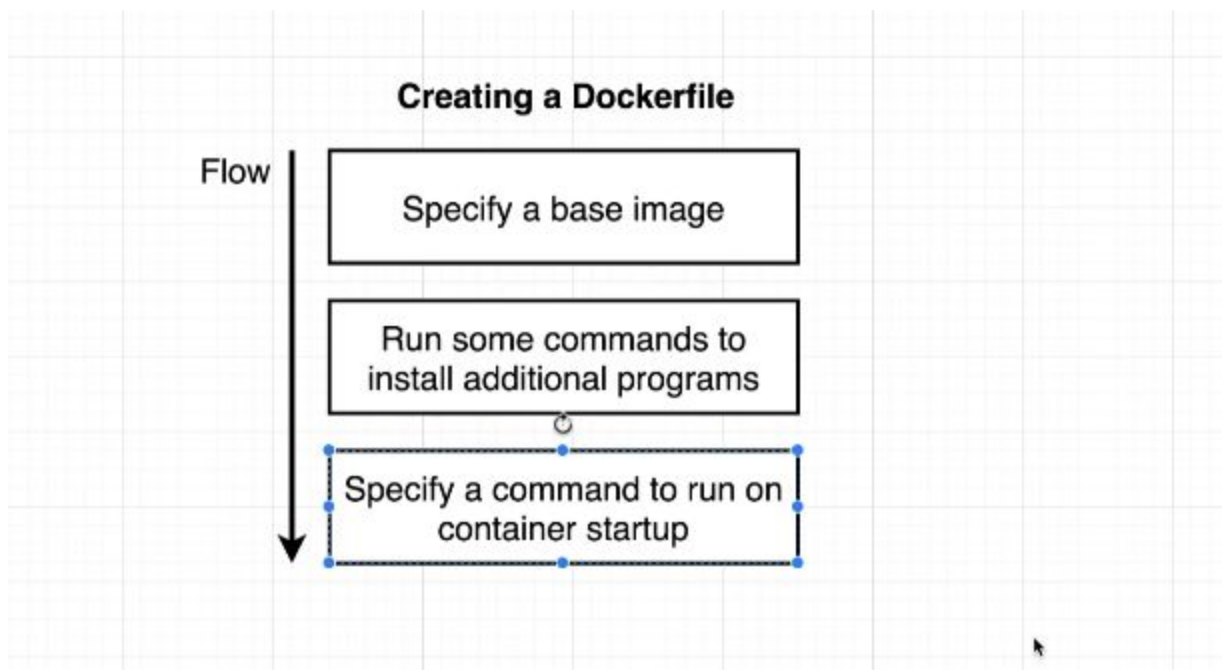
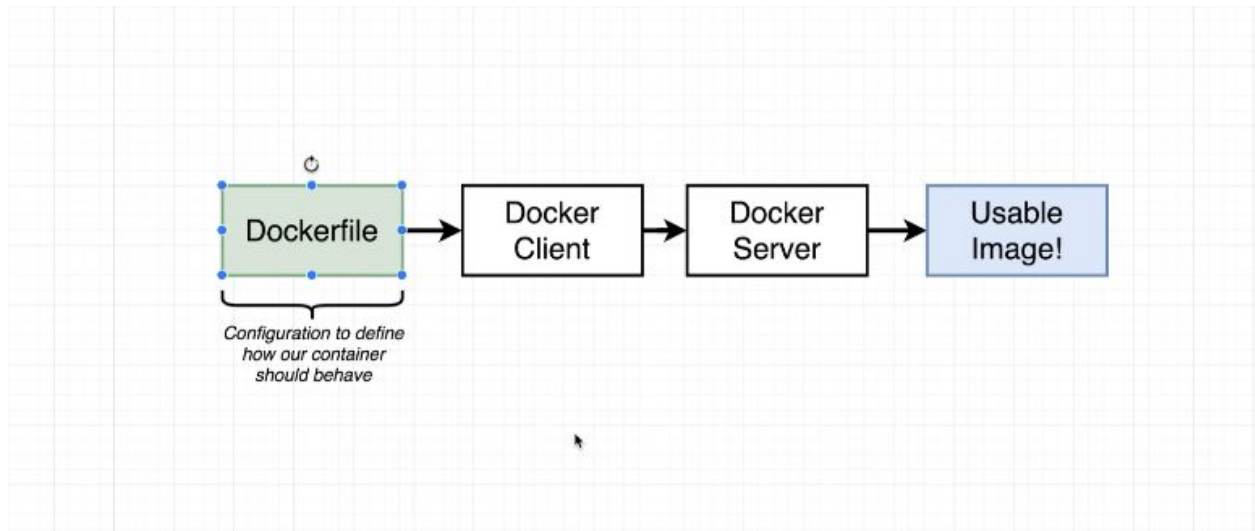


Creating a Dockerfile

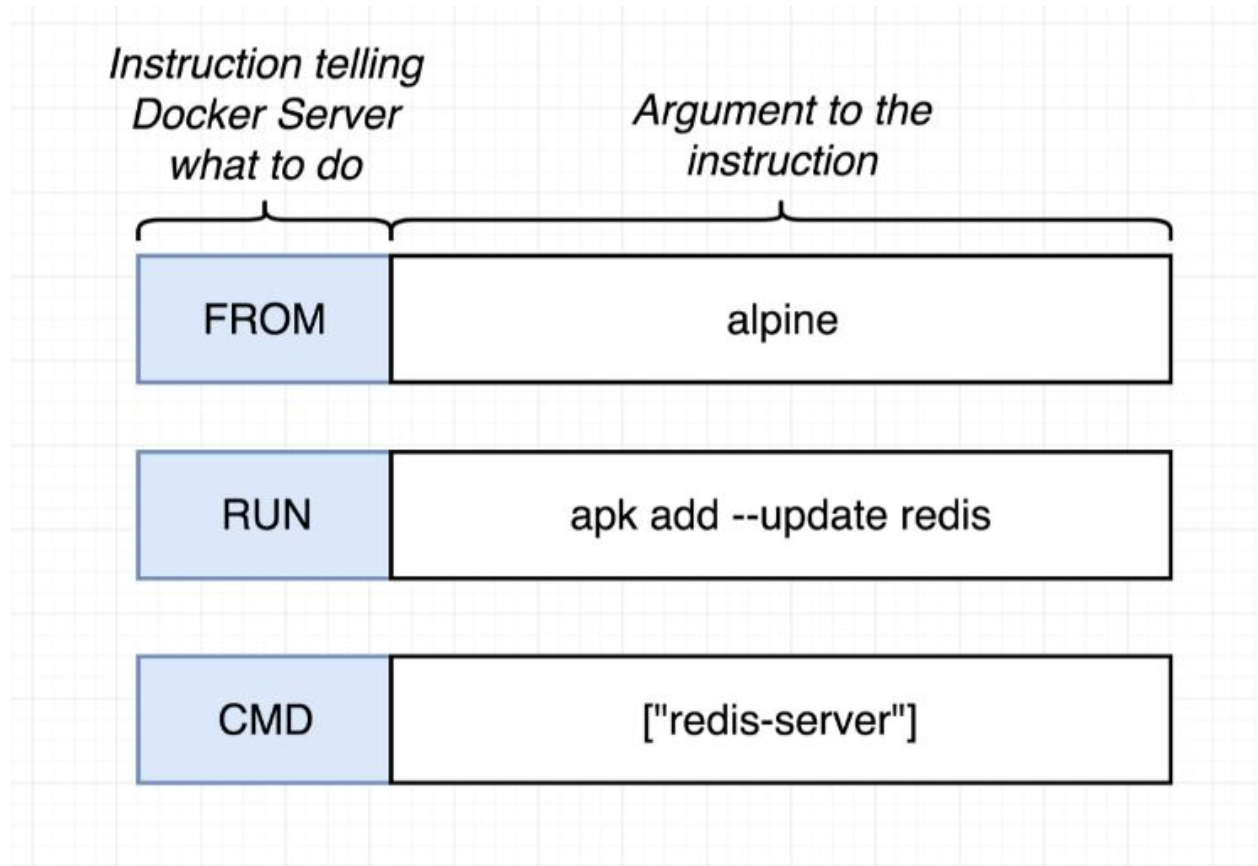


Created a Dockerfile with Visual Studio Code

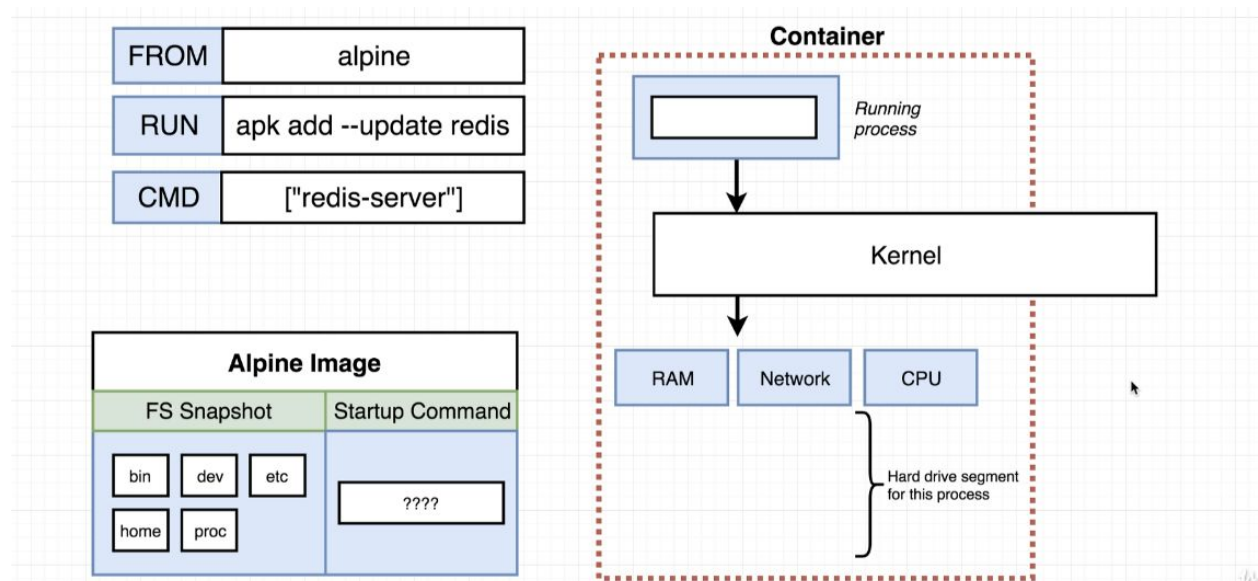
```
Dockerfile X
Dockerfile > ...
1 # Charles Stolz Lab section 3 creating a Dockerfile
2 # 09-19-2020
3 # Use an existing docker image as base
4 FROM alpine
5 # Download and install a dependency
6 RUN apk add --update redis
7 # Tell the image what to do when it starts as a container
8 CMD ["redis-server"]

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
(base) ~\Documents\utahschoolwork\fall2020_charles_dockerkubernetes\section_3\redis-image/ master* docker build .
Sending build context to Docker daemon  2.048kB
Step 1/3 : FROM alpine
latest: Pulling from library/alpine
df20fa9351a1: Pull complete
Digest: sha256:185518070891758909c9f839cf4ca393ee977ac378609f700f60a771a2dfe321
Status: Downloaded newer image for alpine:latest
--> a24bb4013296
Step 2/3 : RUN apk add --update redis
--> Running in 9e33fa1b596f
fetch http://dl-cdn.alpinelinux.org/alpine/v3.12/main/x86_64/APKINDEX.tar.gz
fetch http://dl-cdn.alpinelinux.org/alpine/v3.12/community/x86_64/APKINDEX.tar.gz
(1/1) Installing redis (5.0.9-r0)
Executing redis-5.0.9-r0.pre-install
Executing redis-5.0.9-r0.post-install
Executing busybox-1.31.1-r16.trigger
OK: 7 MiB in 15 packages
Removing intermediate container 9e33fa1b596f
--> f32c4d2498ea
Step 3/3 : CMD ["redis-server"]
--> Running in 951a41814510
Removing intermediate container 951a41814510
--> f8df506daeb3
Successfully built f8df506daeb3
(base) ~\Documents\utahschoolwork\fall2020_charles_dockerkubernetes\section_3\redis-image/ master* docker run f8df506daeb3
1:C 20 Sep 2020 00:00:01.269 # 0000000000000000 Redis is starting 000000000000
1:C 20 Sep 2020 00:00:01.269 # Redis version=5.0.9, bits=64, commit=869dcbdc, modified=0, pid=1, just started
1:C 20 Sep 2020 00:00:01.269 # Warning: no config file specified, using the default config. In order to specify a config file use redis-server /path/to/redis.conf
1:M 20 Sep 2020 00:00:01.271 * Running mode=standalone, port=6379.
1:M 20 Sep 2020 00:00:01.272 # WARNING: The TCP backlog setting of 511 cannot be enforced because /proc/sys/net/core/somaxconn is set to the lower value of 128.
1:M 20 Sep 2020 00:00:01.272 # Server initialized
1:M 20 Sep 2020 00:00:01.272 # WARNING you have Transparent Huge Pages (THP) support enabled in your kernel. This will create latency and memory usage issues with Redis. To fix this issue add 'transparent_hugepage=disabled' as root, and add it to your /etc/rc.local in order to retain the setting after a reboot. Redis must be restarted after THP is disabled.
1:M 20 Sep 2020 00:00:01.272 * Ready to accept connections
```

The three instructions used by the dockerfile



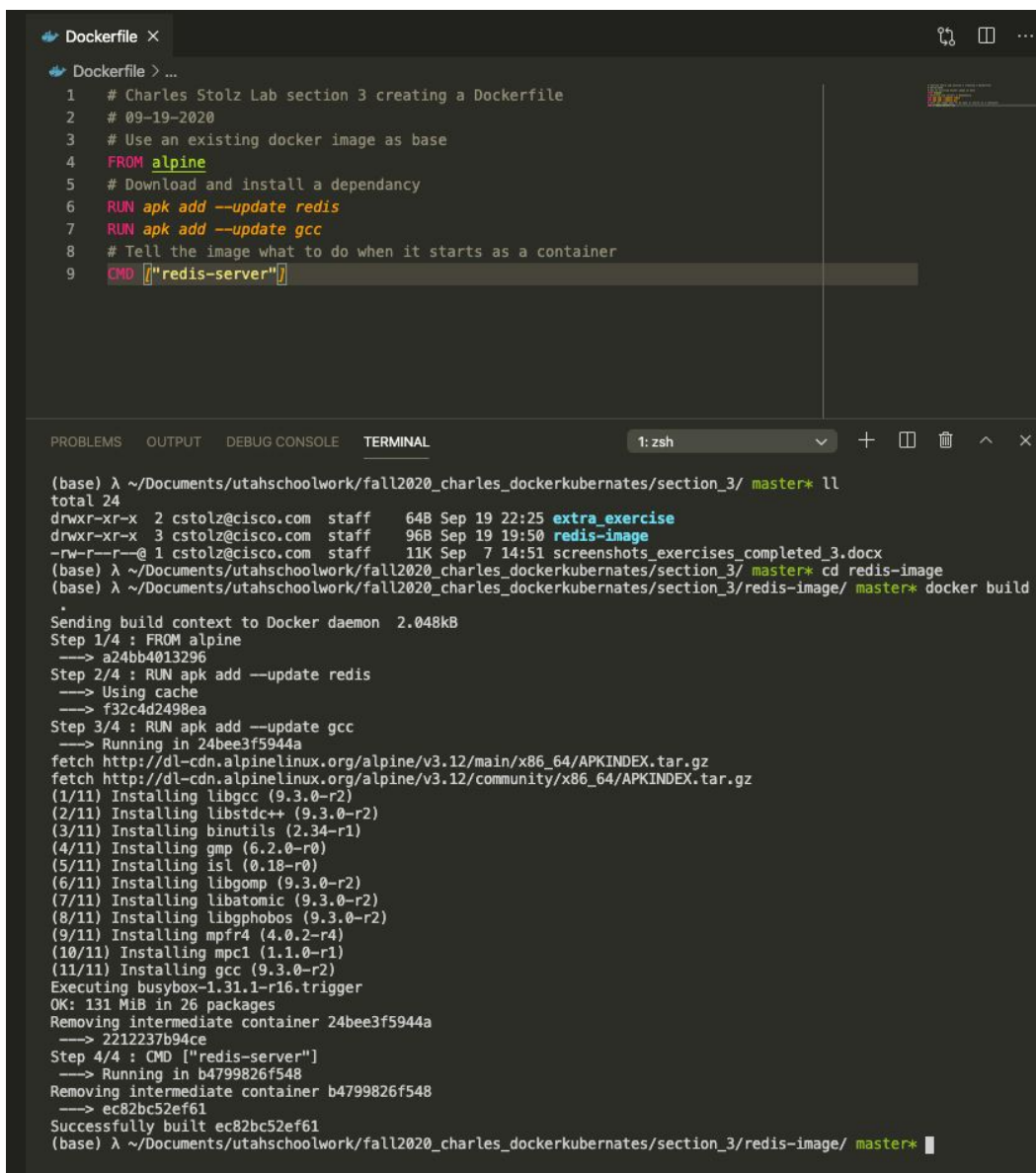
The docker build command was used to create an image.



The docker image created is f8df506daeb3

```
(base) λ ~/Documents/utahschoolwork/fall2020_charles_dockerkubernates/section_3/redis-image/ master* docker images
REPOSITORY      TAG              IMAGE ID         CREATED          SIZE
<none>           <none>          f8df506daeb3    50 minutes ago  8.74MB
redis            latest          41de2cc0b30e    2 weeks ago     104MB
busybox          latest          edabd795951a    2 weeks ago     1.22MB
alpine           latest          a24bb4013296    3 months ago    5.57MB
hello-world      latest          bf756fb1ae65    8 months ago    13.3kB
(base) λ ~/Documents/utahschoolwork/fall2020_charles_dockerkubernates/section_3/redis-image/ master*
```

Creating a new container adding gcc package



```
Dockerfile ×
Dockerfile > ...
1 # Charles Stolz Lab section 3 creating a Dockerfile
2 # 09-19-2020
3 # Use an existing docker image as base
4 FROM alpine
5 # Download and install a dependency
6 RUN apk add --update redis
7 RUN apk add --update gcc
8 # Tell the image what to do when it starts as a container
9 CMD ["redis-server"]

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL 1: zsh
(base) λ ~/Documents/utahschoolwork/fall2020_charles_dockerkubernates/section_3/ master* ll
total 24
drwxr-xr-x 2 cstolz@cisco.com staff 64B Sep 19 22:25 extra_exercise
drwxr-xr-x 3 cstolz@cisco.com staff 96B Sep 19 19:50 redis-image
-rw-r--r-- 1 cstolz@cisco.com staff 11K Sep 7 14:51 screenshots_exercises_completed_3.docx
(base) λ ~/Documents/utahschoolwork/fall2020_charles_dockerkubernates/section_3/ master* cd redis-image
(base) λ ~/Documents/utahschoolwork/fall2020_charles_dockerkubernates/section_3/redis-image/ master* docker build
Sending build context to Docker daemon 2.048kB
Step 1/4 : FROM alpine
--> a24bb4013296
Step 2/4 : RUN apk add --update redis
--> Using cache
--> f32c4d2498ea
Step 3/4 : RUN apk add --update gcc
--> Running in 24bee3f5944a
fetch http://dl-cdn.alpinelinux.org/alpine/v3.12/main/x86_64/APKINDEX.tar.gz
fetch http://dl-cdn.alpinelinux.org/alpine/v3.12/community/x86_64/APKINDEX.tar.gz
(1/11) Installing libgcc (9.3.0-r2)
(2/11) Installing libstdc++ (9.3.0-r2)
(3/11) Installing binutils (2.34-r1)
(4/11) Installing gmp (6.2.0-r0)
(5/11) Installing isl (0.18-r0)
(6/11) Installing libgomp (9.3.0-r2)
(7/11) Installing libatomic (9.3.0-r2)
(8/11) Installing libphobos (9.3.0-r2)
(9/11) Installing mpfr4 (4.0.2-r4)
(10/11) Installing mpc1 (1.1.0-r1)
(11/11) Installing gcc (9.3.0-r2)
Executing busybox-1.31.1-r16.trigger
OK: 131 MiB in 26 packages
Removing intermediate container 24bee3f5944a
--> 2212237b94ce
Step 4/4 : CMD ["redis-server"]
--> Running in b4799826f548
Removing intermediate container b4799826f548
--> ec82bc52ef61
Successfully built ec82bc52ef61
(base) λ ~/Documents/utahschoolwork/fall2020_charles_dockerkubernates/section_3/redis-image/ master*
```

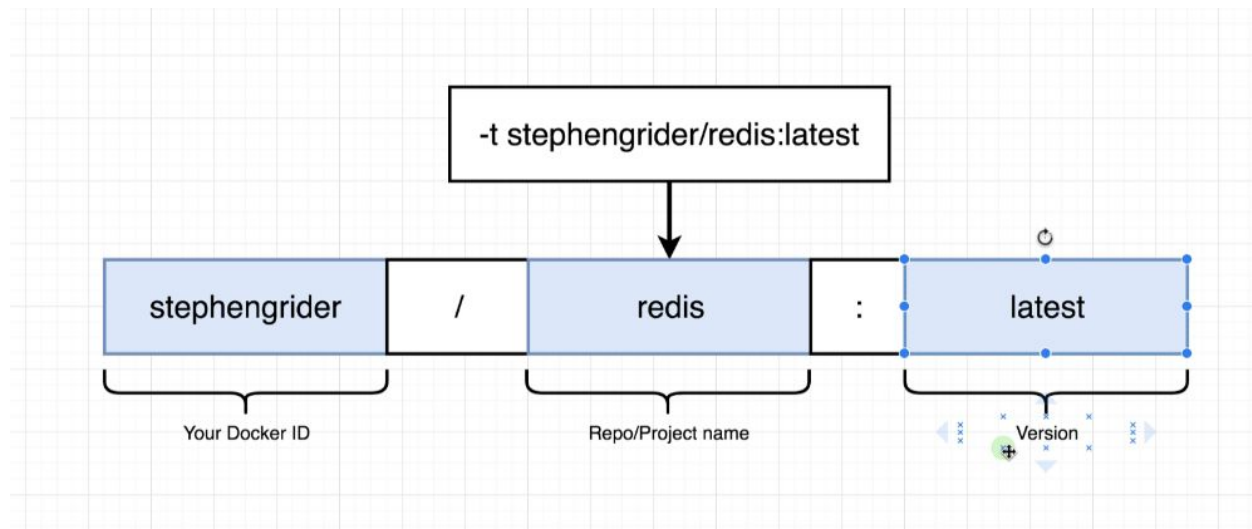
Attempted to run again and no changes since it pulled from the cache file.

Moved gcc to change order of operations this caused the image to need to be totally rebuilt.

```
Dockerfile X
Dockerfile > ...
1 # Charles Stolz Lab section 3 creating a Dockerfile
2 # 09-19-2020
3 # Use an existing docker image as base
4 FROM alpine
5 # Download and install a dependency
6 RUN apk add --update gcc
7 RUN apk add --update redis
8
9 # Tell the image what to do when it starts as a container
10 CMD ["redis-server"]

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL 1: zsh
--> Using cache
--> ec82bc52ef61
Successfully built ec82bc52ef61
(base) λ ~/Documents/utahschoolwork/fall2020_charles_dockerkubernates/section_3/redis-image/ master* docker build
.
Sending build context to Docker daemon 2.048kB
Step 1/4 : FROM alpine
--> a24bb4013296
Step 2/4 : RUN apk add --update gcc
--> Running in c7c6a1ce308e
fetch http://dl-cdn.alpinelinux.org/alpine/v3.12/main/x86_64/APKINDEX.tar.gz
fetch http://dl-cdn.alpinelinux.org/alpine/v3.12/community/x86_64/APKINDEX.tar.gz
(1/11) Installing libgcc (9.3.0-r2)
(2/11) Installing libstdc++ (9.3.0-r2)
(3/11) Installing binutils (2.34-r1)
(4/11) Installing gmp (6.2.0-r0)
(5/11) Installing isl (0.18-r0)
(6/11) Installing libgomp (9.3.0-r2)
(7/11) Installing libatomic (9.3.0-r2)
(8/11) Installing libgphobos (9.3.0-r2)
(9/11) Installing mpfr4 (4.0.2-r4)
(10/11) Installing mpc1 (1.1.0-r1)
(11/11) Installing gcc (9.3.0-r2)
Executing busybox-1.31.1-r16.trigger
OK: 129 MiB in 25 packages
Removing intermediate container c7c6a1ce308e
--> 6e346a92d551
Step 3/4 : RUN apk add --update redis
--> Running in 83dc3f010ebb
(1/1) Installing redis (5.0.9-r0)
Executing redis-5.0.9-r0.pre-install
Executing redis-5.0.9-r0.post-install
Executing busybox-1.31.1-r16.trigger
OK: 131 MiB in 26 packages
Removing intermediate container 83dc3f010ebb
--> ed28fb63e52d
Step 4/4 : CMD ["redis-server"]
--> Running in c8cfd975b57c
Removing intermediate container c8cfd975b57c
--> 1e71b58b5470
Successfully built 1e71b58b5470
(base) λ ~/Documents/utahschoolwork/fall2020_charles_dockerkubernates/section_3/redis-image/ master*
```


Create Docker project with name (below is the naming convention)



Created Image and tagged image

```
(base) λ ~/Documents/utahschoolwork/fall2020_charles_dockerkubernates/section_3/redis-image/ master* docker build
-t rtikes/redis:latest .
Sending build context to Docker daemon 2.048kB
Step 1/4 : FROM alpine
--> a24bb4013296
Step 2/4 : RUN apk add --update gcc
--> Using cache
--> 6e346a92d551
Step 3/4 : RUN apk add --update redis
--> Using cache
--> ed28fb63e52d
Step 4/4 : CMD ["redis-server"]
--> Using cache
--> 1e71b58b5470
Successfully built 1e71b58b5470
Successfully tagged rtikes/redis:latest
(base) λ ~/Documents/utahschoolwork/fall2020_charles_dockerkubernates/section_3/redis-image/ master* docker run r
tikes/redis
1:C 20 Sep 2020 03:03:57.390 # o000o000o000o Redis is starting o000o000o000o
1:C 20 Sep 2020 03:03:57.390 # Redis version=5.0.9, bits=64, commit=869dcdbc, modified=0, pid=1, just started
1:C 20 Sep 2020 03:03:57.390 # Warning: no config file specified, using the default config. In order to specify a
config file use redis-server /path/to/redis.conf
1:M 20 Sep 2020 03:03:57.392 * Running mode=standalone, port=6379.
1:M 20 Sep 2020 03:03:57.392 # WARNING: The TCP backlog setting of 511 cannot be enforced because /proc/sys/net/c
ore/somaxconn is set to the lower value of 128.
1:M 20 Sep 2020 03:03:57.392 # Server initialized
1:M 20 Sep 2020 03:03:57.392 # WARNING you have Transparent Huge Pages (THP) support enabled in your kernel. This
will create latency and memory usage issues with Redis. To fix this issue run the command 'echo never > /sys/ker
nel/mm/transparent_hugepage/enabled' as root, and add it to your /etc/rc.local in order to retain the setting aft
er a reboot. Redis must be restarted after THP is disabled.
1:M 20 Sep 2020 03:03:57.393 * Ready to accept connections
```

Created new image from running container

```
(base) λ ~/Documents/utahschoolwork/fall2020_charles_dockerkubernates/section_3/redis-image/ master* docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
cb670aa82504        alpine             "sh"               40 seconds ago     Up 39 seconds      0.0.0.0:22->22/tcp  infallible_c
handrasekhar
(base) λ ~/Documents/utahschoolwork/fall2020_charles_dockerkubernates/section_3/redis-image/ master* docker commit -c 'CMD ["redit-s
erver"]' cb670aa82504
sha256:9e3b7bdc282c343e12c24346842d2cec7d97306067e47a20d06640c0d706db6c
```