

Dockerizing the Recipe Management System

I containerized the Recipe Management System using Docker Compose with two services: a Node.js service for the backend (which also serves the frontend static files) and a MongoDB service for the database. This architecture mirrors the production application structure and maintains clear separation of concerns. I built the application image from the repository root using a lightweight Node 20 Alpine base image, which reduces the final image size significantly compared to the standard Node image. The Dockerfile follows Docker best practices by copying package.json first, then running npm install, and finally copying the application code. This layering strategy optimizes build caching, meaning subsequent builds are faster when only application code changes, not dependencies.

Runtime configuration is supplied via environment variables in docker-compose.yml, including MONGO_URI pointing to the Mongo service and JWT_SECRET for authentication. This approach keeps sensitive secrets out of the repository while still allowing a marker to run the application in a clean environment. I explicitly documented in the README that JWT_SECRET should be changed before production deployment, demonstrating awareness of security best practices even in an academic context.

The main technical challenges I encountered were container port conflicts and case-sensitive file system issues. Port 27017 was already occupied by my local MongoDB instance, so I remapped the host port to 27018 while keeping 27017 internal to the container network. Similarly, port 5000 was in use, so I mapped the application to 5001 on the host. A more subtle issue was a case-sensitive import error (./models/meals versus ./models/Meals) that only manifested in Docker's Linux filesystem. This worked fine on my macOS development environment but crashed immediately in the container. Fixing these import statements to match exact file casing resolved the issue, which reinforced the importance of testing in environments that mirror production.

I chose Docker Compose over individual docker run commands because it provides a declarative way to define the entire application stack, making it trivial for a marker to start everything with a single command. The depends_on directive ensures MongoDB starts before the application, though I learned this only controls startup order, not readiness. In production, I would implement health checks to ensure MongoDB is actually accepting connections before the app attempts to connect. I also configured a named volume (mongo_data) for database persistence, ensuring data survives container restarts. Initially, I experimented with anonymous volumes but discovered data loss when recreating containers, which led me to the more robust named volume approach.

The most challenging aspect was ensuring true end-to-end functionality in the containerized environment, including database-backed features like user authentication and recipe creation. The most rewarding moment was successfully running docker compose up --build and seeing the full stack—UI, API, and database—working correctly with zero manual configuration. Verifying the /api/student identity endpoint returned my name and student ID in the container confirmed everything was properly integrated. This experience has given me practical skills in application deployment and containerization that extend well beyond academic requirements into real-world DevOps practices.

1. Clean environment

```
Last login: Thu Feb  5 09:12:51 on ttys007
shenallfernando@shenals-MacBook-Pro ~ % cd /Users/shenallfernando/Documents/T3/Recipe-Management-System
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % docker compose down -v
WARN[0000] /Users/shenallfernando/Documents/T3/Recipe-Management-System/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] Running 4/4
✓ Container rms-app           Removed
✓ Container rms-mongo          Removed
✓ Volume recipe-management-system_mongo_data   Removed
✓ Network recipe-management-system_default    Removed
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % 
```

2. Build and start

```
Last login: Thu Feb  5 09:12:51 on ttys007
shenallfernando@shenals-MacBook-Pro ~ % cd /Users/shenallfernando/Documents/T3/Recipe-Management-System
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % docker compose down -v
WARN[0000] /Users/shenallfernando/Documents/T3/Recipe-Management-System/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] Running 4/4
✓ Container rms-app           Removed
✓ Container rms-mongo          Removed
✓ Volume recipe-management-system_mongo_data   Removed
✓ Network recipe-management-system_default    Removed
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % docker compose up --build -d
WARN[0000] /Users/shenallfernando/Documents/T3/Recipe-Management-System/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] Building 2.7s (14/14) FINISHED
--> [internal] load local Dockerfile definitions
--> [internal] load .dockerignore
--> [internal] load build environment from Dockerfile
--> => transferring dockerfile: 267B
--> [internal] long metadata for docker.io/library/node:20-alpine
--> [internal] load .dockerignore
--> => transferring context: 156B
--> [internal] FROM docker.io/library/node:20-alpine@sha256:09e2b3d972d81aecf269bd35325f46bf75846a43a6d28380ec71132750ec8
--> => referencing docker.io/library/node:20-alpine@sha256:09e2b3d972d81aecf269bd35325f46bf75846a43a6d28380ec71132750ec8
--> [internal] load build context
--> => transferring context: 21.05kB
--> CACHED [2/7] WORKDIR /app
--> CACHED [3/7] COPY backend/package*.json ./app/backend/
--> CACHED [4/7] RUN curl /app/backend && npm install
=> [5/7] COPY frontend /app/frontend
=> [6/7] COPY frontend /app/backend
=> [7/7] WORKDIR /app/backend
--> exporting to image
--> => exporting layers
--> => exporting manifest sha256:0d2c72ee9b776bd4e51d839cc3a23437ca8e24f825795f2c8f6f423fc831795
--> => exporting config sha256:0c220bbdd94099935254a0cc3266590f231841b5b27ae00770c99fe8
--> => exporting attributes list sha354:0efcd5cd10a8ff4d4de789fe8a352df2d2ae8c299feff52235f2bd8fb271075f
--> => exporting manifest list sha354:05ab889726922d62488b52aee499e20b0852623338a5d373fe70635362dd71b
--> => naming to docker.io/library/recipe-management-system-app:latest
--> => unpacking to docker.io/library/recipe-management-system-app:latest
--> resolving provenance for metadata file
[+] Running 5/5
✓ recipe-management-system-app      Built
✓ Network recipe-management-system_default    Created
✓ Volume recipe-management-system_mongo_data   Created
✓ Container rms-mongo          Started
✓ Container rms-app           Started
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % 
```

3. Wait for services to be ready

```
Last login: Thu Feb 5 00:12:51 on ttys007
shenalfernando@shenals-MacBook-Pro ~ % cd /Users/shenalfernando/Documents/T3/Recipe-Management-System
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker compose down -v
WARN[0000] /Users/shenalfernando/Documents/T3/Recipe-Management-System/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
[*] Stopping services...
  ✓ Container rms-app           Removed
  ✓ Container rms-mongo         Removed
  ✓ Volume recipe-management-system_mongo_data Removed
  ✓ Network recipe-management-system_default Removed
Shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker compose up --build -d
WARN[0000] /Users/shenalfernando/Documents/T3/Recipe-Management-System/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
[*] Building 2.7s (14/14) FINISHED
  => [internal] load local bake definitions
  => => reading from stdin 0kB
  => [internal] load build definition from Dockerfile
  => => transferring dockerfile: 267B
  => [internal] load build context for docker.io/library/node:20-alpine
  => [internal] load .dockerignore
  => => transferring context: 156B
  => [1/7] FROM docker.io/library/node:20-alpine@sha256:0%e2b3d9726818aecf269bd35325f46bf75046a643a6dd28360ec71132750ec8
  => => resolve docker.io/library/node:20-alpine@sha256:0%e2b3d9726818aecf269bd35325f46bf75046a643a6dd28360ec71132750ec8
  => [internal] load build context: 21.05kB
  => => transferring context: 21.05kB
  => CACHED [2/7] WORKDIR /app
  => CACHED [3/7] COPY backend/package*.json /app/backend/
  => CACHED [4/7] RUN npm install
  => [5/7] COPY backend /app/backend
  => [6/7] COPY frontend /app/frontend
  => [7/7] WORKDIR /app/backend
  => exporting layers
  => => exporting layers
  => => exporting config sha256:c22bd3bddc1a154d59f8c5f10acc23de650a90f23184b927ae08770ca99fe8
  => => exporting attestation manifest sha256:9bfccacd9abf4de4ad47b9ea3b2df2d2ae5c299efef52235f2bd8fb271075f
  => => exporting manifest list sha256:eab08a9726929d6488b5a2ae49b62be052823338a5d373fef0035362dd71b
  => => naming to docker.io/library/recipe-management-system-app:latest
  => => unpacking to docker.io/library/recipe-management-system-app:latest
  => resolving provenance for metadata file
[*] Running 5/5
  ✓ recipe-management-system-app   Built
  ✓ Network recipe-management-system_default Created
  ✓ Volume recipe-management-system_mongo_data Created
  ✓ Container rms-mongo           Started
  ✓ Container rms-app             Started
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % sleep 10
```

4. Check running containers

```
Last login: Thu Feb 5 00:12:51 on ttys007
shenalfernando@shenals-MacBook-Pro ~ % cd /Users/shenalfernando/Documents/T3/Recipe-Management-System
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker compose down -v
WARN[0000] /Users/shenalfernando/Documents/T3/Recipe-Management-System/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
[*] Stopping services...
  ✓ Container rms-app           Removed
  ✓ Container rms-mongo         Removed
  ✓ Volume recipe-management-system_mongo_data Removed
  ✓ Network recipe-management-system_default Removed
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker compose up --build -d
WARN[0000] /Users/shenalfernando/Documents/T3/Recipe-Management-System/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
[*] Building 2.7s (14/14) FINISHED
  => [internal] load local bake definitions
  => => reading from stdin 0kB
  => [internal] load build definition from Dockerfile
  => => transferring dockerfile: 267B
  => [internal] load build context for docker.io/library/node:20-alpine
  => => transferring context: 156B
  => [1/7] FROM docker.io/library/node:20-alpine@sha256:0%e2b3d9726818aecf269bd35325f46bf75046a643a6dd28360ec71132750ec8
  => => resolve docker.io/library/node:20-alpine@sha256:0%e2b3d9726818aecf269bd35325f46bf75046a643a6dd28360ec71132750ec8
  => [internal] load build context
  => => transferring context: 21.05kB
  => CACHED [2/7] WORKDIR /app
  => CACHED [3/7] COPY backend/package*.json /app/backend/
  => CACHED [4/7] RUN npm install
  => [5/7] COPY backend /app/backend
  => [6/7] COPY frontend /app/frontend
  => [7/7] WORKDIR /app/backend
  => exporting to image
  => => exporting layers
  => => exporting manifest sha256:9bfccacd9abf4de4ad47b9ea3b2df2d2ae5c299efef52235f2bd8fb271075f
  => => exporting config sha256:c22bd3bddc1a154d59f8c5f10acc23de650a90f23184b927ae08770ca99fe8
  => => exporting attestation manifest sha256:eab08a9726929d6488b5a2ae49b62be052823338a5d373fef0035362dd71b
  => => exporting manifest list sha256:eab08a9726929d6488b5a2ae49b62be052823338a5d373fef0035362dd71b
  => => naming to docker.io/library/recipe-management-system-app:latest
  => => unpacking to docker.io/library/recipe-management-system-app:latest
  => resolving provenance for metadata file
[*] Running 5/5
  ✓ recipe-management-system-app   Built
  ✓ Network recipe-management-system_default Created
  ✓ Volume recipe-management-system_mongo_data Created
  ✓ Container rms-mongo           Started
  ✓ Container rms-app             Started
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % sleep 10
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
8bed54db7a0 recipe-management-system-app "docker-entrypoint.s..." 47 seconds ago Up 47 seconds 0.0.0.0:5001->5000/tcp, ::1:5001->5000/tcp NAMES
d9eb08bea58 mongo:7 "docker-entrypoint.s..." 48 seconds ago Up 47 seconds 0.0.0.0:27018->27017/tcp, ::1:27018->27017/tcp rms-mongo
d5a019bed7d securereshift-frontend-employer "docker-entrypoint.s..." 3 days ago Up 23 hours 0.0.0.0:3000->3000/tcp, ::1:3000->3000/tcp securereshift-frontend-employer
688176fad56 securereshift-backend "docker-entrypoint.s..." 3 days ago Up 23 hours 5000/tcp securereshift-backend
b64ba27feea2e mongo:7 "docker-entrypoint.s..." 3 days ago Up 23 hours 0.0.0.0:27017->27017/tcp, ::1:27017->27017/tcp securereshift-db
shenalfernando@shenals-MacBook-Pro Recipe-Management-System %
```

5. Check app logs

```
Last login: Thu Feb 5 00:12:51 on ttys007
shenalfernando@shenals-MacBook-Pro ~ % cd /Users/shenalfernando/Documents/T3/Recipe-Management-System
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker compose down -v
WARN[0000] /Users/shenalfernando/Documents/T3/Recipe-Management-System/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] running 4/4
  ✓ Container rms-app
  ✓ Container rms-mongo
  ✓ Volume recipe-management-system_mongo_data
  ✓ Network recipe-management-system_default
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker compose up --build -d
WARN[0000] /Users/shenalfernando/Documents/T3/Recipe-Management-System/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] Building 2.7s (14/14) FINISHED
--> [internal] load local bake definitions
--> => reading from stdin 0kB
--> [internal] load build definition from Dockerfile
--> => transferring dockerfile: 267B
--> [internal] load metadata for docker.io/library/node:20-alpine
--> [internal] load .dockignore
--> => transferring context: 1568
--> [1/7] FROM docker.io/library/node:20-alpine@sha256:0%e2b3d972681aecf269bd35325f46bf75046a643a6dd28360ec71132750ec8
--> => resolve docker.io/library/node:20-alpine@sha256:0%e2b3d972681aecf269bd35325f46bf75046a643a6dd28360ec71132750ec8
--> [internal] load build context: 21.05kB
--> => transferring context: 21.05kB
--> CACHED [2/7] WORKDIR /app
--> CACHED [3/7] COPY backend/package*.json ./app/backend/
--> CACHED [4/7] RUN curl /app/backend && npm install
--> [5/7] COPY backend ./app/backend
--> [6/7] COPY frontend ./app/frontend
--> [7/7] WORKDIR /app/backend
--> export RMS_APP=1
--> => exporting layers
--> => exporting manifest sha256:0d2c72ee9b776b4d31168834bc3a23437ca8e24f825795f2c8f6f423fc3b1795
--> => exporting config sha256:c22bd8bddcfa15459f8c5f10acc23de650a90f23184b927ae08770c0a99fe8
--> => exporting attestation manifest sha256:0bfcfcacd9abf4de4ad47b9eaa3b2cf2d2aeec2990eff52235f2b8dfbb271075f
--> => exporting manifest list sha256:eab08a9726929d648b8b52ae49b0d2be052823338a5d373ffef0035362dd71b
--> => naming the docker library/recipe-management-system:app:latest
--> => packing the docker library/recipe-management-system:app:latest
--> => resolving provenance for metadata file
[+] Running 5/5
  ✓ recipe-management-system-app
  ✓ Network recipe-management-system_default
  ✓ Volume recipe-management-system_mongo_data
  ✓ Container rms-mongo
  ✓ Container rms-app
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % sleep 10
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
8bed54abc7a0 recipe-management-system-app "docker-entrypoint.s..." 47 seconds ago Up 47 seconds 0.0.0.0:5001->5000/tcp, ::1:5001->5000/tcp rms-app
d9eb88ee659 mongo7 "docker-entrypoint.s..." 48 seconds ago Up 47 seconds 0.0.0.0:27018->27017/tcp, ::1:27018->27017/tcp rms-mongo
65c0a2a0a25a secureshift-frontend-employer "docker-entrypoint.s..." 3 days ago Up 23 hours 0.0.0.0:3000->3000/tcp, ::1:3000->3000/tcp secureshift-frontend-employer
6881761ed56 secureshift-backend "docker-entrypoint.s..." 3 days ago Up 23 hours 5000/tcp, ::1:5000->5000/tcp secureshift-backend
b64ba2feea2e mongo6 "docker-entrypoint.s..." 3 days ago Up 23 hours 0.0.0.0:27017->27017/tcp, ::1:27017->27017/tcp secureshift-db
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker logs rms-app | tail -20
[dotenv@17.2.3] injecting env (1) from .env -- tip: ⚡ suppress all logs with { quiet: true }
[dotenv@17.2.3] injecting env (8) from .env -- tip: 🛡 sync secrets across teammates & machines: https://dotenvx.com/ops
Activities route loaded successfully
MongoDB connected
Database connected
Server running on http://localhost:5000..
shenalfernando@shenals-MacBook-Pro Recipe-Management-System %
```

6. Test student endpoint

```
[+] Running 4/4
  ✓ Container rms-app
  ✓ Container rms-mongo
  ✓ Volume recipe-management-system_mongo_data
  ✓ Network recipe-management-system_default
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker compose up --build -d
WARN[0000] /Users/shenalfernando/Documents/T3/Recipe-Management-System/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] Building 2.7s (14/14) FINISHED
--> [internal] load local bake definitions
--> => reading from stdin 0kB
--> [internal] load build definition from Dockerfile
--> => transferring dockerfile: 267B
--> [internal] load metadata for docker.io/library/node:20-alpine
--> [internal] load .dockignore
--> => transferring context: 1568
--> [1/7] FROM docker.io/library/node:20-alpine@sha256:0%e2b3d972681aecf269bd35325f46bf75046a643a6dd28360ec71132750ec8
--> => resolve docker.io/library/node:20-alpine@sha256:0%e2b3d972681aecf269bd35325f46bf75046a643a6dd28360ec71132750ec8
--> [internal] load build context: 21.05kB
--> => transferring context: 21.05kB
--> CACHED [2/7] WORKDIR /app
--> CACHED [3/7] COPY backend/package*.json ./app/backend/
--> CACHED [4/7] RUN curl /app/backend && npm install
--> [5/7] COPY backend ./app/backend
--> [6/7] COPY frontend ./app/frontend
--> [7/7] WORKDIR /app/backend
--> export RMS_APP=1
--> => exporting layers
--> => exporting manifest sha256:0d2c72ee9b776b4d31168834bc3a23437ca8e24f825795f2c8f6f423fc3b1795
--> => exporting config sha256:c22bd8bddcfa15459f8c5f10acc23de650a90f23184b927ae08770c0a99fe8
--> => exporting attestation manifest sha256:0bfcfcacd9abf4de4ad47b9eaa3b2cf2d2aeec2990eff52235f2b8dfbb271075f
--> => exporting manifest list sha256:eab08a9726929d648b8b52ae49b0d2be052823338a5d373ffef0035362dd71b
--> => naming the docker library/recipe-management-system:app:latest
--> => packing the docker library/recipe-management-system:app:latest
--> => resolving provenance for metadata file
[+] Running 5/5
  ✓ recipe-management-system-app
  ✓ Network recipe-management-system_default
  ✓ Volume recipe-management-system_mongo_data
  ✓ Container rms-mongo
  ✓ Container rms-app
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % sleep 10
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
8bed54abc7a0 recipe-management-system-app "docker-entrypoint.s..." 47 seconds ago Up 47 seconds 0.0.0.0:5001->5000/tcp, ::1:5001->5000/tcp rms-app
d9eb88ee659 mongo7 "docker-entrypoint.s..." 48 seconds ago Up 47 seconds 0.0.0.0:27018->27017/tcp, ::1:27018->27017/tcp rms-mongo
65c0a2a0a25a secureshift-frontend-employer "docker-entrypoint.s..." 3 days ago Up 23 hours 0.0.0.0:3000->3000/tcp, ::1:3000->3000/tcp secureshift-frontend-employer
6881761ed56 secureshift-backend "docker-entrypoint.s..." 3 days ago Up 23 hours 5000/tcp, ::1:5000->5000/tcp secureshift-backend
b64ba2feea2e mongo6 "docker-entrypoint.s..." 3 days ago Up 23 hours 0.0.0.0:27017->27017/tcp, ::1:27017->27017/tcp secureshift-db
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker logs rms-app | tail -20
[dotenv@17.2.3] injecting env (1) from .env -- tip: ⚡ suppress all logs with { quiet: true }
[dotenv@17.2.3] injecting env (8) from .env -- tip: 🛡 sync secrets across teammates & machines: https://dotenvx.com/ops
Activities route loaded successfully
MongoDB connected
Database connected
Server running on http://localhost:5000..
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % curl -s http://localhost:5001/api/student | jq
{
  "name": "Luis Henadiges Shenal Naveen Fernando",
  "studentId": "224324112"
}
shenalfernando@shenals-MacBook-Pro Recipe-Management-System %
```

7. Check MongoDB connection

```

✓ Container rms-mongo Removed
✓ Volume recipe-management-system_mongo_data Removed
✓ Network recipe-management-system_default Removed
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % docker compose up --build -d
[WARN]@0001 /Users/shenallfernando/Documents/T3/Recipe-Management-System/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
[*] Building 2.7s (14/14) FINISHED
  => [internal] load local bake definitions
  => reading from stdin 6038
  => [internal] load build definition from Dockerfile
  => [internal] load context from ., context: 267B
  => [internal] load metadata for docker.io/library/node:20-alpine
  => [internal] load .dockerignore
  => [internal] transfer manifest context: 156B
  => [1/7] FROM docker.io/library/node:20-alpine@sha256:0%e2b3d97726b18aecf269bd35325f46bf75046a643a6dd28360ec71132750ec8
  => [2/7] COPY backend/package*.json ./app/backend
  => [internal] load build context from Dockerfile
  => [internal] load .dockerignore
  => [internal] transfer manifest context: 21.05kB
  => CACHED [2/7] WORKDIR /app
  => CACHED [3/7] COPY backend/package*.json ./app/backend/
=> CACHED [4/7] RUN cd ./app/backend && npm install
=> [5/7] COPY backend ./app/backend
=> [6/7] COPY frontend ./app/frontend
=> [7/7] COPY ./app/frontend ./app/backend
  => exporting to image
  => exporting layers
  => exporting manifest sha256:0d2c72ee9b776b4d31168834bc3a23437ca8e24f825795f2c8f6f423fc31795
  => exporting config sha256:c22bd3bbdcfa154d59f8c5f104cc23de650a90f2310418927a0e0770ca99fe8
  => => exporting attestation manifest sha256:08fcfcacd9abf42e4ad47b9eaa3b2df2daea5c299ef5f52235f2bd8fb271075f
  => => naming to docker.io/library/recipe-management-system-app:latest
  => => unpacking to docker.io/library/recipe-management-system-app:latest
  => resolving provenance for metadata file
[*] Running 5/5
✓ recipe-management-system-app Built
✓ Network recipe-management-system_default Created
✓ Volume recipe-management-system_mongo_data Created
✓ Container rms-mongo Started
✓ Container rms-app Started
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % sleep 10
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
8bed54bc7a0 recipe-management-system-app "docker-entrypoint.s..." 47 seconds ago Up 47 seconds 0.0.0.0:5000->5000/tcp, [:]:5001->5000/tcp rms-app
d9eb88eae59 mongo7 "docker-entrypoint.s..." 48 seconds ago Up 47 seconds 0.0.0.0:27018->27017/tcp, [:]:27018->27017/tcp rms-mongo
d5a019ede5d securshift-frontend-employer "docker-entrypoint.s..." 3 days ago Up 23 hours 0.0.0.0:3000->3000/tcp, [:]:3000->3000/tcp securshift-frontend-employer
688176fad56 securshift-backend "docker-entrypoint.s..." 3 days ago Up 23 hours 5000/tcp securshift-backend
b64ba2feea2 mongo16 "docker-entrypoint.s..." 3 days ago Up 23 hours 0.0.0.0:27017->27017, [:]:27017->27017/tcp securshift-db
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % docker logs rms-app | tail -20
[dotenv@17.2.3] Injecting env (1) from .env -- tip: ⚡ suppress all logs with { quiet: true }
[dotenv@17.2.3] Injecting env (8) from .env -- tip: 🛡 sync secrets across teammates & machines: https://dotenvx.com/ops
Activities route loaded successfully
MongoDB connected
Database connected
Server running on http://localhost:5000...
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % curl -s http://localhost:5001/api/student | jq
{
  "name": "Luwis Henndadic Shenal Naveen Fernando",
  "studentId": "24324112"
}
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % curl -s http://localhost:5001/api/student | jq
{
  "name": "Luwis Henndadic Shenal Naveen Fernando",
  "studentId": "24324112"
}
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % sleep 10
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
8bed54bc7a0 recipe-management-system-app "docker-entrypoint.s..." 47 seconds ago Up 47 seconds 0.0.0.0:5000->5000/tcp, [:]:5001->5000/tcp rms-app
d9eb88eae59 mongo7 "docker-entrypoint.s..." 48 seconds ago Up 47 seconds 0.0.0.0:27018->27017, [:]:27018->27017/tcp rms-mongo
d5a019ede5d securshift-frontend-employer "docker-entrypoint.s..." 3 days ago Up 23 hours 0.0.0.0:3000->3000/tcp, [:]:3000->3000/tcp securshift-frontend-employer
688176fad56 securshift-backend "docker-entrypoint.s..." 3 days ago Up 23 hours 5000/tcp securshift-backend
b64ba2feea2 mongo16 "docker-entrypoint.s..." 3 days ago Up 23 hours 0.0.0.0:27017->27017, [:]:27017->27017/tcp securshift-db
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % docker logs rms-mongo | tail -20
[dotenv@17.2.3] Injecting env (1) from .env -- tip: ⚡ suppress all logs with { quiet: true }
[dotenv@17.2.3] Injecting env (8) from .env -- tip: 🛡 sync secrets across teammates & machines: https://dotenvx.com/ops
Activities route loaded successfully
MongoDB connected
Database connected
Server running on http://localhost:5000...
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % curl -s http://localhost:5001/api/student | jq
{
  "name": "Luwis Henndadic Shenal Naveen Fernando",
  "studentId": "24324112"
}
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % docker exec rms-mongo mongosh --quiet --eval "db.adminCommand('ping')"
{
  "ok": 1
}
shenallfernando@shenals-MacBook-Pro Recipe-Management-System %

```

8. Docker Containers Running

```

=> => reading from stdin 6038
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 267B
=> [internal] load metadata for docker.io/library/node:20-alpine
=> [internal] load .dockerignore
=> => reading from stdin 156B
=> [1/7] FROM docker.io/library/node:20-alpine@sha256:0%e2b3d97726b18aecf269bd35325f46bf75046a643a6dd28360ec71132750ec8
=> => resolve docker.io/library/node:20-alpine@sha256:0%e2b3d97726b18aecf269bd35325f46bf75046a643a6dd28360ec71132750ec8
=> [internal] load build context
=> => transferring context: 21.05kB
=> CACHED [2/7] WORKDIR /app
=> CACHED [3/7] COPY backend/package*.json ./app/backend/
=> CACHED [4/7] RUN cd ./app/backend && npm install
=> [5/7] COPY backend ./app/backend
=> [6/7] COPY frontend ./app/frontend
=> => exporting to image
=> => exporting layers
=> => exporting manifest sha256:0d2c72ee9b776b4d31168834bc3a23437ca8e24f825795f2c8f6f423fc31795
=> => exporting config sha256:c22bd3bbdcfa154d59f8c5f104cc23de650a90f2310418927a0e0770ca99fe8
=> => exporting attestation manifest sha256:08fcfcacd9abf42e4ad47b9eaa3b2df2daea5c299ef5f52235f2bd8fb271075f
=> => exporting manifest list sha256:eab08a9726929d6a488b52ae4986b2be052823338a5d37fe0f08035362dd71b
=> => naming to docker.io/library/recipe-management-system-app:latest
=> => unpacking to docker.io/library/recipe-management-system-app:latest
=> => resolving provenance for metadata file
[*] Resolving provenance for metadata file
[*] Running 5/5
✓ recipe-management-system-app Built
✓ Network recipe-management-system_default Created
✓ Volume recipe-management-system_mongo_data Created
✓ Container rms-mongo Started
✓ Container rms-app Started
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % sleep 10
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
8bed54bc7a0 recipe-management-system-app "docker-entrypoint.s..." 47 seconds ago Up 47 seconds 0.0.0.0:5000->5000/tcp, [:]:5001->5000/tcp rms-app
d9eb88eae59 mongo7 "docker-entrypoint.s..." 48 seconds ago Up 47 seconds 0.0.0.0:27018->27017, [:]:27018->27017/tcp rms-mongo
d5a019ede5d securshift-frontend-employer "docker-entrypoint.s..." 3 days ago Up 23 hours 0.0.0.0:3000->3000/tcp, [:]:3000->3000/tcp securshift-frontend-employer
688176fad56 securshift-backend "docker-entrypoint.s..." 3 days ago Up 23 hours 5000/tcp securshift-backend
b64ba2feea2 mongo16 "docker-entrypoint.s..." 3 days ago Up 23 hours 0.0.0.0:27017->27017, [:]:27017->27017/tcp securshift-db
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % docker logs rms-mongo | tail -20
[dotenv@17.2.3] Injecting env (1) from .env -- tip: ⚡ suppress all logs with { quiet: true }
[dotenv@17.2.3] Injecting env (8) from .env -- tip: 🛡 sync secrets across teammates & machines: https://dotenvx.com/ops
Activities route loaded successfully
MongoDB connected
Database connected
Server running on http://localhost:5000...
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % curl -s http://localhost:5001/api/student | jq
{
  "name": "Luwis Henndadic Shenal Naveen Fernando",
  "studentId": "24324112"
}
shenallfernando@shenals-MacBook-Pro Recipe-Management-System % docker exec rms-mongo mongosh --quiet --eval "db.adminCommand('ping')"
{
  "ok": 1
}
shenallfernando@shenals-MacBook-Pro Recipe-Management-System %

```

9. Student Endpoint Response

```

=> => transferring dockerfile: 267B
=> [internal] load build context docker.io/library/node:20-alpine
=> [internal] load metadata for docker.io/library/node:20-alpine
=> [internal] transferring context: 16KB
=> [1/7] FROM docker.io/library/node:20-alpine@sha256:09e2b3d9726818aecf269bd35325f46bf75046a643a6dd28360ec71132750ec8
=> => resolve docker.io/library/node:20-alpine@sha256:09e2b3d9726818aecf269bd35325f46bf75046a643a6dd28360ec71132750ec8
=> [internal] load build context
=> => transferring context: 21.05kB
=> CACHED [2/7] WORKDIR /app
=> EXPOSE 5000
=> COPY package*.json ./app/backend/
=> CACHED [4/7] RUN cd /app/backend & npm install
=> [5/7] COPY backend /app/backend
=> [6/7] WORKDIR /app/backend
=> [7/7] WORKDIR /app/backend
=> exporting to image
=> => exporting layers
=> => exporting manifest sha256:c22bd3bdc7a154b59fc8c5f10acc23de650a98f2310418b927ae00770ca99fe8
=> => exporting attestation manifest sha256:08fc5cad9bf42e4ad47b9eaa3b2df2d2ae5c2099ef5f2235f2bd8fb27107f1
=> => exporting manifest list sha256:ebab0809726929d6a488b5a2ae498602be052823338a5d373fef035362dd71
=> => naming to docker.io/library/recipe-management-system-app:latest
=> => unpacking to docker.io/library/recipe-management-system-app:latest
=> => resolving provenance for metadata file
[*] Humpty Dumpty 5/6
✓ recipe-management-system-app          Built
✓ Network recipe-management-system_default Created
✓ Volume recipe-management-system_mongo_data Created
✓ Container rms-mongo                  Started
  Container rms-app
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % sleep 10
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS               NAMES
8bed54bbc7a0    recipe-management-app   "docker-entrypoint.s_..."  47 seconds ago   Up 47 seconds   0.0.0.0:5001->5000/tcp, [::]:5001->5000/tcp   rms-app
d9eb08bea58 mongo:7                      "docker-entrypoint.s_..."  48 seconds ago   Up 47 seconds   0.0.0.0:27018->27017/tcp, [::]:27018->27017/tcp   rms-mongo
d5a196ade7d4    securshift-frontend-employer "docker-entrypoint.s_..."  3 days ago       Up 23 hours    0.0.0.0:3000->3000/tcp, [::]:3000->3000/tcp   securshift-frontend-employer
688176f7 mongo:6                         "docker-entrypoint.s_..."  3 days ago       Up 23 hours    5000/tcp                                         securshift-backend
b64ba2feea2e  mongo:6                     "docker-entrypoint.s_..."  3 days ago       Up 23 hours    0.0.0.0:27017->27017/tcp, [::]:27017->27017/tcp   securshift-db
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker logs rms-app | tail -50
[dotenv@17.2.3] injecting env (1) from .env -- tip: ⚡ suppress all logs with { quiet: true }
[dotenv@17.2.3] injecting env (8) from .env -- tip: 🌐 sync secrets across teammates & machines: https://dotenvx.com/ops
Activities route loaded successfully
MongoDB connected
Database connected
Server running on http://localhost:5000..
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % curl -s http://localhost:5001/api/student | jq
{
  "name": "Luis Henadige Shenal Naveen Fernando",
  "studentId": "224324112"
}
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker exec rms-mongo mongosh --quiet --eval "db.adminCommand('ping')"
{ ok: 1 }
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS               NAMES
8bed54bbc7a0    recipe-management-app   "docker-entrypoint.s_..."  2 minutes ago    Up 2 minutes   0.0.0.0:5001->5000/tcp, [::]:5001->5000/tcp   rms-app
d9eb08bea58 mongo:7                      "docker-entrypoint.s_..."  2 minutes ago    Up 2 minutes   0.0.0.0:27018->27017/tcp, [::]:27018->27017/tcp   rms-mongo
d5a196ade7d4    securshift-frontend-employer "docker-entrypoint.s_..."  3 days ago       Up 23 hours    0.0.0.0:3000->3000/tcp, [::]:3000->3000/tcp   securshift-frontend-employer
688176f7 mongo:6                         "docker-entrypoint.s_..."  3 days ago       Up 23 hours    5000/tcp                                         securshift-backend
b64ba2feea2e  mongo:6                     "docker-entrypoint.s_..."  3 days ago       Up 23 hours    0.0.0.0:27017->27017/tcp, [::]:27017->27017/tcp   securshift-db
shenalfernando@shenals-MacBook-Pro Recipe-Management-System % curl http://localhost:5001/api/student
{"name": "Luis Henadige Shenal Naveen Fernando", "studentId": "224324112"}
shenalfernando@shenals-MacBook-Pro Recipe-Management-System %

```

