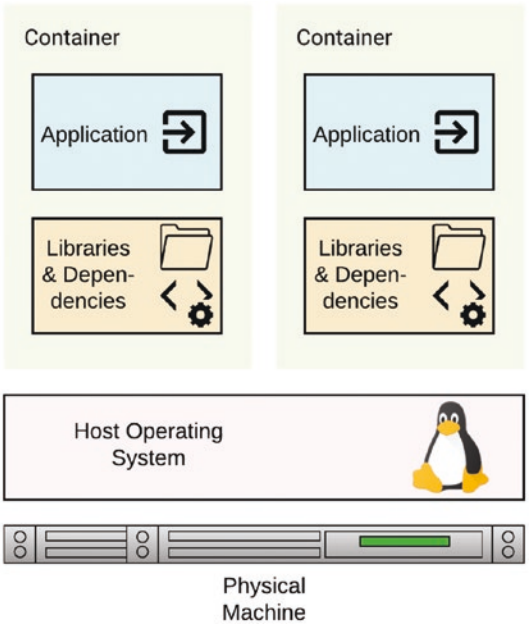

Figure 45-4. *Containers*

Working with Docker

Google Cloud Shell comes pre-configured with Docker.

Key concepts to note are

- Dockerfile: A Dockerfile is a text file that specifies how an image will be created.
- Docker images: Images are created by building a Dockerfile.
- Docker containers: Docker containers are the running instance of an image.

The diagram in Figure 45-5 highlights the process to build an image and run a Docker container.

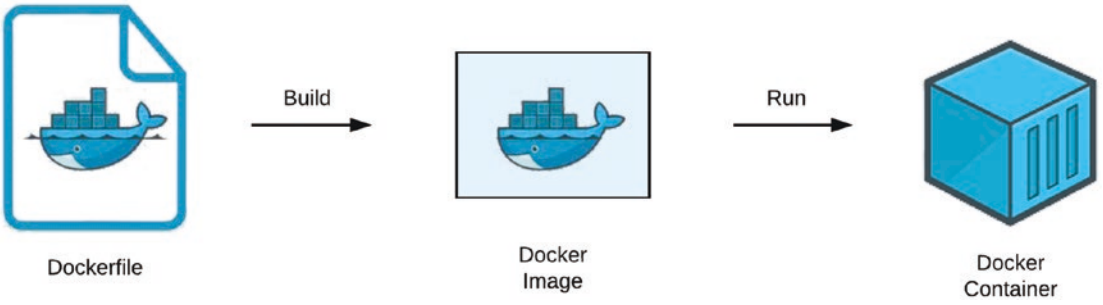

Figure 45-5. *Steps to deploying a Docker container*

Table 45-1 shows key commands when creating a Dockerfile.

Table 45-1. *Commands for Creating Dockerfiles*

Command	Description
FROM	The base Docker image for the Dockerfile.
LABEL	Key-value pair for specifying image metadata.
RUN	It executes commands on top of the current image as new layers.
COPY	Copies files from the local machine to the container file system.
EXPOSE	Exposes runtime ports for the Docker container.
CMD	Specifies the command to execute when running the container. This command is overridden if another command is specified at runtime.
ENTRYPOINT	Specifies the command to execute when running the container. Entrypoint commands are not overridden by a command specified at runtime.
WORKDIR	Set working directory of the container.
VOLUME	Mount a volume from the local machine file system to the Docker container.
ARG	Set Environment variable as a key-value pair when building the image.
ENV	Set Environment variable as a key-value pair that will be available in the container after building.

Build and Run a Simple Docker Container

Clone the book repository to run this example in Cloud Shell; we have a bash script titled **date-script.sh** in the chapter folder. The script assigns the current date to a variable and then prints out the date to the console. The Dockerfile will copy the script from the local machine to the docker container file system and execute the shell script when running the container. The Dockerfile to build the container is stored in **docker-intro/hello-world**.

```
# navigate to the folder with images
cd docker-intro/hello-world
```

Let's view the bash script.

```
cat date-script.sh
```

```
#! /bin/sh
DATE="$(date)"
echo "Todays date is $DATE"
```

Let's view the Dockerfile.

```
# view the Dockerfile
cat Dockerfile
```

```
# base image for building container
FROM docker.io/alpine
# add maintainer label
LABEL maintainer="dvdbisong@gmail.com"
# copy script from local machine to container file system
COPY date-script.sh /date-script.sh
# execute script
CMD sh date-script.sh
```

The Docker image will be built off the Alpine Linux package. See https://hub.docker.com/_/alpine. The CMD routine executes the script when the container runs.

Build the Image

Run the following command to build the Docker image.

```
# build the image
docker build -t ekababisong.org/first_image .
```