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UNIT 4.4:

Browse to:

tasks/4_microservices_development/day_4_best_practices/
app_that_doesnt_follow_best_practices/

Analyze the application - which Microservice best practices does it not follow?

Think about what needs to be improved first. Have a look at the
areas_for_improvement.txt file for hints.

Improve the application.

Main.py:

```
app_that_doesnt_follow_best_practices > main.py > save_todo_items > content
1  import json
2  import logging
3  import os
4  from flask import Flask, render_template, request
5  from logging import StreamHandler
6  from config import Config
7
8  app = Flask(__name__)
9  #Load the configuration from the config class
10 app.config.from_object(Config)
11
12 #Load the logs to container output from streamhandler
13 root_logger = logging.getLogger()
14 root_logger.setLevel(logging.INFO)
15 stream_handler = StreamHandler()
16 root_logger.addHandler(stream_handler)
17
18
19 TODO_FILE_NAME = "/app/save_data/todo.json"
20 if os.path.exists(TODO_FILE_NAME):
21     with open(TODO_FILE_NAME) as f:
22         TODO_ITEMS = json.load(f)
23 else:
24     TODO_ITEMS = []
25
26 if app.debug:
27     app.logger.setLevel(logging.DEBUG)
28     app.logger.debug("Debug mode is enabled.")
29 else:
30     app.logger.debug("Debug mode is disabled.")
31
32
33 def save_todo_items([content]):
34     with open(TODO_FILE_NAME, "r+") as f:
35         data = json.load(f)
36         data.append(content)
37         f.seek(0)
38         json.dump(data, f)
39         f.truncate()
40
```

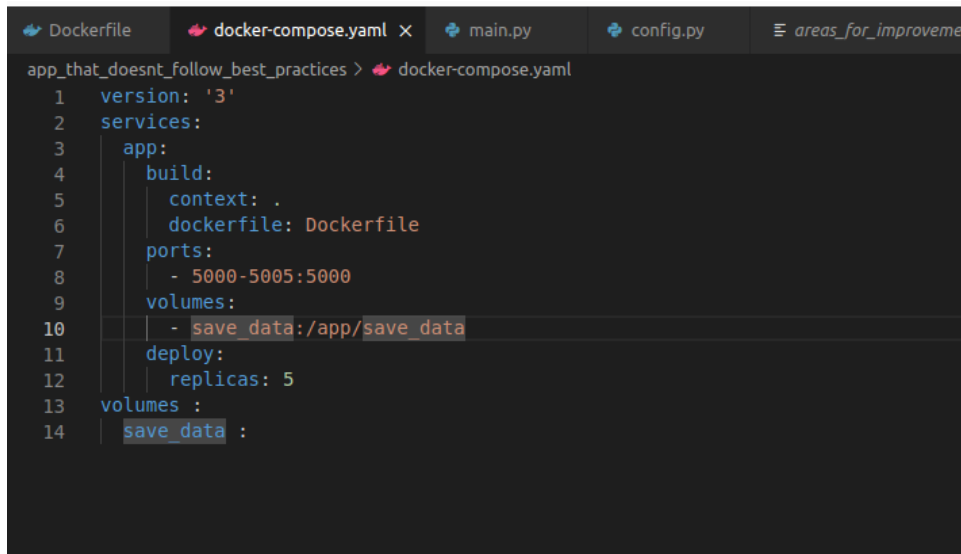
```

40
41
42
43 @app.route("/", methods=["GET", "POST"])
44 def main():
45     if request.method == "POST":
46         content = request.form["content"]
47         save_todo_items(content)
48
49     return render_template("index.html", todo_items=TODO_ITEMS)
50
51
52
53 if __name__ == "__main__":
54     app.run(host="0.0.0.0")
55

```

Docker-compose.yml:

Added replicas for multiple instances of app/



```

app_that_doesnt_follow_best_practices > docker-compose.yml
1  version: '3'
2  services:
3    app:
4      build:
5        context: .
6        dockerfile: Dockerfile
7      ports:
8        - 5000-5005:5000
9      volumes:
10     - save_data:/app/save_data
11     deploy:
12       replicas: 5
13   volumes :
14     save_data :

```

Dockerfile:

Added volume for persist our data of app.

```
Dockerfile x docker-compose.yaml main.py config.py areas_for_improvement
app_that_doesnt_follow_best_practices > Dockerfile > ...
1 FROM python:3.8-slim-buster
2
3 WORKDIR /home/app/
4
5 COPY ./ /home/app/
6
7 VOLUME /app/save_data
8
9 RUN pip install --no-cache-dir -r requirements.txt
10
11 ENV PYTHONPATH=${PYTHONPATH}:/home/app/
12
13 CMD ["gunicorn", "main:app", "-b", "0.0.0.0:5000"]
14
```

Config.py:

For easily change the env when needed.

```
Dockerfile docker-compose.yaml main.py config.py x areas_for_improvement
app_that_doesnt_follow_best_practices > config.py > Config
1 class Config:
2     DEBUG = True
```

Terminal is showing our project is running in 5 replicas:

```

$ docker-compose up
Creating network "mehmetozdemir/mehmetozdemir-07-2021-day-4-best-practices.tools.common pitfalls/app" with the default driver
WARNING: The "app" service specifies a "port" on the host. If multiple containers for this service are created on a single host, the port will clash.
Creating app that doesn't follow best practices app 1 ... done
Creating app that doesn't follow best practices app 2 ... done
Creating app that doesn't follow best practices app 3 ... done
Creating app that doesn't follow best practices app 4 ... done
Creating app that doesn't follow best practices app 5 ... done
Attaching to app that doesn't follow best practices app 1, app that doesn't follow best practices app 4, app that doesn't follow best practices app 5, app that doesn't follow best practices app 3, app that doesn't follow best practices app 2
app 1  | 2023-05-16 06:03:33 +0000 | [1] INFO] Starting gunicorn 20.1.0
app 1  | 2023-05-16 06:03:33 +0000 | [1] INFO] Listening at: http://0.0.0.0:5000 (1)
app 1  | 2023-05-16 06:03:33 +0000 | [1] INFO] Using worker: sync
app 5   | 2023-05-16 06:03:33 +0000 | [1] INFO] Starting gunicorn 20.1.0
app 5   | 2023-05-16 06:03:33 +0000 | [1] INFO] Listening at: http://0.0.0.0:5000 (1)
app 5   | 2023-05-16 06:03:33 +0000 | [1] INFO] Using worker: sync
app 5   | 2023-05-16 06:03:33 +0000 | [1] INFO] Listening at: http://0.0.0.0:5000 (1)
app 5   | 2023-05-16 06:03:33 +0000 | [1] INFO] Using worker: sync
app 4   | 2023-05-16 06:03:33 +0000 | [0] INFO] Booting worker with pid: 8
app 4   | 2023-05-16 06:03:33 +0000 | [0] INFO] Booting worker with pid: 8
app 3   | 2023-05-16 06:03:33 +0000 | [0] INFO] Booting worker with pid: 8
app 3   | 2023-05-16 06:03:33 +0000 | [1] INFO] Starting gunicorn 20.1.0
app 3   | 2023-05-16 06:03:33 +0000 | [1] INFO] Listening at: http://0.0.0.0:5000 (1)
app 3   | 2023-05-16 06:03:33 +0000 | [1] INFO] Using worker: sync
app 3   | 2023-05-16 06:03:33 +0000 | [7] INFO] Booting worker with pid: 7
app 2   | 2023-05-16 06:03:33 +0000 | [1] INFO] Starting gunicorn 20.1.0
app 2   | 2023-05-16 06:03:33 +0000 | [1] INFO] Listening at: http://0.0.0.0:5000 (1)
app 2   | 2023-05-16 06:03:33 +0000 | [1] INFO] Using worker: sync
app 2   | 2023-05-16 06:03:33 +0000 | [0] INFO] Booting worker with pid: 8
Gracefully stopping... (press Ctrl+C again to force)
Stopping app that doesn't follow best practices app 5 ... done
Stopping app that doesn't follow best practices app 2 ... done
Stopping app that doesn't follow best practices app 3 ... done
Stopping app that doesn't follow best practices app 4 ... done
Stopping app that doesn't follow best practices app 1 ... done
$ docker-compose up
Creating network "mehmetozdemir/mehmetozdemir-07-2021-day-4-best-practices.tools.common pitfalls/app" with the default driver

```

Frontend :

