

# Technical Assignment - Software Engineering Intern

Deranindu Gunasekara – Readme file

**Prerequisites** - Go 1.24+ - Docker Desktop - Minikube - kubectl

## Project Structure

- Dockerfile : Builds the Docker image
- deployment.yaml : Kubernetes Deployment
- service.yaml: Kubernetes Service
- go.mod, `main.go`: Go application files
- book.go: Book model
- storage.go: File storage logic
- handlers.go: API handlers.

## ## Run Locally

1. Install: `go mod tidy`
2. Run: `go run main.go` - Access: `http://localhost:8080` (or Defined Port)

## ## Build & Run with Docker

1. Build: `docker build -t book-api:latest`
2. Run: `docker run -p 8080:8080 book-api:latest`

## ## Deploy to Minikube

1. Start Minikube: `minikube start`
2. Set Docker: `eval \$(minikube docker-env)`
3. Build: `docker build -t book-api:latest`
4. Deploy: - `kubectl apply -f deployment.yaml` - `kubectl apply -f service.yaml`
5. Access: `minikube service book-api-service --url` - Test at the returned URL

## ## Frameworks & Libraries

### Framework

Gin -Web framework for routing and HTTP handling.

### Libraries:

- google/uuid: Generates unique book IDs.
- Go Standard Library: File I/O, JSON, and concurrency (goroutines, channels).

```
deranindugunasekara@Deranindus-MacBook-Air: ~ % kubectl get pods
NAME                                READY     STATUS    RESTARTS   AGE
pod/book-api-85dbd579bb-2xjmt        1/1       Running   0           83m
pod/book-api-85dbd579bb-84vqx        1/1       Running   0           83m

deranindugunasekara@Deranindus-MacBook-Air: ~ % kubectl get services
NAME                                TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)    AGE
service/book-api-service            NodePort    10.110.147.59    <none>         80:31422/TCP 89m
service/kubernetes                   ClusterIP    10.96.0.1        <none>         443/TCP     2d11h

deranindugunasekara@Deranindus-MacBook-Air: ~ % kubectl get deployments
NAME                                READY     UP-TO-DATE    AVAILABLE    AGE
deployment.apps/book-api            2/2       2              2             83m

deranindugunasekara@Deranindus-MacBook-Air: ~ % kubectl get replicaset.apps/book-api-85dbd579bb
NAME                                DESIRED    CURRENT    READY     AGE
replicaset.apps/book-api-85dbd579bb 2           2          2         83m

deranindugunasekara@Deranindus-MacBook-Air: ~ % minikube service list
NAME                                NAMESPACE   NAME           TARGET PORT  URL
deranindugunasekara@Deranindus-MacBook-Air: ~ % kubectl port-forward service/book-api-service 8080:80
Forwarding from 127.0.0.1:8080 -> 8080
Forwarding from [::]:8080 -> 8080
Handling connection for 8080
Handling connection for 8080
Handling connection for 8080
Handling connection for 8080
```

-Docker Image built

-Kubernetes Deployment

```
deranindugunasekara@Deranindus-MacBook-Air: ~ % kubectl get all
NAME                                READY     STATUS    RESTARTS   AGE
pod/book-api-85dbd579bb-2xjmt        1/1       Running   0           83m
pod/book-api-85dbd579bb-84vqx        1/1       Running   0           83m

NAME                                TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)    AGE
service/book-api-service            NodePort    10.110.147.59    <none>         80:31422/TCP 89m
service/kubernetes                   ClusterIP    10.96.0.1        <none>         443/TCP     2d11h

NAME                                READY     UP-TO-DATE    AVAILABLE    AGE
deployment.apps/book-api            2/2       2              2             83m

NAME                                DESIRED    CURRENT    READY     AGE
replicaset.apps/book-api-85dbd579bb 2           2          2         83m

deranindugunasekara@Deranindus-MacBook-Air: ~ % minikube service list
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Handling connection for 8080
Handling connection for 8080
Handling connection for 8080
Handling connection for 8080
```

-Output

```
localhost:8080/books
Pretty-print
[{"bookId":"a4239afc-72d7-4bff-b5b3-ad35be95266f","authorId":"author1","publisherId":"pub1","title":"The Go Book","publicationDate":"2023-01-01T00:00:00Z","isbn":"1234567890","pages":300,"genre":"Programming","description":"Learn Go programming","price":29.99,"quantity":10}]
```