Experiment 3

AIM: Create network and attach multiple containers to it.

Create network

```
root@ubuntu-xenial:/home/vagrant#
root@ubuntu-xenial:/home/vagrant# docker network create backend-network
5d0fdf6eb13db4a6df25e8d505f296611118f3bd8cfc12fc87fea673ea1f4c53
root@ubuntu-xenial:/home/vagrant#
```

Launch new container 'redis' and connect to the backend-network

```
root@ubuntu-xenial:/home/vagrant# docker run -d --name=redis --net=backend-network redis
Unable to find image 'redis:latest' locally
latest: Pulling from library/redis
```

Inspect network

```
root@ubuntu-xenial:/home/vagrant# docker network inspect backend-network
[
    {
        "Name": "backend-network",
        "Id": "5d0fdf6eb13db4a6df25e8d505f296611118f3bd8cfc12fc87fea673ea1f4c53",
        "Created": "2021-02-13T11:43:04.202873779Z",
        "Scope": "local",
        "Driver": "bridge",
        "EnableIPv6": false,
        "IPAM": {
            "Driver": "default",
            "Options": {},
            "Config": [
                {
                    "Subnet": "172.18.0.0/16",
                    "Gateway": "172.18.0.1"
                }
            ]
        },
        "Internal": false,
        "Attachable": false,
        "Ingress": false,
        "ConfigFrom": {
            "Network": ""
```

Launch another container, connect it to the backend-network and try to ping other container on the same network

```
root@ubuntu-xenial:/home/vagrant# docker run --net=backend-network alpine ping -c1 redis
PING redis (172.18.0.2): 56 data bytes
64 bytes from 172.18.0.2: seq=0 ttl=64 time=0.346 ms

--- redis ping statistics ---
1 packets transmitted, 1 packets received, 0% packet loss
round-trip min/avg/max = 0.346/0.346/0.346 ms
root@ubuntu-xenial:/home/vagrant#
```

Create another network 'my-network'

```
root@ubuntu-xenial:/home/vagrant# docker network create my-network
2aa700b633a4ece655acd1155b579821eef97ca6f9b6c061746bc6de6cf1b5fd
```

Connect container 'redis' to the network 'my-network'

```
root@ubuntu-xenial:/home/vagrant# docker network connect my-network redis
root@ubuntu-xenial:/home/vagrant#
```

List networks

```
root@ubuntu-xenial:/home/vagrant# docker network ls
NETWORK ID          NAME                DRIVER              SCOPE
5d0fdf6eb13d        backend-network     bridge              local
562ac6c2c6fd        bridge              bridge              local
ed23ed5c374a        host                host                local
2aa700b633a4        my-network          bridge              local
86fb46fcf999        none                null                local
root@ubuntu-xenial:/home/vagrant#
```

```
root@ubuntu-xenial:/home/vagrant# docker run -it -p 3000:3001 --net=my-network --name=u ubuntu
Unable to find image 'ubuntu:latest' locally
```

```
root@a85e3f47287f:/# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 172.20.0.3  netmask 255.255.0.0  broadcast 172.20.255.255
        ether 02:42:ac:14:00:03  txqueuelen 0  (Ethernet)
        RX packets 27158  bytes 55353179 (55.3 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 17185  bytes 944966 (944.9 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        loop  txqueuelen 1  (Local Loopback)
        RX packets 14  bytes 1384 (1.3 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 14  bytes 1384 (1.3 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

Launch container c4 on network my-network and map port using -p flag

(-p host_port:container_port)

```
root@ubuntu-xenial:/home/vagrant# docker run -it -p 30002:80 --net=my-network --name=c4 ubuntu
```

Inspect c4 container

```
        "Networks": {
            "my-network": {
                "IPAMConfig": null,
                "Links": null,
                "Aliases": [
                    "83cfb1af6c64"
                ],
                "NetworkID": "2aa700b633a4ece655acd1155b579821eef97ca6f9b6c061746bc6de6cf1b5fd",
                "EndpointID": "b70760d39b9f25ad14167f79452e59fb378bf371238ea015d3953a5658d3139a",
                "Gateway": "172.20.0.1",
                "IPAddress": "172.20.0.4",
                "IPPrefixLen": 16,
                "IPv6Gateway": "",
                "GlobalIPv6Address": "",
```

To disconnect container from network

```
root@ubuntu-xenial:/home/vagrant# docker network disconnect my-network redis
```