Docker Compose

Part 1 :

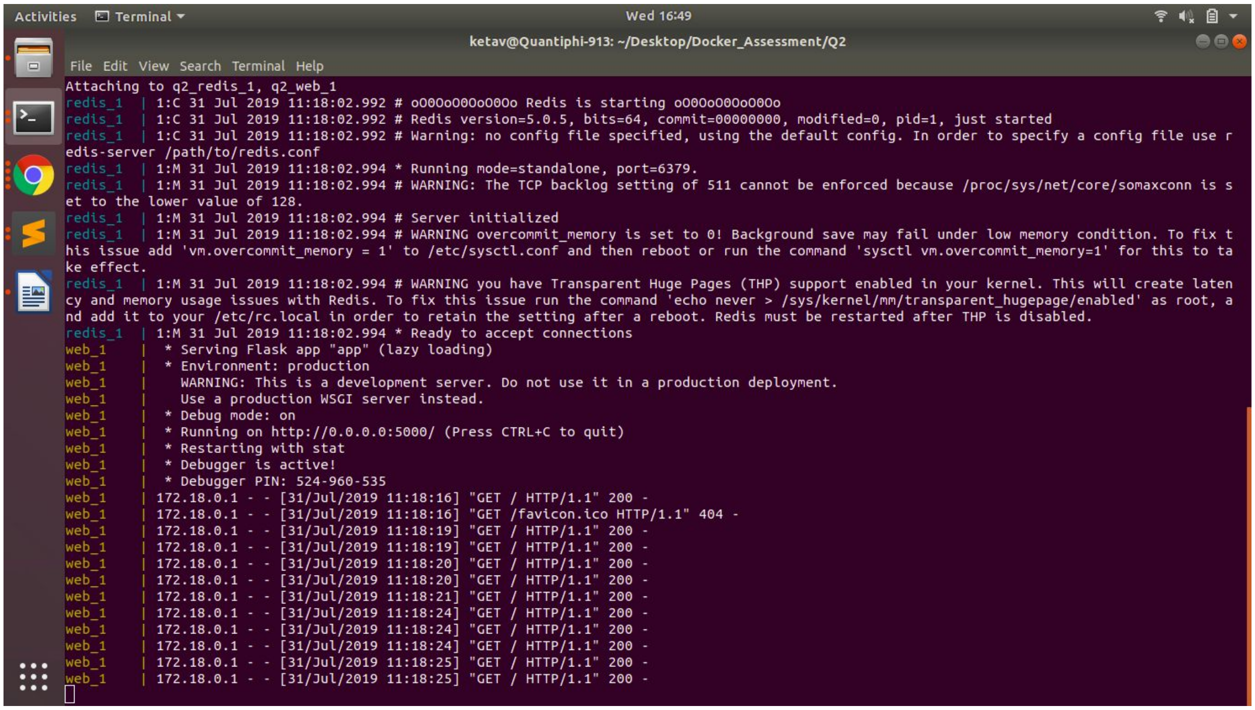
Step 1 :
Create the following files inside a directory in your local machine

a. app.py - this is for the Flask App that you want to run
b. requirements.txt - this contains the requirements, in this case flask and redis
c. Dockerfile - to setup the flask environment
d. docker-compose.yml - creating two services namely web for flask application and another redis for redis image to store the counter

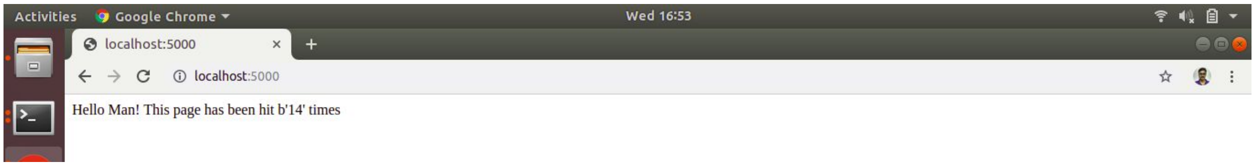
Step 2 :
Run ‘docker-compose build’ to build the containers specified in the docker-compose file

Step 3 :
Run ‘docker-compose up’ to start the container

Step 4 :
Navigate to http://localhost:5000 to check the webserver


Activities
Terminal
Wed 16:49
ketav@Quantiphi-913: ~/Desktop/Docker_Assessment/Q2
File Edit View Search Terminal Help

```
Attaching to q2_redis_1, q2_web_1
redis_1  | 1:C 31 Jul 2019 11:18:02.992 # oO0OoO0OoO0Oo Redis is starting oO0OoO0OoO0Oo
redis_1  | 1:C 31 Jul 2019 11:18:02.992 # Redis version=5.0.5, bits=64, commit=00000000, modified=0, pid=1, just started
redis_1  | 1:C 31 Jul 2019 11:18:02.992 # Warning: no config file specified, using the default config. In order to specify a config file use r
edis-server /path/to/redis.conf
redis_1  | 1:M 31 Jul 2019 11:18:02.994 * Running mode=standalone, port=6379.
redis_1  | 1:M 31 Jul 2019 11:18:02.994 # WARNING: The TCP backlog setting of 511 cannot be enforced because /proc/sys/net/core/somaxconn is s
et to the lower value of 128.
redis_1  | 1:M 31 Jul 2019 11:18:02.994 # Server initialized
redis_1  | 1:M 31 Jul 2019 11:18:02.994 # WARNING overcommit_memory is set to 0! Background save may fail under low memory condition. To fix t
his issue add 'vm.overcommit_memory = 1' to /etc/sysctl.conf and then reboot or run the command 'sysctl vm.overcommit_memory=1' for this to ta
ke effect.
redis_1  | 1:M 31 Jul 2019 11:18:02.994 # WARNING you have Transparent Huge Pages (THP) support enabled in your kernel. This will create laten
cy and memory usage issues with Redis. To fix this issue run the command 'echo never > /sys/kernel/mm/transparent_hugepage/enabled' as root, a
nd add it to your /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 11:18:02.994 * Ready to accept connections
web_1    |  * Serving Flask app "app" (lazy loading)
web_1    |  * Environment: production
web_1    |    WARNING: This is a development server. Do not use it in a production deployment.
web_1    |    Use a production WSGI server instead.
web_1    |  * Debug mode: on
web_1    |  * Running on http://0.0.0.0:5000/ (Press CTRL+C to quit)
web_1    |  * Restarting with stat
web_1    |  * Debugger is active!
web_1    |  * Debugger PIN: 524-960-535
web_1    | 172.18.0.1 - - [31/Jul/2019 11:18:16] "GET / HTTP/1.1" 200 -
web_1    | 172.18.0.1 - - [31/Jul/2019 11:18:16] "GET /favicon.ico HTTP/1.1" 404 -
web_1    | 172.18.0.1 - - [31/Jul/2019 11:18:19] "GET / HTTP/1.1" 200 -
web_1    | 172.18.0.1 - - [31/Jul/2019 11:18:19] "GET / HTTP/1.1" 200 -
web_1    | 172.18.0.1 - - [31/Jul/2019 11:18:20] "GET / HTTP/1.1" 200 -
web_1    | 172.18.0.1 - - [31/Jul/2019 11:18:20] "GET / HTTP/1.1" 200 -
web_1    | 172.18.0.1 - - [31/Jul/2019 11:18:21] "GET / HTTP/1.1" 200 -
web_1    | 172.18.0.1 - - [31/Jul/2019 11:18:24] "GET / HTTP/1.1" 200 -
web_1    | 172.18.0.1 - - [31/Jul/2019 11:18:24] "GET / HTTP/1.1" 200 -
web_1    | 172.18.0.1 - - [31/Jul/2019 11:18:24] "GET / HTTP/1.1" 200 -
web_1    | 172.18.0.1 - - [31/Jul/2019 11:18:25] "GET / HTTP/1.1" 200 -
web_1    | 172.18.0.1 - - [31/Jul/2019 11:18:25] "GET / HTTP/1.1" 200 -
```



Hello Man! This page has been hit b'14' times

Part - 2

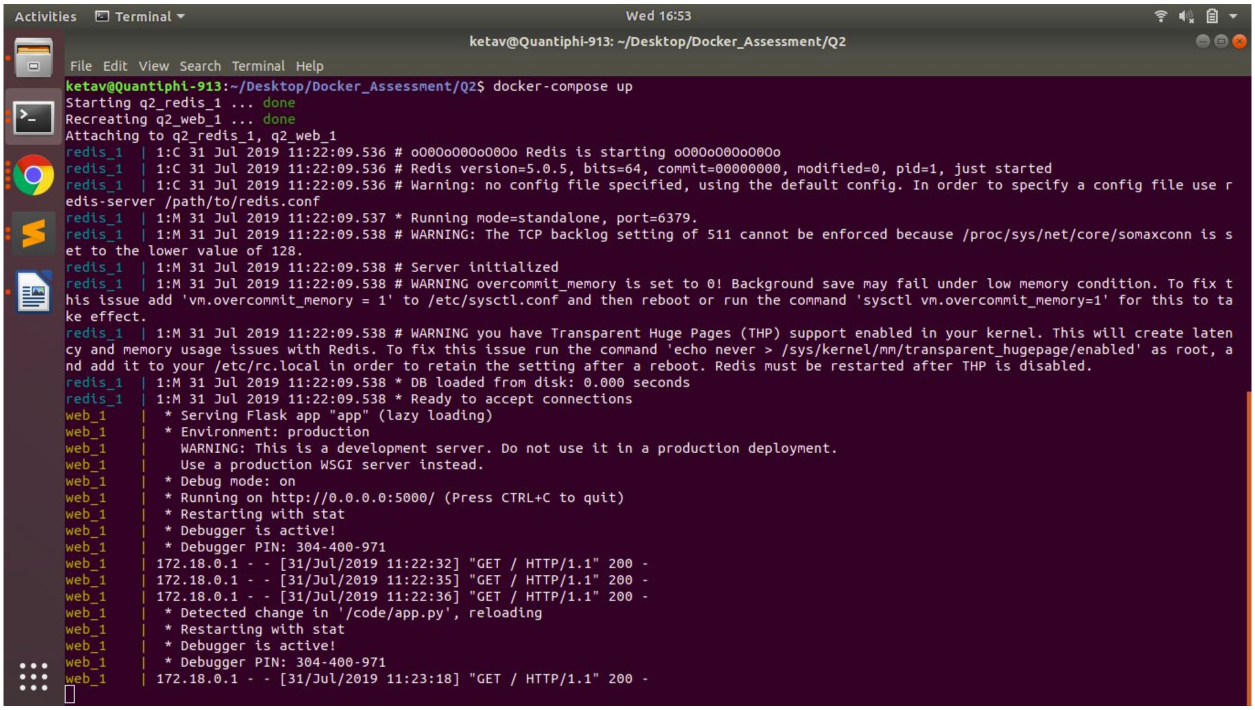
Step 1 :
To attach a volume to the container, add volumes in the docker-compose.yml file with the mapping of directories

Step 2 :
Now run ‘docker-compose build’ to rebuild the images with the added volumes

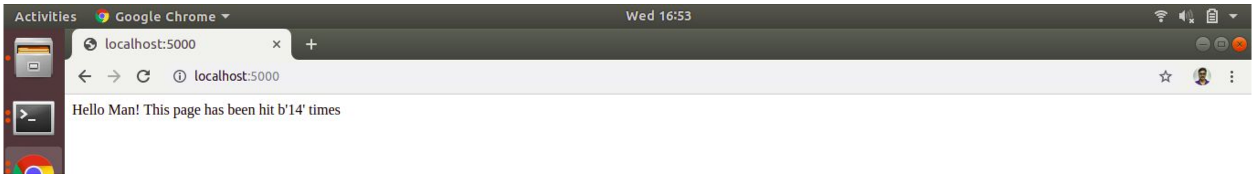
Step 3 :
To start the containers in daemon (to later edit files in same terminal) run ‘docker-compose up -d’ or run ‘docker-compose up’ to run the containers in normal Mode

Step 4 :
Now edit the file in the container using ‘docker exec -it [container-id] bash’ and then using any in terminal text editor as nano or vim

Step 5 :
Or you can edit in the files that are locally stored in your machine as the volumes are attached and would reflect the changes even from the outside


Activities
Terminal
Wed 16:53
ketav@Quantiphi-913: ~/Desktop/Docker_Assessment/Q2
File Edit View Search Terminal Help

```
ketav@Quantiphi-913:~/Desktop/Docker_Assessment/Q2$ docker-compose up
Starting q2_redis_1 ... done
Recreating q2_web_1 ... done
Attaching to q2_redis_1, q2_web_1
redis_1  | 1:C 31 Jul 2019 11:22:09.536 # oO0OoO0OoO0Oo Redis is starting oO0OoO0OoO0Oo
redis_1  | 1:C 31 Jul 2019 11:22:09.536 # Redis version=5.0.5, bits=64, commit=00000000, modified=0, pid=1, just started
redis_1  | 1:C 31 Jul 2019 11:22:09.536 # Warning: no config file specified, using the default config. In order to specify a config file use r
edis-server /path/to/redis.conf
redis_1  | 1:M 31 Jul 2019 11:22:09.537 * Running mode=standalone, port=6379.
redis_1  | 1:M 31 Jul 2019 11:22:09.538 # WARNING: The TCP backlog setting of 511 cannot be enforced because /proc/sys/net/core/somaxconn is s
et to the lower value of 128.
redis_1  | 1:M 31 Jul 2019 11:22:09.538 # Server initialized
redis_1  | 1:M 31 Jul 2019 11:22:09.538 # WARNING overcommit_memory is set to 0! Background save may fail under low memory condition. To fix t
his issue add 'vm.overcommit_memory = 1' to /etc/sysctl.conf and then reboot or run the command 'sysctl vm.overcommit_memory=1' for this to ta
ke effect.
redis_1  | 1:M 31 Jul 2019 11:22:09.538 # WARNING you have Transparent Huge Pages (THP) support enabled in your kernel. This will create laten
cy and memory usage issues with Redis. To fix this issue run the command 'echo never > /sys/kernel/mm/transparent_hugepage/enabled' as root, a
nd add it to your /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 11:22:09.538 * DB loaded from disk: 0.000 seconds
redis_1  | 1:M 31 Jul 2019 11:22:09.538 * Ready to accept connections
web_1    |  * Serving Flask app "app" (lazy loading)
web_1    |  * Environment: production
web_1    |    WARNING: This is a development server. Do not use it in a production deployment.
web_1    |    Use a production WSGI server instead.
web_1    |  * Debug mode: on
web_1    |  * Running on http://0.0.0.0:5000/ (Press CTRL+C to quit)
web_1    |  * Restarting with stat
web_1    |  * Debugger is active!
web_1    |  * Debugger PIN: 304-400-971
web_1    | 172.18.0.1 - - [31/Jul/2019 11:22:32] "GET / HTTP/1.1" 200 -
web_1    | 172.18.0.1 - - [31/Jul/2019 11:22:35] "GET / HTTP/1.1" 200 -
web_1    | 172.18.0.1 - - [31/Jul/2019 11:22:36] "GET / HTTP/1.1" 200 -
web_1    |  * Detected change in '/code/app.py', reloading
web_1    |  * Restarting with stat
web_1    |  * Debugger is active!
web_1    |  * Debugger PIN: 304-400-971
web_1    | 172.18.0.1 - - [31/Jul/2019 11:23:18] "GET / HTTP/1.1" 200 -
```



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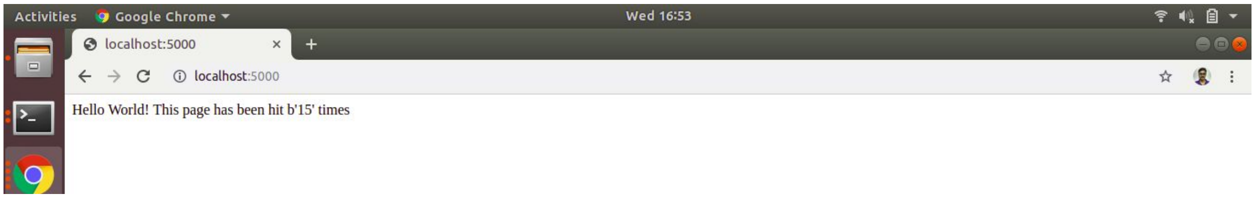
Original app.py



Hello World! This page has been hit b'15' times

App.py after change without building the docker again

This is a host volume type of volume attached to the container to reflect changes from local source to inside of the container.