gcd_import
  File "<frozen importlib._bootstrap>", line 1007, in _find_and_load
  File "<frozen importlib._bootstrap>", line 984, in _find_and_load_unlocked
ModuleNotFoundError: No module named 'LAB_4'
PS C:\Users\arsec\Downloads\LAB_4\LAB_4>

```

```

PowerShell 7.1.5
Copyright (c) Microsoft Corporation.

https://aka.ms/powershell
Type 'help' to get help.

PS C:\Users\arsec\Downloads\LAB_4\LAB_4> & C:/Users/arsec/AppData/Local/Microsoft/WindowsApps/python3.9.exe c:/Users/arsec/Downloads/LAB_4/LAB_4/master/admin.py
Traceback (most recent call last):
  File "c:\Users\arsec\Downloads\LAB_4\LAB_4\master\admin.py", line 2, in <module>
    from .models import Animal
ImportError: attempted relative import with no known parent package
PS C:\Users\arsec\Downloads\LAB_4\LAB_4>

```

```

PowerShell 7.1.5
Copyright (c) Microsoft Corporation.

https://aka.ms/powershell
Type 'help' to get help.

PS C:\Users\arsec\Downloads\LAB_4\LAB_4> & C:/Users/arsec/AppData/Local/Microsoft/WindowsApps/python3.9.exe c:/Users/arsec/Downloads/LAB_4/LAB_4/master/apps.py
PS C:\Users\arsec\Downloads\LAB_4\LAB_4>

```

```

PowerShell 7.1.5
Copyright (c) Microsoft Corporation.

https://aka.ms/powershell
Type 'help' to get help.

PS C:\Users\arsec\Downloads\LAB_4\LAB_4> & C:/Users/arsec/AppData/Local/Microsoft/WindowsApps/python3.9.exe c:/Users/arsec/Downloads/LAB_4/LAB_4/master/models.py
Traceback (most recent call last):
  File "c:\Users\arsec\Downloads\LAB_4\LAB_4\master\models.py", line 5, in <module>
    class Animal(models.Model):
      File "C:\Users\arsec\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.9_qbz5n2kfra8p0\LocalCache\local-packages\Python39\site-packages\django\db\models\base.py", line 108, in __new__
        app_config = apps.get_containing_app_config(module)
      File "C:\Users\arsec\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.9_qbz5n2kfra8p0\LocalCache\local-packages\Python39\site-packages\django\apps\registry.py", line 253, in get_containing_app_config
        self.check_apps_ready()
      File "C:\Users\arsec\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.9_qbz5n2kfra8p0\LocalCache\local-packages\Python39\site-packages\django\apps\registry.py", line 135, in check_apps_ready
        settings.INSTALLED_APPS
      File "C:\Users\arsec\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.9_qbz5n2kfra8p0\LocalCache\local-packages\Python39\site-packages\django\conf\__init__.py", line 82, in __getattr__
        self._setup(name)
      File "C:\Users\arsec\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.9_qbz5n2kfra8p0\LocalCache\local-packages\Python39\site-packages\django\conf\__init__.py", line 63, in _setup
        raise ImproperlyConfigured(
django.core.exceptions.ImproperlyConfigured: Requested setting INSTALLED_APPS, but settings are not configured. You must either define the environment variable DJANGO_SETTINGS_MODULE or call settings.configure() before accessing settings.
PS C:\Users\arsec\Downloads\LAB_4\LAB_4> █

```

```

PowerShell 7.1.5
Copyright (c) Microsoft Corporation.

https://aka.ms/powershell
Type 'help' to get help.

PS C:\Users\arsec\Downloads\LAB_4\LAB_4> & C:/Users/arsec/AppData/Local/Microsoft/WindowsApps/python3.9.exe c:/Users/arsec/Downloads/LAB_4/LAB_4/master/tests.py
PS C:\Users\arsec\Downloads\LAB_4\LAB_4> █

```

```

PowerShell 7.1.5
Copyright (c) Microsoft Corporation.

https://aka.ms/powershell
Type 'help' to get help.

PS C:\Users\arsec\Downloads\LAB_4\LAB_4> & C:/Users/arsec/AppData/Local/Microsoft/WindowsApps/python3.9.exe c:/Users/arsec/Downloads/LAB_4/LAB_4/master/urls.py
Traceback (most recent call last):
  File "c:\Users\arsec\Downloads\LAB_4\LAB_4\master\urls.py", line 2, in <module>
    from . import views
ImportError: attempted relative import with no known parent package
PS C:\Users\arsec\Downloads\LAB_4\LAB_4> █

```

```

PowerShell 7.1.5
Copyright (c) Microsoft Corporation.

https://aka.ms/powershell
Type 'help' to get help.

PS C:\Users\arsec\Downloads\LAB_4\LAB_4> & C:/Users/arsec/AppData/Local/Microsoft/WindowsApps/python3.9.exe c:/Users/arsec/Downloads/LAB_4/LAB_4/master/views.py
Traceback (most recent call last):
  File "c:\Users\arsec\Downloads\LAB_4\LAB_4\master\views.py", line 3, in <module>
    from .models import Animal
ImportError: attempted relative import with no known parent package
PS C:\Users\arsec\Downloads\LAB_4\LAB_4> █

```

PowerShell 7.1.5
Copyright (c) Microsoft Corporation.

<https://aka.ms/powershell>

Type 'help' to get help.

- compilemessages
- createcachetable
- dbshell
- diffsettings
- dumpdata
- flush
- inspectdb
- loaddata
- makemessages
- makemigrations
- migrate
- sendtestemail
- shell
- showmigrations
- sqlflush
- sqlmigrate
- sqlsequencereset
- squashmigrations
- startapp
- startproject
- test
- testserver

[sessions]

- clearsessions

[staticfiles]

- collectstatic
- findstatic
- runserver

PS C:\Users\arsec\Downloads\LAB_4\LAB_4> █