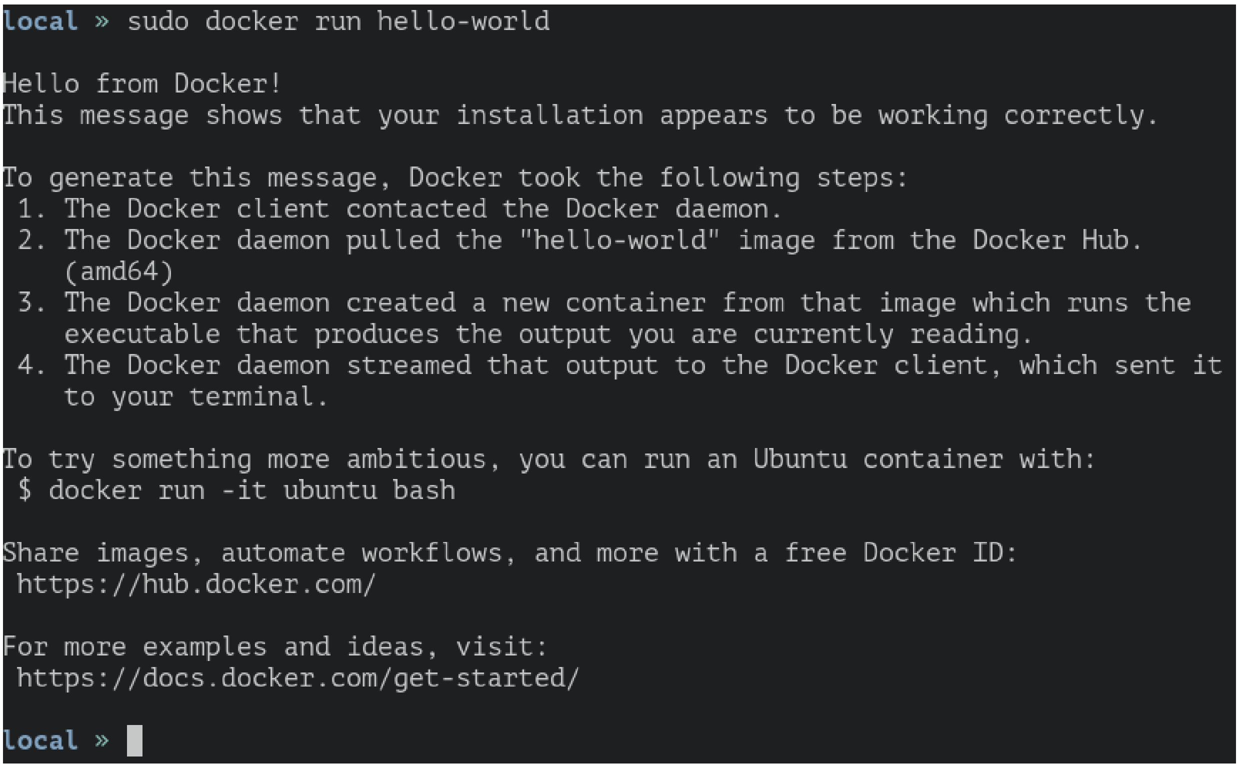
Лабораторная работа №5. Docker & Docker-compose

Задачи лабораторной работы:

1. Изучить механизм работы Docker
2. Научиться создавать образы и запускать контейнеры на их основе
3. Получить навыки работы с Docker-compose
4. Получить навыки работы с томами Docker volumes
5. Получить навыки работы с DockerHub
6. Научиться настраивать CI/CD для проектов (**опционально**)

Отчет

1. Скриншот запуска контейнера hello-world из пункта 1.2

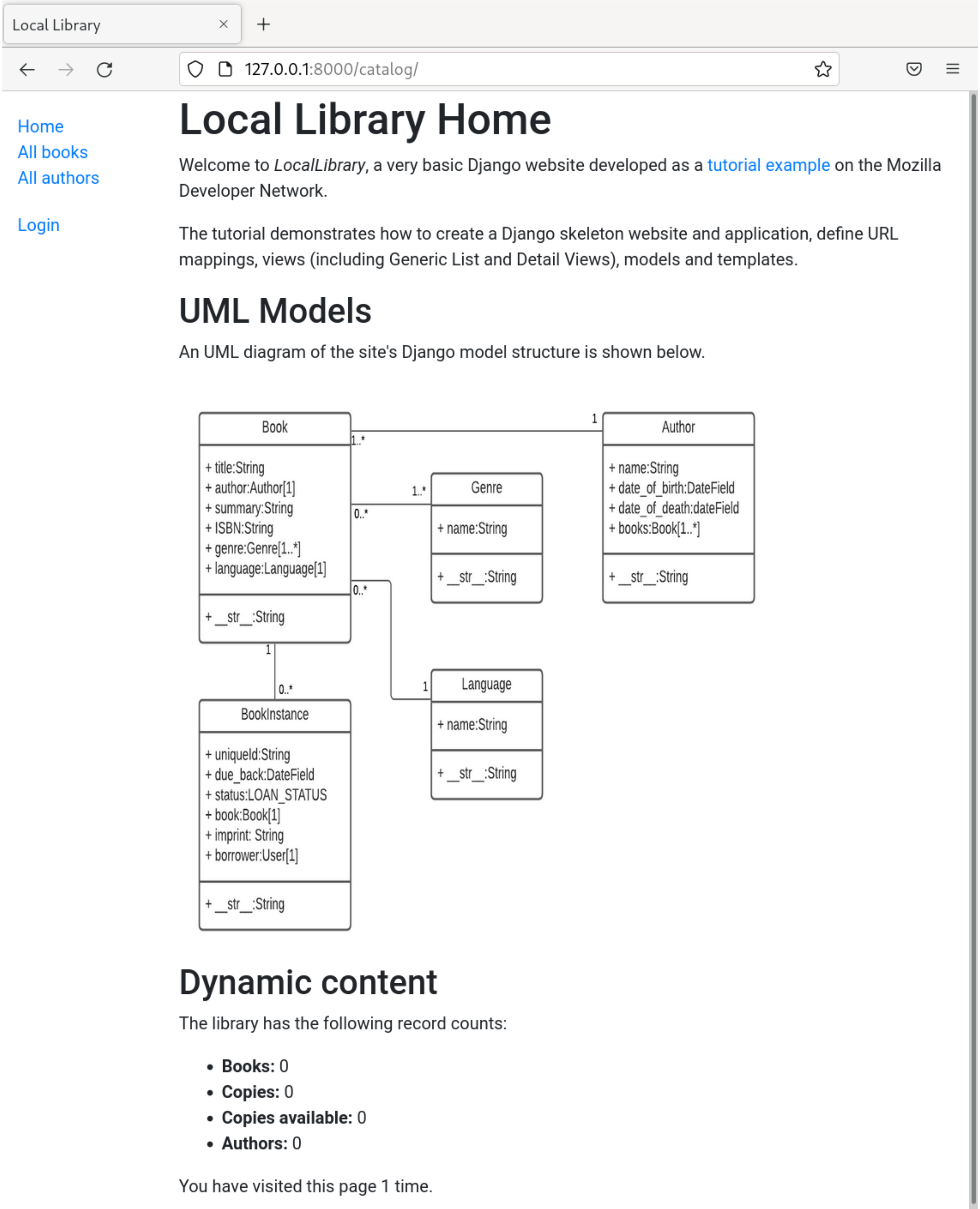


```
local » sudo docker run hello-world

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (amd64)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
 $ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
 https://hub.docker.com/

For more examples and ideas, visit:
 https://docs.docker.com/get-started/

local » 
```

2. Содержимое файла .env

```
SECRET_KEY=”mayatin”
DEBUG=True
```

3. Скриншот работающего сайта, развернутого локально



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Local Library Home

Welcome to *LocalLibrary*, a very basic Django website developed as a tutorial example on the Mozilla Developer Network.

The tutorial demonstrates how to create a Django skeleton website and application, define URL mappings, views (including Generic List and Detail Views), models and templates.

UML Models

An UML diagram of the site's Django model structure is shown below.

Dynamic content

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4. Итоговое содержимое файлов Dockerfile, docker-compose.yml и nginx.conf

`Dockerfile`

```
FROM python:3
ENV PYTHONDONTWRITEBYTECODE=1
ENV PYTHONUNBUFFERED=1
SHELL ["/bin/bash", "-c"]

RUN mkdir django-tutorial
RUN git clone https://github.com/mdn/django-locallibrary-tutorial django-tutorial
WORKDIR django-tutorial

RUN python -m venv venv
RUN source venv/bin/activate
RUN pip install -r requirements.txt
RUN python3 manage.py makemigrations
RUN python3 manage.py migrate
RUN python3 manage.py collectstatic
RUN echo $(python3 manage.py test)
RUN python3 manage.py createsuperuser
CMD gunicorn locallibrary.wsgi:application --bind 0.0.0.0:8000
```

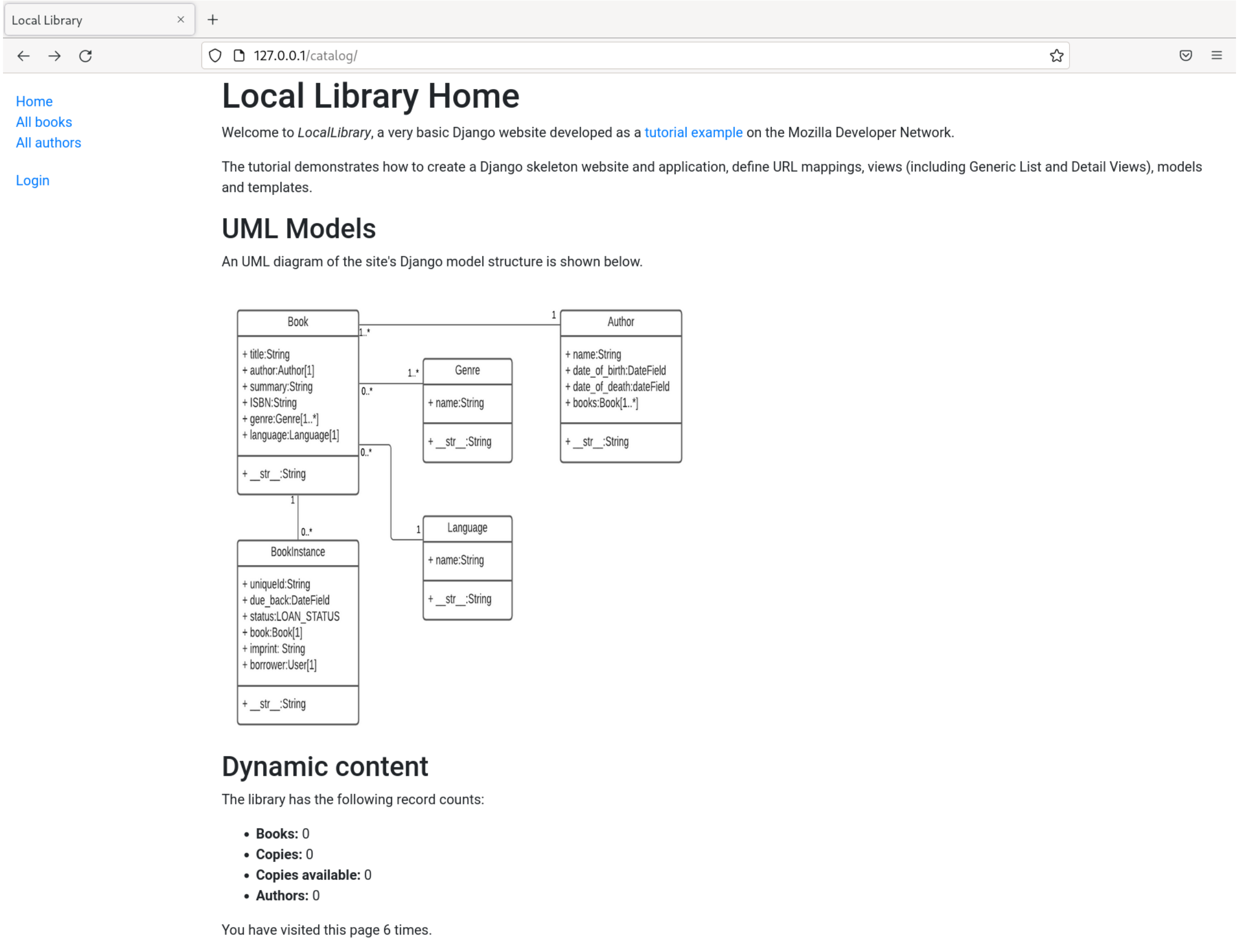
`docker-compose.yml`

```yaml
version: '3.8'

services:
  web:
    image: lab_5_django:latest
    volumes:
      - static_value:/django-tutorial/staticfiles/
      - media_value:/django-tutorial/mediafiles/
    env_file:
      - ./.env
  nginx:
    image: nginx:latest
    ports:
      - 443:443
      - 80:8000
    volumes:
      - ./nginx/default.conf:/etc/nginx/conf.d/default.conf
      - static_value:/var/html/static/
      - media_value:/var/html/media/
    depends_on:
      - web

volumes:
  static_value:
  media_value:
```

`nginx/default.conf`

```
upstream locallibrary {
    server web:8000;
}

server {
    listen 8000;

    server_name 127.0.0.1;

    location /static/ {
        root /var/html/;
    }

    location /media/ {
        root /var/html/;
    }

    location / {
        proxy_pass http://web:8000;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
        proxy_set_header Host $host;
        proxy_redirect off;
    }

    server_tokens off;
}
```

5. Скриншот работающего сайта, развернутого в docker



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6. Содержимое .github/workflows/

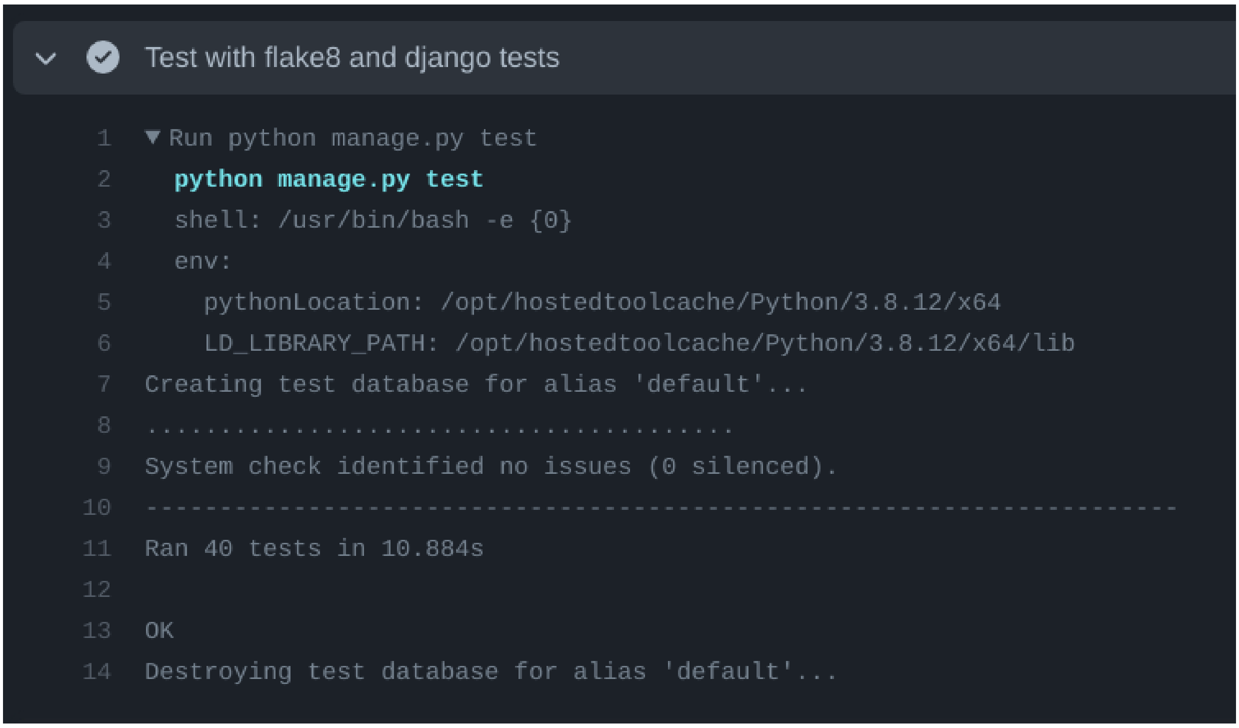
`docker-image.yml`

```yaml
name: Build and push Docker images

on:
  push:
    branches: [ master ]

jobs:
  docker:
    runs-on: ubuntu-latest
    steps:
      -
        name: Set up QEMU
        uses: docker/setup-qemu-action@v1
      -
        name: Set up Docker Buildx
        uses: docker/setup-buildx-action@v1
      -
        name: Login to DockerHub
        uses: docker/login-action@v1
        with:
          username: ${{ secrets.DOCKERHUB_USERNAME }}
          password: ${{ secrets.DOCKERHUB_TOKEN }}
      -
        name: Build and push
        id: docker_build
        uses: docker/build-push-action@v2
        with:
          push: true
          tags: ${{ secrets.DOCKERHUB_USERNAME }}/linux_adm:latest
```

`run-tests.yml`

```yaml
name: Run tests

on:
  push:
    branches: [ master ]

jobs:
  docker:
    runs-on: ubuntu-latest

    steps:
    - uses: actions/checkout@v2
    - name: Set up Python
      uses: actions/setup-python@v2
      with:
        python-version: 3.8

    - name: Install dependencies
      working-directory: ./django_locallibrary_src/
      run: |
        pip install -r requirements.txt
    - name: Test with flake8 and django tests
      working-directory: ./django_locallibrary_src/
      run: |
        python manage.py test
```

7. Отчет о прохождении тестировании при операции push в репозитории на github



```
▼ Run python manage.py test
  python manage.py test
  shell: /usr/bin/bash -e {0}
  env:
    pythonLocation: /opt/hostedtoolcache/Python/3.8.12/x64
    LD_LIBRARY_PATH: /opt/hostedtoolcache/Python/3.8.12/x64/lib
Creating test database for alias 'default'...
........................................
System check identified no issues (0 silenced).
----------------------------------------------------------------------
Ran 40 tests in 10.884s

OK
Destroying test database for alias 'default'...
```

Autotests · GitHub

8. Ссылку на форк репозитория в вашем аккаунте на гитхабе с финальной версией проекта

   GitHub - superpupervlad/linux_adm