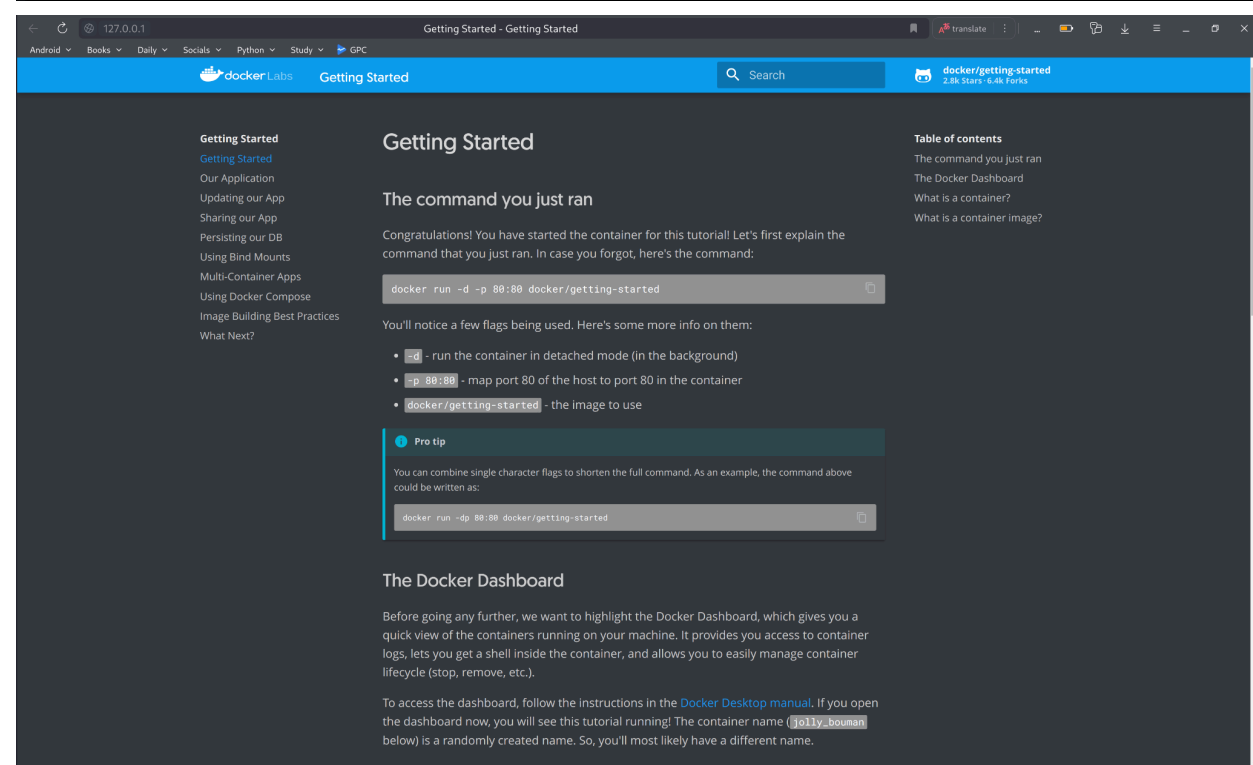


Изучите простейшие консольные команды и возможности Docker Desktop (см. лекцию), создать собственный контейнер `docker/getting-started`, открыть в браузере и изучить tutorial

```
[g_alex@GAlex-Noteboot docker]$ docker run -dp 80:80 docker/getting-started
f7c26ec952e7b126a16cd88d171d2bae69353db8f6f5de53458566608209d069
[g_alex@GAlex-Noteboot docker]$
```



Getting Started

The command you just ran

Congratulations! You have started the container for this tutorial! Let's first explain the command that you just ran. In case you forgot, here's the command:

```
docker run -d -p 80:80 docker/getting-started
```

You'll notice a few flags being used. Here's some more info on them:

- `-d` - run the container in detached mode (in the background)
- `-p 80:80` - map port 80 of the host to port 80 in the container
- `docker/getting-started` - the image to use

Pro tip

You can combine single character flags to shorten the full command. As an example, the command above could be written as:

```
docker run -dp 80:80 docker/getting-started
```

The Docker Dashboard

Before going any further, we want to highlight the Docker Dashboard, which gives you a quick view of the containers running on your machine. It provides you access to container logs, lets you get a shell inside the container, and allows you to easily manage container lifecycle (stop, remove, etc.).

To access the dashboard, follow the instructions in the [Docker Desktop manual](#). If you open the dashboard now, you will see this tutorial running! The container name (`jolly-bouman` below) is a randomly created name. So, you'll most likely have a different name.

Создайте docker image, который запускает скрипт с использованием функций из https://github.com/smartikaorg/geometric_lib.A

```
square.py x Dockerfile x

FROM python
2
3 COPY . .
4
5 CMD ["python", "main.py"]
```

```
[g_alex@GAlex-Noteboot docker]$ docker build -t my-script .
[+] Building 1.2s (7/7) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 85B
=> [internal] load metadata for docker.io/library/python:latest
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [internal] load build context
=> => transferring context: 38.94kB
=> [1/2] FROM docker.io/library/python:latest
=> [2/2] COPY . .
=> exporting to image
=> => exporting layers
=> => writing image sha256:664a8435bd2ce24d64cdcba4b78cbaaf6246240202b101dee50be4ed0c1cd837
=> => naming to docker.io/library/my-script
```

What's Next?

View a summary of image vulnerabilities and recommendations → [docker scout quickview](#)

```
[g_alex@GAlex-Noteboot docker]$ |
```

```
[g_alex@GAlex-Noteboot docker]$ docker run -i my-script
Radius: 5
Area 78.53981633974483
Perimetr 31.41592653589793
Radius: 1
Area 3.141592653589793
Perimetr 6.283185307179586
```

Скачать любой доступный проект с GitHub с произвольным стеком технологий или использовать свой, ранее разработанный. Создать для него необходимый контейнер, используя Docker Compose для управления многоконтейнерными приложениями. Запустить проект в контейнере.

```
[g_alex@GAlex-Noteboot docker]$ docker ps --all
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS                    NAMES
ce54a8298ca7   my-script                          "python main.py"        2 minutes ago Exited (1) 2 minutes ago          relaxed_moore
f7c26ec952e7   docker/getting-started            "/docker-entrypoint...." 5 hours ago   Exited (255) 4 hours ago   0.0.0.0:80->80/tcp        mystifying_cohen

[g_alex@GAlex-Noteboot docker]$ docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
my-script      latest    fba36ac906ad   4 minutes ago  1.02GB
python         latest    a3aef63c6c10   3 weeks ago    1.02GB
docker/getting-started latest    3e4394f6b72f   14 months ago  47MB
```

```
[g_alex@GAlex-Noteboot docker_compose]$ docker-compose up -d
[+] Running 12/1
✓ db 11 layers [■■■■■■■■■■] 0B/0B Pulled
[+] Building 63.8s (26/26) FINISHED
```

```
=> => naming to docker.io/library/docker_compose-proxy
[+] Running 0/0
[+] Running 3/4er_compose_db-data" Creating
:: Volume "docker_compose_db-data" Created
✓ Container docker_compose-db-1 Healthy
✓ Container docker_compose-backend-1 Started
✓ Container docker_compose-proxy-1 Started
[g_alex@GAlex-Noteboot docker_compose]$
```

```
[g_alex@GAlex-Noteboot ~]$ docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS                    NAMES
717232c1c1b9   docker_compose-proxy               "nginx -g 'daemon of..." About a minute ago Up 57 seconds    0.0.0.0:80->80/tcp        docker_compose-proxy-1
3093c663a641   docker_compose-backend             "dotnet aspnetapp.dll" About a minute ago Up 57 seconds          docker_compose-backend-1
4f9374f9dcb6   mariadb:10-focal                  "docker-entrypoint.s..." About a minute ago Up About a minute (healthy) 3306/tcp              docker_compose-db-1
```

Создать кастомный бридж, подключить к 3м контейнерам и пропинговать

```
[g_alex@GAlex-Noteboot ~]$ docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS                               NAMES
8e4f7ffde223   ubuntu    "/bin/bash"             About a minute ago    Up About a minute    0.0.0.0:81->80/tcp    compassionate_satoshi
717232c1c1b9   docker_compose-proxy "nginx -g 'daemon of..." 41 minutes ago    Up 41 minutes    0.0.0.0:80->80/tcp    docker_compose-proxy-1
```

```
[g_alex@GAlex-Noteboot ~]$ docker network ls
NETWORK ID     NAME      DRIVER    SCOPE
c3eecfc6e34a   bridge   bridge    local
afec0e412e4f   custome_bridge   bridge    local
7f0e266dd705   docker_compose_default   bridge    local
da6b06d5bcfc   host     host      local
afa6b1771c2d   none     null      local
```

```
[g_alex@GAlex-Noteboot ~]$ docker network connect afec0e412e4f 8e4f7ffde223
```

```
[g_alex@GAlex-Noteboot ~]$ docker network inspect afec0e412e4f
[
  {
    "Name": "custome_bridge",
    "Id": "afec0e412e4f30bb88685dbfd5d2b3fa5afa796b4d6a5d20444fdaf136d4abda",
    "Created": "2024-03-05T20:22:51.293952217Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": {},
      "Config": [
        {
          "Subnet": "172.19.0.0/16",
          "Gateway": "172.19.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {
      "3093c663a641775f55b23f09b2229f85f42a4e9dfe861764a1fd4cddfdc4edfc": {
        "Name": "docker_compose-backend-1",
        "EndpointID": "052a34393eeeb2f070fc0cbf77f0f22e303dbe28a83a580dd0aeee18cec5f2be",
        "MacAddress": "02:42:ac:13:00:04",
        "IPv4Address": "172.19.0.4/16",
        "IPv6Address": ""
      },
      "717232c1c1b9cde17f2111bb0a31d94e9de7bedb7fcb54c0af57b00e732fffb": {
        "Name": "docker_compose-proxy-1",
        "EndpointID": "37665dc9714e2b9880d960ee63cc347553463dedac228d745e01306a22420a39",
        "MacAddress": "02:42:ac:13:00:02",
        "IPv4Address": "172.19.0.2/16",
        "IPv6Address": ""
      },
      "8e4f7ffde223764f98c5d66f4c575199b4d91f03cd633352a13af1b40188f370": {
        "Name": "compassionate_satoshi",
        "EndpointID": "eeb661f8a33a0351547e9c98fd24f145f8fc8a747d5cdcdce82606a9f42d7bf8",
        "MacAddress": "02:42:ac:13:00:03",
        "IPv4Address": "172.19.0.3/16",
        "IPv6Address": ""
      }
    },
    "Options": {},
    "Labels": {}
  }
]
```

```
[g_alex@GAlex-Noteboot ~]$ docker network create -d overlay my-over-1
w5rfwrbeonevk7f8b5o311vgy
```

```
[g_alex@GAlex-Noteboot ~]$ docker network create -d overlay my-over-2
1lwcb4iis6yd9uxtpdp9nq
```

```
[g_alex@GAlex-Noteboot ~]$ docker network ls
```

NETWORK ID	NAME	DRIVER	SCOPE
c3eecfc6e34a	bridge	bridge	local
afec0e412e4f	custome_bridge	bridge	local
7f0e266dd705	docker_compose_default	bridge	local
29a3c3a79d33	docker_gwbridge	bridge	local
da6b06d5bcfc	host	host	local
obbszs259y1c	ingress	overlay	swarm
w5rfwrbeonev	my-over-1	overlay	swarm
1lwcb4iis6y	my-over-2	overlay	swarm
afa6b1771c2d	none	null	local

```
[g_alex@GAlex-Noteboot ~]$ docker network inspect my-over-1
```

```
[
  {
    "Name": "my-over-1",
    "Id": "w5rfwrbeonevk7f8b5o311vgy",
    "Created": "2024-03-05T21:23:19.135756968Z",
    "Scope": "swarm",
    "Driver": "overlay",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": null,
      "Config": [
        {
          "Subnet": "10.0.1.0/24",
          "Gateway": "10.0.1.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": null,
    "Options": {
      "com.docker.network.driver.overlay.vxlanid_list": "4097"
    },
    "Labels": null
  }
]
```

```
[g_alex@GAlex-Noteboot ~]$ docker network inspect my-over-2
[
  {
    "Name": "my-over-2",
    "Id": "1lwcb4iis6yd9uxtpdpdpr9nq",
    "Created": "2024-03-05T21:23:24.106065592Z",
    "Scope": "swarm",
    "Driver": "overlay",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": null,
      "Config": [
        {
          "Subnet": "10.0.2.0/24",
          "Gateway": "10.0.2.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": null,
    "Options": {
      "com.docker.network.driver.overlay.vxlanid_list": "4098"
    },
    "Labels": null
  }
]

[g_alex@GAlex-Noteboot ~]$ docker network rm my-over-2
my-over-2

[g_alex@GAlex-Noteboot ~]$ docker network ls
NETWORK ID        NAME                DRIVER            SCOPE
c3eecfc6e34a     bridge             bridge            local
afec0e412e4f     custome_bridge     bridge            local
7f0e266dd705     docker_compose_default bridge            local
29a3c3a79d33     docker_gwbridge    bridge            local
da6b06d5bcfc     host               host              local
obbszs259y1c     ingress            overlay           swarm
w5rfwrbeonev     my-over-1          overlay           swarm
afa6b1771c2d     none               null              local

[g_alex@GAlex-Noteboot ~]$
```

Разместите результат в созданный репозиторий в DockerHub

```
mar1a0b      10-local      da10f023c28d  22 months ago  414MB
[g_alex@GAlex-Noteboot docker_compose]$ docker tag 69d4e75e5679 imigalex/igi:app
[g_alex@GAlex-Noteboot docker_compose]$ docker tag c2a538eed61b imigalex/igi:back
[g_alex@GAlex-Noteboot docker_compose]$ docker tag 2edaa6b0a493 imigalex/igi:proxy
[g_alex@GAlex-Noteboot docker_compose]$ docker push
```

```
[g_alex@GAlex-Noteboot docker_compose]$ docker push imigalex/igi:app
The push refers to repository [docker.io/imigalex/igi]
3624367b9be2: Pushed
3dd1a7b3caf3: Mounted from library/python
349b0b22a493: Mounted from library/python
a07a24a37470: Mounted from library/python
84f540ade319: Mounted from library/python
9fe4e8a1862c: Mounted from library/python
909275a3eaaa: Mounted from library/python
f3f47b3309ca: Mounted from library/python
1a5fc1184c48: Mounted from library/python
app: digest: sha256:be273fb78bcacfcde93e22737e083593768ad4a99614af051a9bbf4812a30a9c size: 2216
[g_alex@GAlex-Noteboot docker_compose]$
```

Попробовать создать хост

```
[g_alex@GAlex-Noteboot ~]$ docker network create -d host testhost
Error response from daemon: only one instance of "host" network is allowed
[g_alex@GAlex-Noteboot ~]$
```