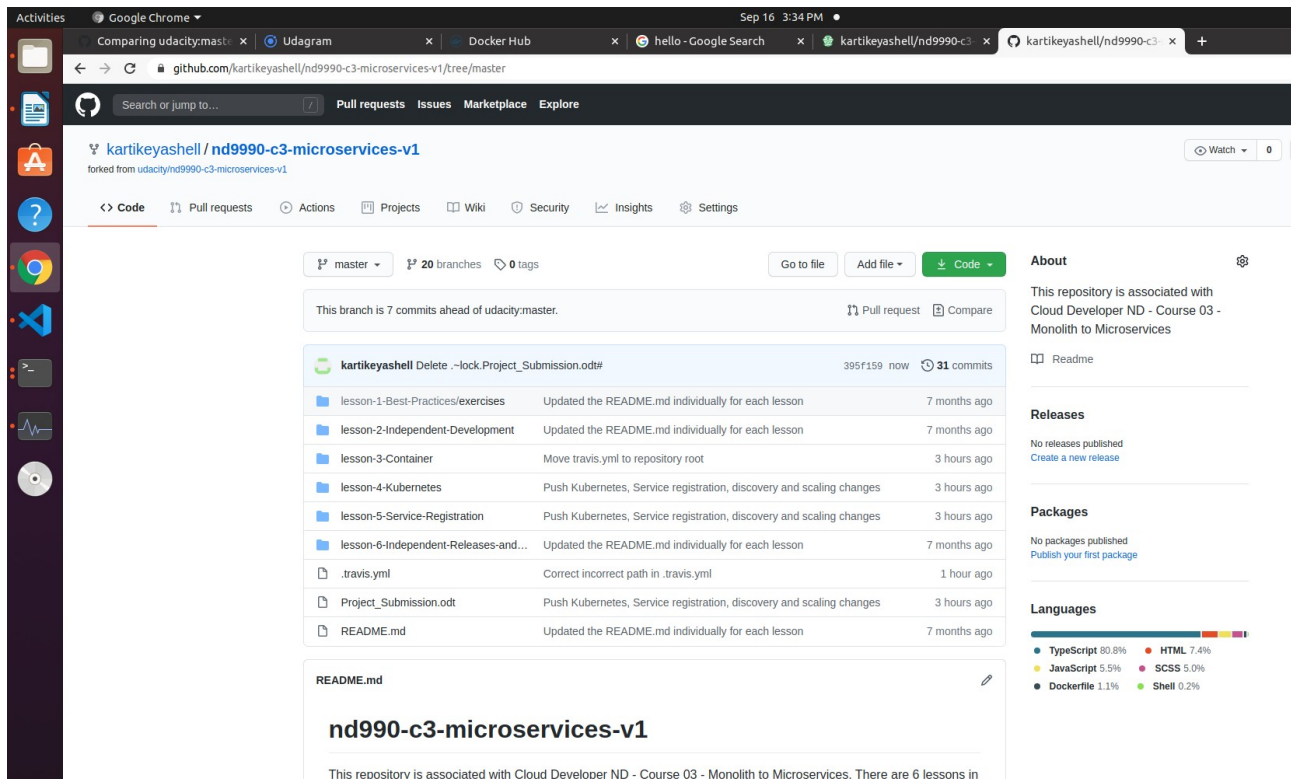


Course3: Refactor Udagram App into Microservices and Deploy

1. CI/CD, Github

- Git hub main repository: <https://github.com/kartikeyashell/nd9990-c3-microservices-v1>



The screenshot displays the GitHub repository page for `kartikeyashell/nd9990-c3-microservices-v1`. The repository is forked from `udacity/nd9990-c3-microservices-v1`. The main branch is `master`, which is 7 commits ahead of `udacity:master`. The repository contains 20 branches and 0 tags. The commit history shows several commits, including updates to the README.md file and the creation of lesson folders. The file list includes folders for lessons 1 through 6, and files like `.travis.yml`, `Project_Submission.odt`, and `README.md`. The README.md file is open, showing the title `nd9990-c3-microservices-v1` and a description of the repository.

| Commit | Message | Time |
|---|--|------------------------|
| kartikeyashell Delete .lock.Project_Submission.odt# | | 395f159 now 31 commits |
| lesson-1-Best-Practices/exercises | Updated the README.md individually for each lesson | 7 months ago |
| lesson-2-Independent-Development | Updated the README.md individually for each lesson | 7 months ago |
| lesson-3-Container | Move travis.yml to repository root | 3 hours ago |
| lesson-4-Kubernetes | Push Kubernetes, Service registration, discovery and scaling changes | 3 hours ago |
| lesson-5-Service-Registration | Push Kubernetes, Service registration, discovery and scaling changes | 3 hours ago |
| lesson-6-Independent-Releases-and... | Updated the README.md individually for each lesson | 7 months ago |
| .travis.yml | Correct incorrect path in .travis.yml | 1 hour ago |
| Project_Submission.odt | Push Kubernetes, Service registration, discovery and scaling changes | 3 hours ago |
| README.md | Updated the README.md individually for each lesson | 7 months ago |

README.md

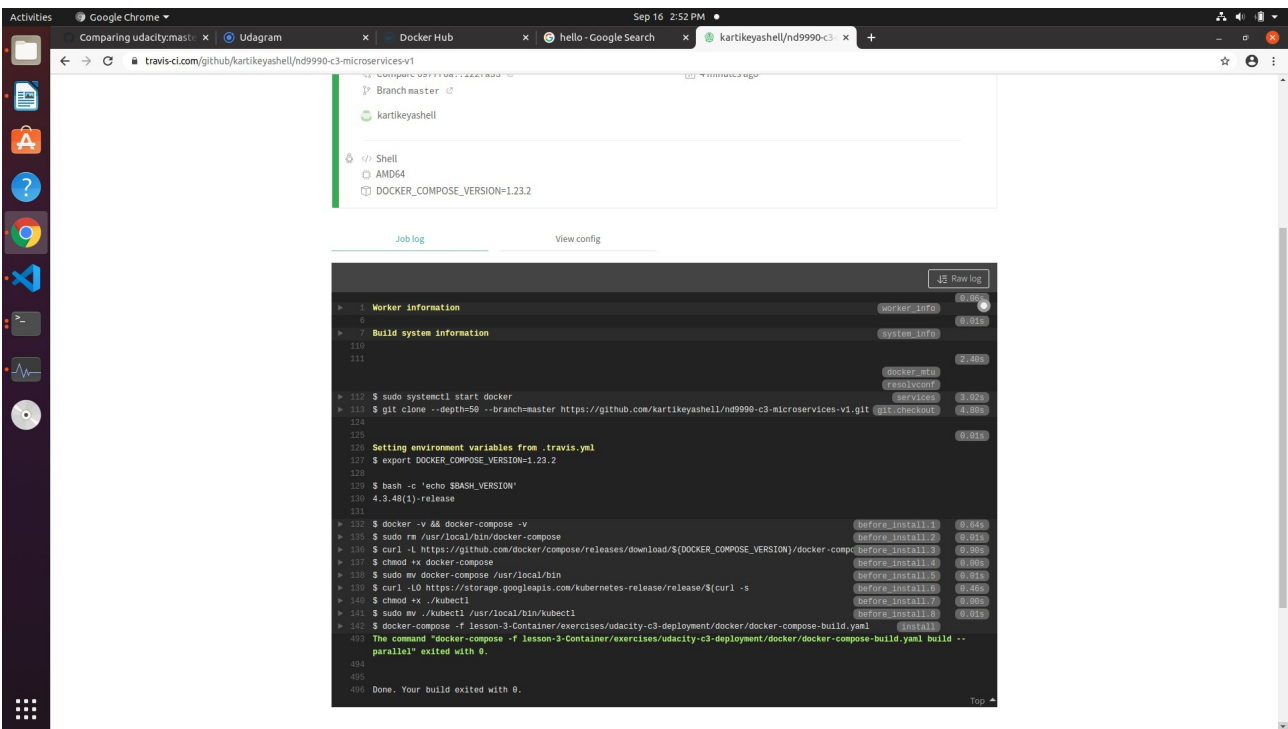
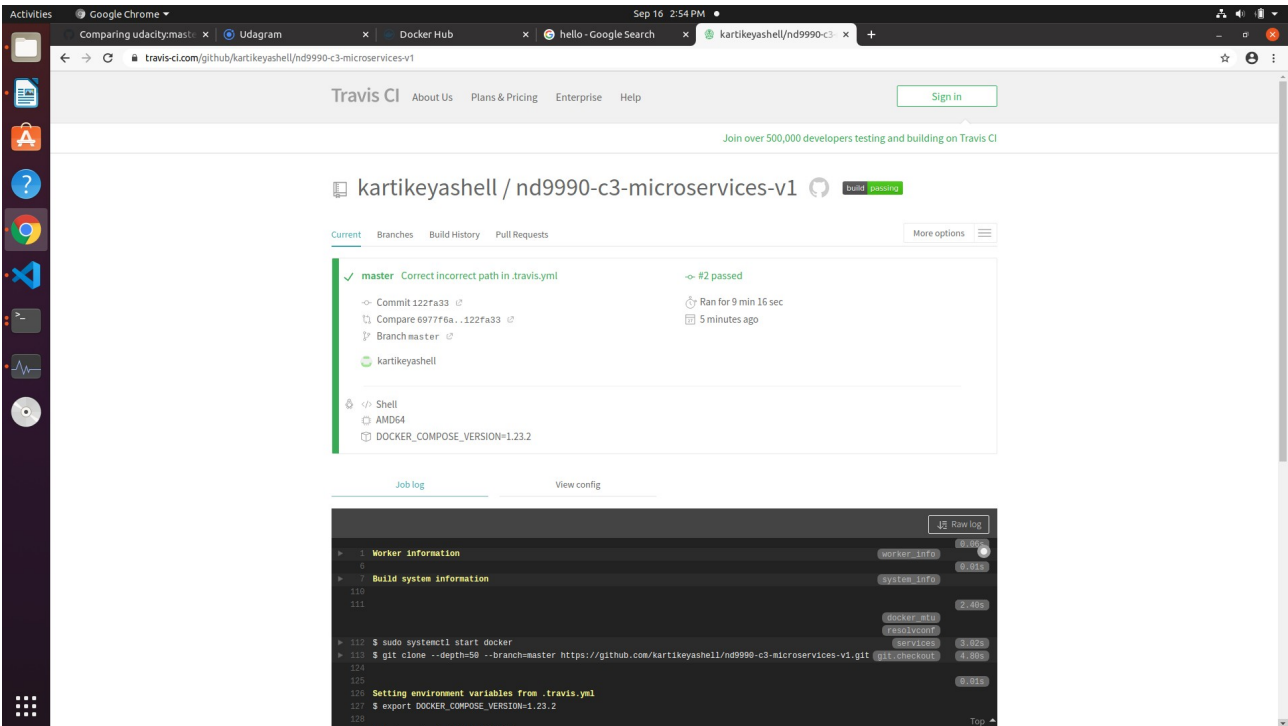
nd9990-c3-microservices-v1

This repository is associated with Cloud Developer ND - Course 03 - Monolith to Microservices. There are 6 lessons in

- Using the starter files provided in the course, changes were made to the exercises folders in the respective modules

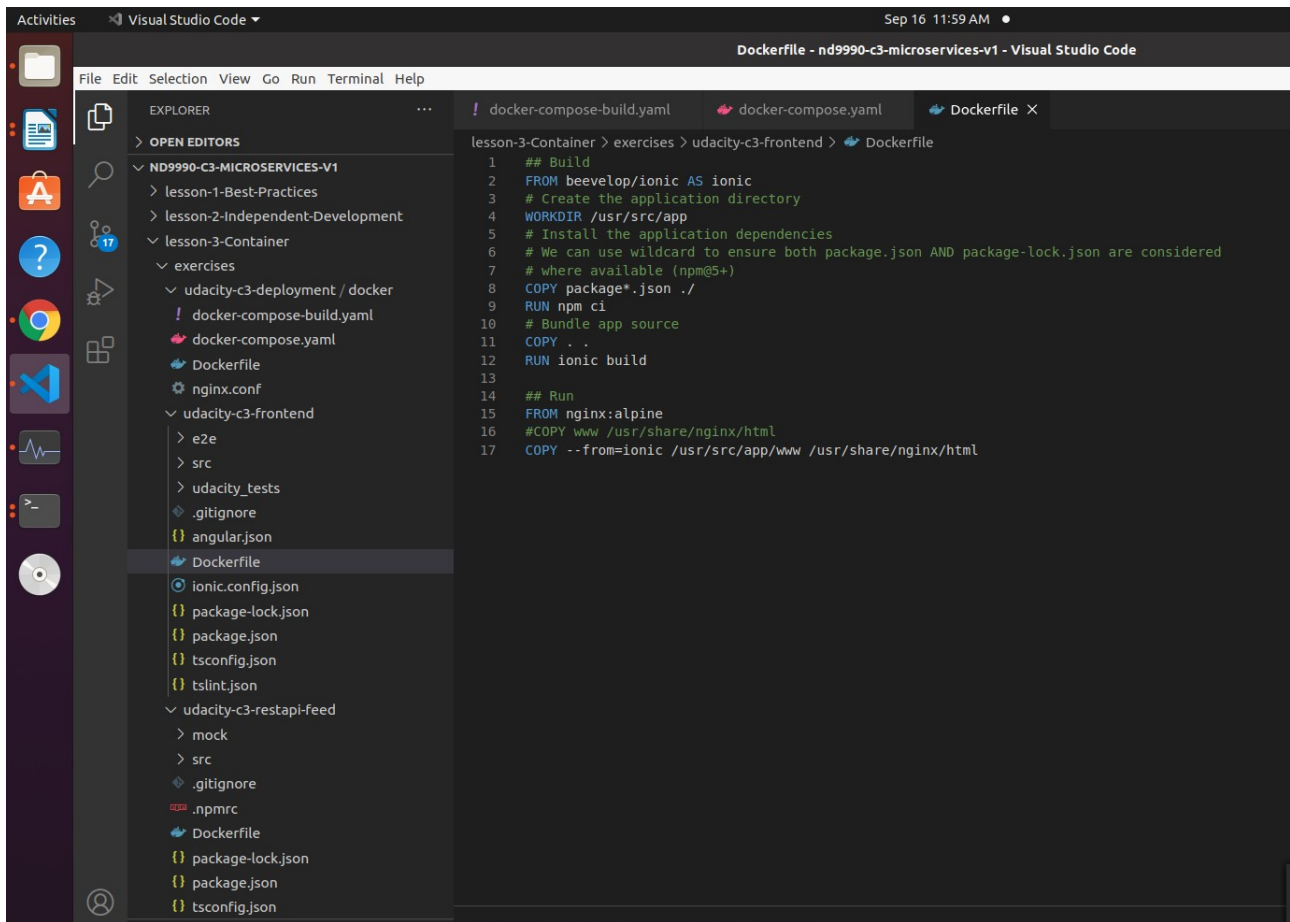
- lesson-3-Container/exercises
- lesson-4-Kubernetes/exercises
- lesson-5-Service-Registration/exercises
- .travis.yml invokes `docker-compose-build.yml` file in lesson-3-Container

- TravisCI successful build

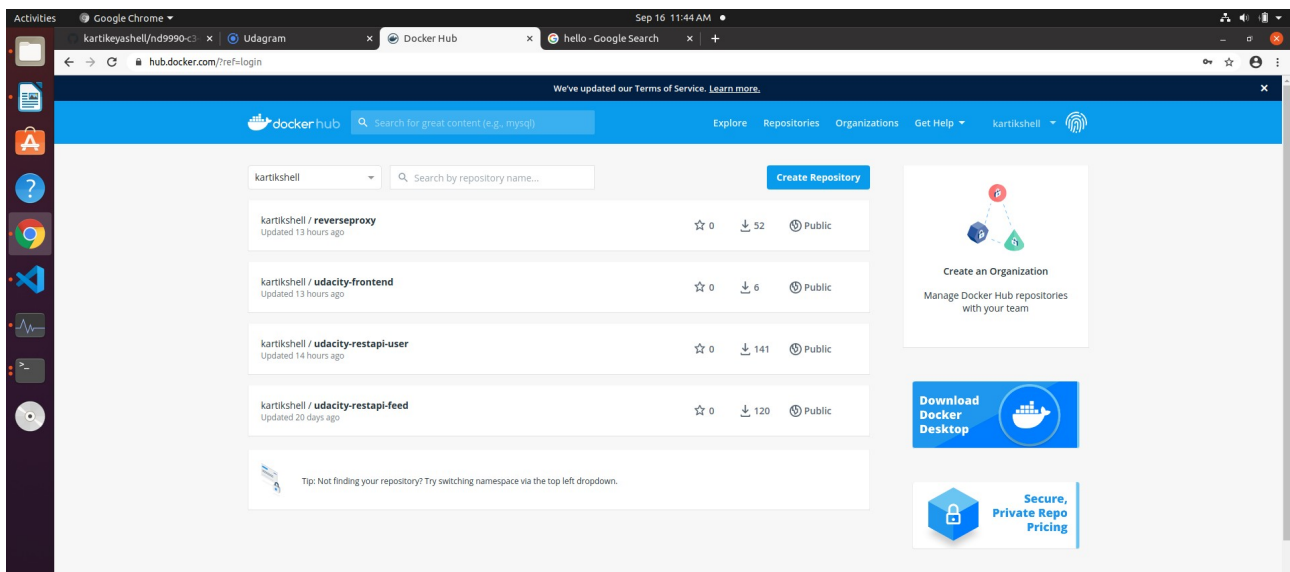


2. Container

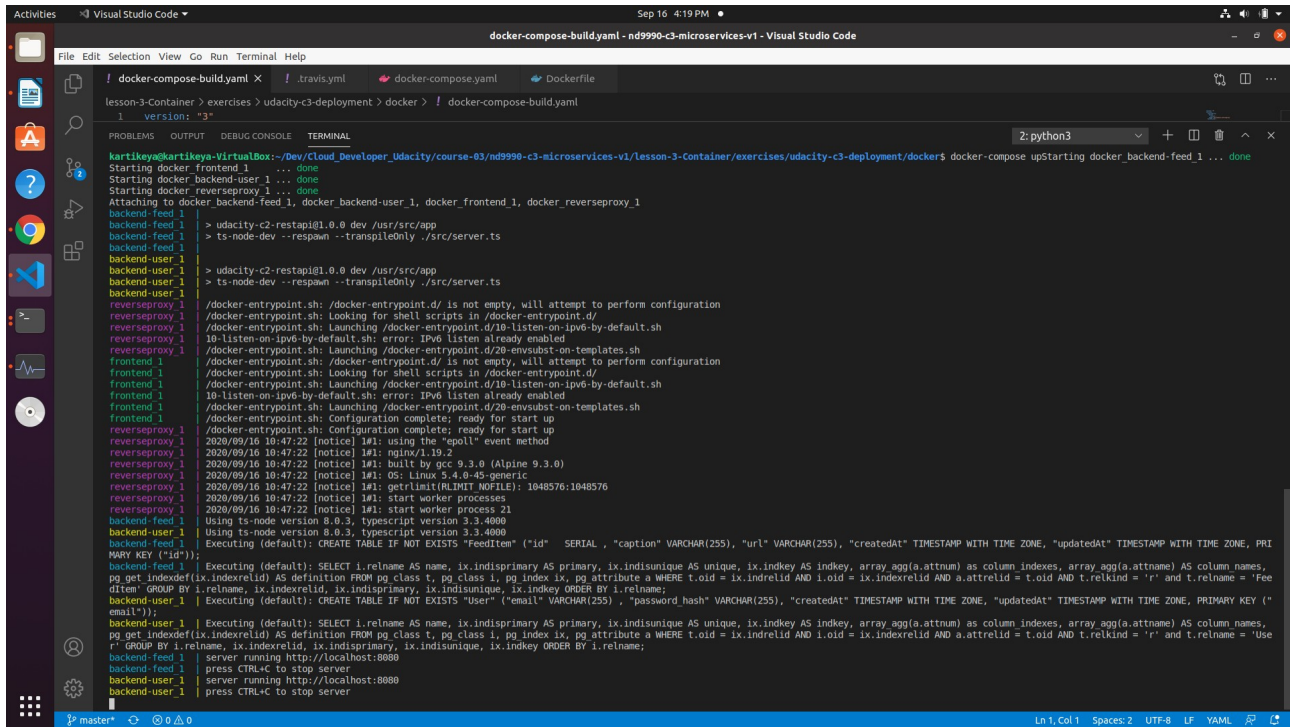
- Docker files



- Docker hub screenshot: All images pushed



- docker-compose up after building the images

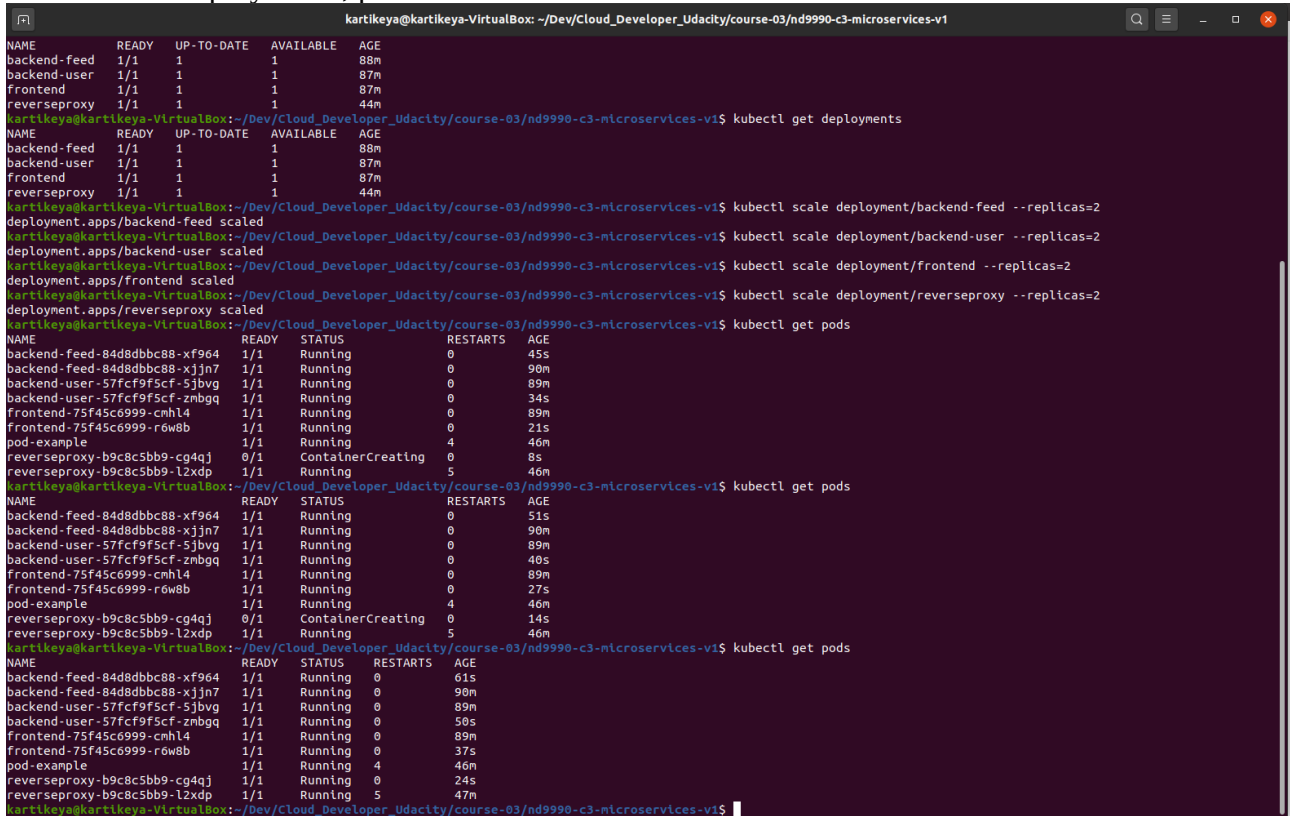


```
docker-compose-build.yaml - nd9990-c3-microservices-v1 - Visual Studio Code
File Edit Selection View Go Run Terminal Help
lesson-3-Container > exercises > udacity-c3-deployment > docker > ! docker-compose-build.yaml
1 version: "3"

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
kartikeya@kartikeya-VirtualBox: ~/Dev/Cloud_Developer_Udacity/course-03/nd9990-c3-microservices-v1/lesson-3-Container/exercises/udacity-c3-deployment/docker$ docker-compose upstarting docker backend-feed 1 ... done
Starting docker frontend 1 ... done
Starting docker backend-user 1 ... done
Starting docker reverseproxy 1 ... done
Attaching to docker_backend-feed_1, docker_backend-user_1, docker_frontend_1, docker_reverseproxy_1
backend-feed_1 | > udacity-c2-restapi@1.0.0 dev /usr/src/app
backend-feed_1 | > ts-node-dev --respawn --transpileOnly ./src/server.ts
backend-user_1 | > udacity-c2-restapi@1.0.0 dev /usr/src/app
backend-user_1 | > ts-node-dev --respawn --transpileOnly ./src/server.ts
reverseproxy_1 | /docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
reverseproxy_1 | /docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
reverseproxy_1 | /docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
reverseproxy_1 | 10-listen-on-ipv6-by-default.sh: error: IPv6 listen already enabled
reverseproxy_1 | /docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
reverseproxy_1 | /docker-entrypoint.sh: Configuration complete; ready for start up
reverseproxy_1 | /docker-entrypoint.sh: Configuration complete; ready for start up
reverseproxy_1 | 2020/09/16 10:47:22 [notice] 1#1: using the "poll" event method
reverseproxy_1 | 2020/09/16 10:47:22 [notice] 1#1: nginx/1.19.2
reverseproxy_1 | 2020/09/16 10:47:22 [notice] 1#1: built by gcc 9.3.0 (Alpine 9.3.0)
reverseproxy_1 | 2020/09/16 10:47:22 [notice] 1#1: OS: Linux 5.4.0-45-generic
reverseproxy_1 | 2020/09/16 10:47:22 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
reverseproxy_1 | 2020/09/16 10:47:22 [notice] 1#1: start worker processes
reverseproxy_1 | 2020/09/16 10:47:22 [notice] 1#1: start worker process 21
backend-feed_1 | Using ts-node version 8.0.3, typescript version 3.3.4000
backend-user_1 | Using ts-node version 8.0.3, typescript version 3.3.4000
backend-feed_1 | Executing (default): CREATE TABLE IF NOT EXISTS "FeedItem" ("id" SERIAL , "caption" VARCHAR(255), "url" VARCHAR(255), "createdAt" TIMESTAMPT WITH TIME ZONE, "updatedAt" TIMESTAMPT WITH TIME ZONE, PRI
PRIMARY KEY ("id"));
backend-feed_1 | Executing (default): SELECT i.relname AS name, ix.indisprimary AS primary, ix.indisunique AS unique, ix.index AS index, array_agg(a.attname) AS column_indexes, array_agg(a.attname) AS column_names,
pg_get_indexdef(ix.indexrelid) AS definition FROM pg_class t, pg_class i, pg_index ix, pg_attribute a WHERE t.oid = ix.indexrelid AND a.attrelid = t.oid AND t.relkind = 'r' and t.relname = 'FeedItem' GROUP BY i.relname, ix.indexrelid, ix.indisprimary, ix.indisunique, ix.index ORDER BY i.relname;
backend-user_1 | Executing (default): CREATE TABLE IF NOT EXISTS "User" ("email" VARCHAR(255) , "passwordHash" VARCHAR(255), "createdAt" TIMESTAMPT WITH TIME ZONE, "updatedAt" TIMESTAMPT WITH TIME ZONE, PRIMARY KEY ("email"));
backend-user_1 | Executing (default): SELECT i.relname AS name, ix.indisprimary AS primary, ix.indisunique AS unique, ix.index AS index, array_agg(a.attname) AS column_indexes, array_agg(a.attname) AS column_names,
pg_get_indexdef(ix.indexrelid) AS definition FROM pg_class t, pg_class i, pg_index ix, pg_attribute a WHERE t.oid = ix.indexrelid AND a.attrelid = t.oid AND t.relkind = 'r' and t.relname = 'User' GROUP BY i.relname, ix.indexrelid, ix.indisprimary, ix.indisunique, ix.index ORDER BY i.relname;
backend-feed_1 | server running http://localhost:8080
backend-user_1 | press CTRL-C to stop server
backend-feed_1 | server running http://localhost:8080
backend-user_1 | press CTRL-C to stop server
```

3. Deployment

- Kubernetes deployments, pods



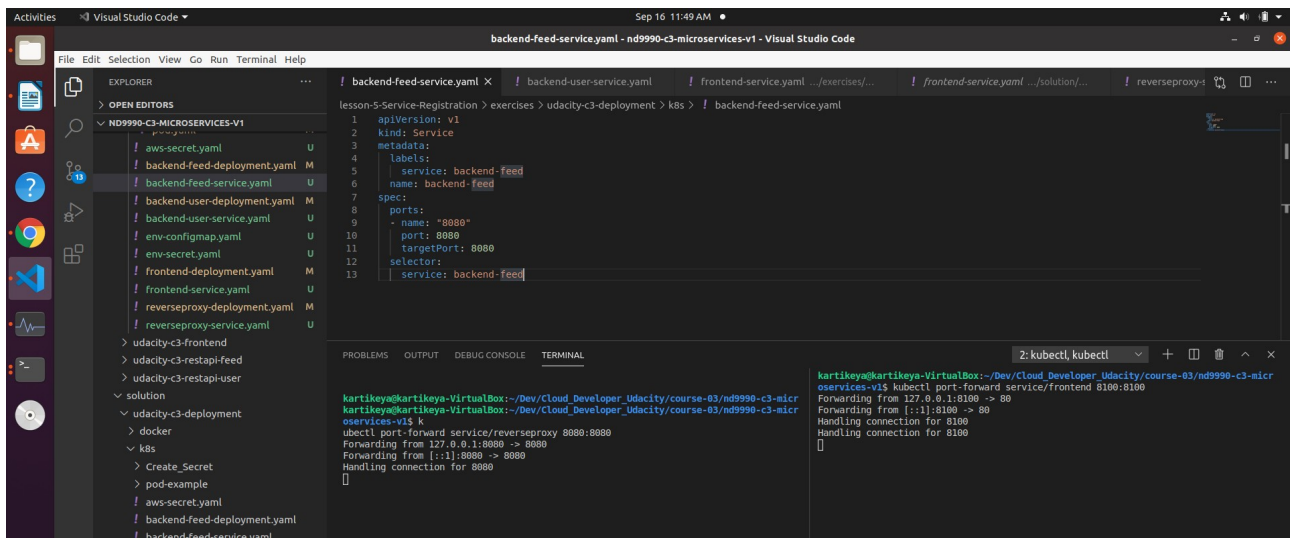
```
kartikeya@kartikeya-VirtualBox: ~/Dev/Cloud_Developer_Udacity/course-03/nd9990-c3-microservices-v1$ kubectl get deployments
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
backend-feed  1/1     1             1           88m
backend-user  1/1     1             1           87m
frontend      1/1     1             1           87m
reverseproxy  1/1     1             1           44m

kartikeya@kartikeya-VirtualBox: ~/Dev/Cloud_Developer_Udacity/course-03/nd9990-c3-microservices-v1$ kubectl scale deployment/backend-feed --replicas=2
deployment.apps/backend-feed scaled
kartikeya@kartikeya-VirtualBox: ~/Dev/Cloud_Developer_Udacity/course-03/nd9990-c3-microservices-v1$ kubectl scale deployment/backend-user --replicas=2
deployment.apps/backend-user scaled
kartikeya@kartikeya-VirtualBox: ~/Dev/Cloud_Developer_Udacity/course-03/nd9990-c3-microservices-v1$ kubectl scale deployment/frontend --replicas=2
deployment.apps/frontend scaled
kartikeya@kartikeya-VirtualBox: ~/Dev/Cloud_Developer_Udacity/course-03/nd9990-c3-microservices-v1$ kubectl scale deployment/reverseproxy --replicas=2
deployment.apps/reverseproxy scaled
kartikeya@kartikeya-VirtualBox: ~/Dev/Cloud_Developer_Udacity/course-03/nd9990-c3-microservices-v1$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
backend-feed-84d8dbbc88-xf964  1/1     Running   0           45s
backend-feed-84d8dbbc88-xjjn7  1/1     Running   0           90m
backend-user-57fcf9f5cf-5jbgv  1/1     Running   0           89m
backend-user-57fcf9f5cf-zmbgq  1/1     Running   0           34s
frontend-75f45c6999-cmh14      1/1     Running   0           89m
frontend-75f45c6999-r6w8b      1/1     Running   0           21s
pod-example                    1/1     Running   4           46m
reverseproxy-b9c8c5bb9-cg4qj   0/1     ContainerCreating  0           8s
reverseproxy-b9c8c5bb9-lzxdp   1/1     Running   5           46m

kartikeya@kartikeya-VirtualBox: ~/Dev/Cloud_Developer_Udacity/course-03/nd9990-c3-microservices-v1$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
backend-feed-84d8dbbc88-xf964  1/1     Running   0           51s
backend-feed-84d8dbbc88-xjjn7  1/1     Running   0           90m
backend-user-57fcf9f5cf-5jbgv  1/1     Running   0           89m
backend-user-57fcf9f5cf-zmbgq  1/1     Running   0           40s
frontend-75f45c6999-cmh14      1/1     Running   0           89m
frontend-75f45c6999-r6w8b      1/1     Running   0           27s
pod-example                    1/1     Running   4           46m
reverseproxy-b9c8c5bb9-cg4qj   0/1     ContainerCreating  0           14s
reverseproxy-b9c8c5bb9-lzxdp   1/1     Running   5           46m

kartikeya@kartikeya-VirtualBox: ~/Dev/Cloud_Developer_Udacity/course-03/nd9990-c3-microservices-v1$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
backend-feed-84d8dbbc88-xf964  1/1     Running   0           61s
backend-feed-84d8dbbc88-xjjn7  1/1     Running   0           90m
backend-user-57fcf9f5cf-5jbgv  1/1     Running   0           89m
backend-user-57fcf9f5cf-zmbgq  1/1     Running   0           50s
frontend-75f45c6999-cmh14      1/1     Running   0           89m
frontend-75f45c6999-r6w8b      1/1     Running   0           37s
pod-example                    1/1     Running   4           46m
reverseproxy-b9c8c5bb9-cg4qj   1/1     Running   0           24s
reverseproxy-b9c8c5bb9-lzxdp   1/1     Running   5           47m
```

- Port forwarding



- Application

