Docker compose
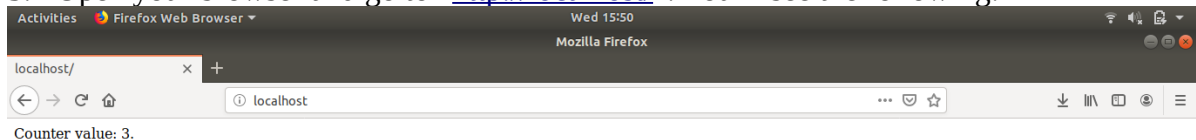
1: Create a web application in Flask which maintains a hit counter in redis, as whenever user hits the page counter increments and gets updated in redis. Build this environment using docker compose

1. Create Dockerfile and docker-compose.yml (given along with this document).
2. Start the service using the following command:

```
File Edit View Search Terminal Help
avinash@Quantiphi-929:~/Documents/containerization/asgn/q2$ docker-compose up
Building web
Step 1/9 : FROM python:3.7-alpine
3.7-alpine: Pulling from library/python
050382585609: Pull complete
dac2222ca532: Pull complete
29a7fe408caa: Pull complete
6ad337b9b53f: Pull complete
cd8e43478aa0: Pull complete
Digest: sha256:e9ba2f4a76724915342df7908f6bc529d3d6c7cd98cde752c5ae569d0741e9fc
Status: Downloaded newer image for python:3.7-alpine
 ---> 930a7e894675
Step 2/9 : WORKDIR /code
 ---> Running in 0f707b5721f8
Removing intermediate container 0f707b5721f8
 ---> 835a8f093552
Step 3/9 : ENV FLASK_APP app/app.py
 ---> Running in dba49e41a6e4
Removing intermediate container dba49e41a6e4
 ---> a284a8833d8e
Step 4/9 : ENV FLASK_RUN_HOST 0.0.0.0
 ---> Running in b8ad0226ac5a
Removing intermediate container b8ad0226ac5a
 ---> 65085777a59d
Step 5/9 : RUN apk add --no-cache gcc musl-dev linux-headers
 ---> Running in 83d4b88de4c6
fetch http://dl-cdn.alpinelinux.org/alpine/v3.10/main/x86_64/APKINDEX.tar.gz
fetch http://dl-cdn.alpinelinux.org/alpine/v3.10/community/x86_64/APKINDEX.tar.gz
(1/12) Installing binutils (2.32-r0)
(2/12) Installing gmp (6.1.2-r1)
(3/12) Installing isl (0.18-r0)
(4/12) Installing libgomp (8.3.0-r0)
(5/12) Installing libatomic (8.3.0-r0)
(6/12) Installing libgcc (8.3.0-r0)
(7/12) Installing mpfr3 (3.1.5-r1)
(8/12) Installing mpc1 (1.1.0-r0)
(9/12) Installing libstdc++ (8.3.0-r0)
(10/12) Installing gcc (8.3.0-r0)
(11/12) Installing linux-headers (4.19.36-r0)
(12/12) Installing musl-dev (1.1.22-r2)
```

3. Open your browser and go to "http://localhost/". You'll see the following:

Refresh the page to watch the counter's value get incremented.

```
ver /path/to/redis.conf
web_1     |     Use a production WSGI server instead.
web_1     |   * Debug mode: off
redis_1   | 1:M 31 Jul 2019 10:19:27.316 * Running mode=standalone, port=6379.
redis_1   | 1:M 31 Jul 2019 10:19:27.316 # WARNING: The TCP backlog setting of 511 cannot be enforced because /proc/sys/net/core/somaxconn is set to th
e lower value of 128.
web_1     |   * Running on http://0.0.0.0:5000/ (Press CTRL+C to quit)
redis_1   | 1:M 31 Jul 2019 10:19:27.317 # Server initialized
redis_1   | 1:M 31 Jul 2019 10:19:27.317 # WARNING overcommit_memory is set to 0! Background save may fail under low memory condition. To fix this issu
e add 'vm.overcommit_memory = 1' to /etc/sysctl.conf and then reboot or run the command 'sysctl vm.overcommit_memory=1' for this to take effect.
redis_1   | 1:M 31 Jul 2019 10:19:27.317 # WARNING you have Transparent Huge Pages (THP) support enabled in your kernel. This will create latency and m
emory usage issues with Redis. To fix this issue run the command 'echo never > /sys/kernel/mm/transparent_hugepage/enabled' as root, and add it to you
r /etc/rc.local in order to retain the setting after a reboot. Redis must be restarted after THP is disabled.
redis_1   | 1:M 31 Jul 2019 10:19:27.317 * Ready to accept connections
web_1     | 172.18.0.1 - - [31/Jul/2019 10:20:05] "GET / HTTP/1.1" 200 -
web_1     | 172.18.0.1 - - [31/Jul/2019 10:20:13] "GET / HTTP/1.1" 200 -
web_1     | 172.18.0.1 - - [31/Jul/2019 10:20:14] "GET / HTTP/1.1" 200 -
^CGracefully stopping... (press Ctrl+C again to force)
Stopping q2_web_1    ... done
Stopping q2_redis_1  ... done
avinash@Quantiphi-929:~/Documents/containerization/asgn/q2$ docker image ls
REPOSITORY                            TAG          IMAGE ID       CREATED            SIZE
q2_web                                latest       b759bb5bd882   About a minute ago 213MB
asia.gcr.io/pe-training/av-q1-nginx   latest       dc775588efc7   2 hours ago        151MB
aavinashves/q1-nginx                  latest       dc775588efc7   2 hours ago        151MB
q1-nginx                              latest       dc775588efc7   2 hours ago        151MB
q1-nginx                              v2.0         dc775588efc7   2 hours ago        151MB
q1-nginx                              v1.0         76e41673b073   3 hours ago        64.2MB
python                                3.7-alpine   930a7e894675   34 hours ago       98.7MB
flash-sample                          v1           1ff1573f1a46   2 days ago         417MB
flask-sample-one-av                   latest       1ff1573f1a46   2 days ago         417MB
nginx                                 latest       e445ab08b2be   7 days ago         126MB
ubuntu                                16.04        5e13f8dd4c1a   7 days ago         120MB
ubuntu                                latest       3556258649b2   7 days ago         64.2MB
redis                                 alpine       d975eaec5f68   2 weeks ago        51.1MB
hello-world                           latest       fce289e99eb9   7 months ago       1.84kB
avinash@Quantiphi-929:~/Documents/containerization/asgn/q2$ docker ps -a
CONTAINER ID   IMAGE          COMMAND               CREATED            STATUS                    PORTS      NAMES
2fefa7700d0c   q2_web         "flask run"           About a minute ago Exited (137) 11 seconds ago           q2_web_1
55d37a5561cd   redis:alpine   "docker-entrypoint.s…" About a minute ago Exited (0) 21 seconds ago            q2_redis_1
avinash@Quantiphi-929:~/Documents/containerization/asgn/q2$ 
```