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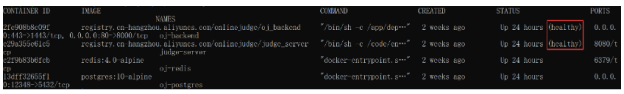
# 第一章 OnlineJudge 的部署

## 1.1 查看容器

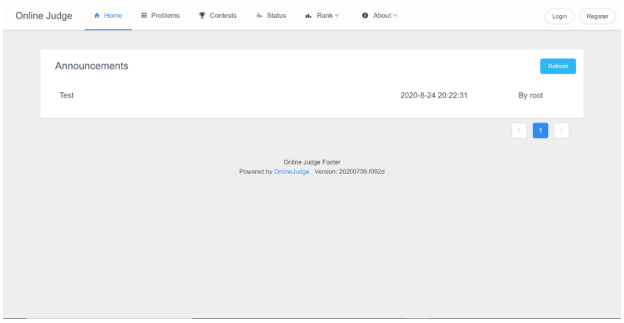
使用 docker 命令查看容器的状态（Healthy 表示运行正常）

```
docker ps -a
```

ref:https://github.com/QingdaoU/OnlineJudgeDeploy




部署好后浏览器访问 http://IPaddr/，可以看到一个 naive 的 oj：




## 1.2 连接数据库

OJ 系统部署在虚拟机中的容器中，如果需要连接到容器中的数据库，则需要做一个端口映射

```
DATABASES = {
    'default': {
        'ENGINE': 'django.db.backends.postgresql_psycopg2',
        # 'HOST': '127.0.0.1',
        # 'PORT': 5435,
        'HOST': '10.24.0.39',
        'PORT': 12348,
        'NAME': "onlinejudge",
        'USER': "onlinejudge",
        'PASSWORD': 'onlinejudge'
    }
}
```

注 容器端口映射到云主机端口：最后一行，由端口 12348 映射到 5432

```
  oj-postgres:
    image: mxzf0213/ecnu_oj:postgres
    container_name: oj-postgres
    restart: always
    volumes:
      - ./data/postgres:/var/lib/postgresql/data
    environment:
      - POSTGRES_DB=onlinejudge
      - POSTGRES_USER=onlinejudge
      - POSTGRES_PASSWORD=onlinejudge
    ports:
      - "0.0.0.0:12348:5432"
```

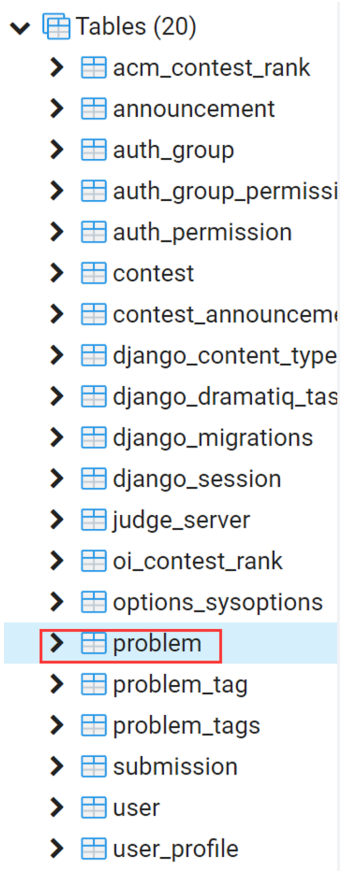
heyujing@10-24-0-39: ~/OJ/OnlineJudgeDeploy

```
version: "2"
services:

  oj-redis:
    image: redis:4.0-alpine
    container_name: oj-redis
    restart: always
    volumes:
      - ./data/redis:/data

  oj-postgres:
    image: postgres:10-alpine
    container_name: oj-postgres
    restart: always
    volumes:
      - ./data/postgres:/var/lib/postgresql/data
    environment:
      - POSTGRES_DB=onlinejudge
      - POSTGRES_USER=onlinejudge
      - POSTGRES_PASSWORD=onlinejudge
    ports:
      - "0.0.0.0:12348:5432"
```

# 第二章 访问与修改数据库

## 2.1 访问数据库

直接使用 pagadmin4 可连接到数据库，该数据库共有 20 个表，Problem 存储我们的习题




## 2.2 修改数据库

我们添加的属性有：

- 标签
- 难度
- 状态

```
#  RS_oj
labels = models.TextField(null=True)
difficulty_= models.IntegerField(default=0)
answer_status = models.IntegerField(default=0)
```

添加好后可以使用命令 python manage.py makemigrations 以及 python manage.py migrate 之后重新 up 容器，刷新数据库后就可看到字段已经添加成功

Data Output Explain Messages Notifications

| core | contest_id integer | is_public boolean | spj_compile_ok boolean | io_mode jsonb | share_submission boolean | difficulty_ integer | answer_status integer | labels integer[] |
|---|---|---|---|---|---|---|---|---|
| 0 | [null] | false | false | {"input": "inp... | false | 1 | -1 | ,0,0,0,1,0,0,0,1,0} |
| 0 | [null] | false | false | {"input": "inp... | false | 3 | 0 | ,0,0,0,0,0,0,0,0,1} |
| 0 | [null] | false | false | {"input": "inp... | false | 2 | 0 | ,0,0,0,0,0,0,0,1,1} |
| 0 | [null] | false | false | {"input": "inp... | false | 2 | 1 | ,0,0,1,0,0,0,0,0,1} |
| 0 | [null] | false | false | {"input": "inp... | false | 1 | 1 | ,0,0,0,0,0,0,1,0,0} |
| 0 | [null] | false | false | {"input": "inp... | false | 3 | -1 | ,0,0,0,0,0,0,0,0,0} |
| 0 | [null] | false | false | {"input": "inp... | false | 2 | 0 | ,0,0,0,0,1,0,0,0,0} |
| 0 | [null] | false | false | {"input": "inp... | false | 3 | 0 | ,0,0,0,0,1,0,0,0,1} |
| 0 | [null] | false | false | {"input": "inp... | false | 1 | 0 | ,0,0,0,0,0,1,0,0,0} |
| 0 | [null] | false | false | {"input": "inp... | false | 2 | 1 | ,0,0,0,1,1,0,0,0,0} |
| 0 | [null] | false | false | {"input": "inp... | false | 2 | -1 | ,0,0,0,0,0,0,0,1,0} |
| 0 | [null] | false | false | {"input": "inp... | false | 2 | 1 | ,0,0,0,0,0,1,0,1,0} |
| 0 | [null] | false | false | {"input": "inp... | false | 1 | -1 | ,0,0,0,0,0,1,0,0,0} |
| 0 | [null] | false | false | {"input": "inp... | false | 3 | -1 | ,0,0,1,0,0,0,0,0,0} |
| 0 | [null] | false | false | {"input": "inp... | false | 1 | 1 | ,0,1,0,0,0,0,0,0,0} |
| 0 | [null] | false | false | {"input": "inp... | false | 3 | 1 | ,1,0,0,0,0,0,0,0,0} |
| 0 | [null] | false | false | {"input": "inp... | false | 2 | 0 | ,0,0,0,0,0,0,0,0,1} |
| 0 | [null] | false | false | {"input": "inp... | false | 1 | 0 | ,0,0,1,0,0,0,0,0,0} |
| 0 | [null] | false | false | {"input": "inp... | false | 2 | -1 | ,0,0,0,0,1,1,1,0,0} |

**注** 蓝色标注部分为新添加的属性，用于推荐系统