课程说明

- 圈子实现点赞、喜欢功能
- 圈子实现评论
- 圈子实现评论的点赞
- 小视频功能说明
- FastDFS环境搭建
- 小视频的功能实现

1、评论

点赞、喜欢、评论等均可理解为用户对动态的评论。

1.1、点赞

1.1.1、定义dubbo接口

```
package com.tanhua.dubbo.server.api;

import com.tanhua.dubbo.server.pojo.Pu blish;
import com.tanhua.dubbo.server.vo.PageInfo;

public interface QuanZiApi {

    /**
     * 发布动态
     *
     * @param publish
     * @return
     */
    boolean savePublish(Publish publish);

    /**
     * 查询动态
     *
     * @return
     */
    PageInfo<Publish> queryPublishList(Long userId, Integer page, Integer
pageSize);

    /**
     * 点赞
     *
     * @param userId
     * @param publishId
     * @return
     */
    boolean saveLikeComment(Long userId, String publishId);

    /**
     * 取消点赞、喜欢等
     *
     * @param userId
```

```
     * @param publishId
     * @return
     */
    boolean removeComment(Long userId, String publishId, Integer
commentType);

    /**
     * 喜欢
     *
     * @param userId
     * @param publishId
     * @return
     */
    boolean saveLoveComment(Long userId, String publishId);

    /**
     * 保存评论
     *
     * @param userId
     * @param publishId
     * @param type
     * @param content
     * @return
     */
    boolean saveComment(Long userId, String publishId, Integer type, String
content);

    /**
     * 查询评论数
     *
     * @param publishId
     * @param type
     * @return
     */
    Long queryCommentCount(String publishId, Integer type);

}

```

1.1.2、编写实现

```
package com.tanhua.dubbo.server.api;

import com.alibaba.dubbo.config.annotation.Service;
import com.mongodb.client.result.DeleteResult;
import com.tanhua.dubbo.server.pojo.*;
import com.tanhua.dubbo.server.vo.PageInfo;
import org.apache.commons.lang3.StringUtils;
import org.bson.types.ObjectId;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.data.domain.PageRequest;
import org.springframework.data.domain.Sort;
import org.springframework.data.mongodb.core.MongoTemplate;
import org.springframework.data.mongodb.core.query.Criteria;
import org.springframework.data.mongodb.core.query.Query;

import java.util.ArrayList;
```

```java
import java.util.Date;
import java.util.List;

@Service(version = "1.0.0")
public class QuanZiApiImpl implements QuanZiApi {

    @Autowired
    private MongoTemplate mongoTemplate;

    /**
     * 点赞
     *
     * @param userId
     * @param publishId
     */
    public boolean saveLikeComment(Long userId, String publishId) {
        Query query = Query.query(Criteria
                .where("publishId").is(new ObjectId(publishId))
                .and("userId").is(userId)
                .and("commentType").is(1));
        long count = this.mongoTemplate.count(query, Comment.class);
        if (count > 0) {
            return false;
        }
        return this.saveComment(userId, publishId, 1, null);
    }

    /**
     * 取消点赞、喜欢等
     *
     * @return
     */
    public boolean removeComment(Long userId, String publishId, Integer
commentType) {
        Query query = Query.query(Criteria
                .where("publishId").is(new ObjectId(publishId))
                .and("userId").is(userId)
                .and("commentType").is(commentType));
        DeleteResult remove = this.mongoTemplate.remove(query,
Comment.class);
        return remove.getDeletedCount() > 0;
    }

    /**
     * 喜欢
     *
     * @param userId
     * @param publishId
     */
    public boolean saveLoveComment(Long userId, String publishId) {
        Query query = Query.query(Criteria
                .where("publishId").is(new ObjectId(publishId))
                .and("userId").is(userId)
                .and("commentType").is(3));
        long count = this.mongoTemplate.count(query, Comment.class);
        if (count > 0) {
            return false;
        }
```

```
        return this.saveComment(userId, publishId, 3, null);
    }

    /**
     * 保存评论
     *
     * @param userId
     * @param publishId
     * @param type
     * @return
     */
    public boolean saveComment(Long userId, String publishId, Integer type, String content) {
        try {
            Comment comment = new Comment();
            comment.setId(ObjectId.get());
            comment.setUserId(userId);
            comment.setContent(content);
            comment.setPublishId(new ObjectId(publishId));
            comment.setCommentType(type);
            comment.setCreated(System.currentTimeMillis());
            this.mongoTemplate.save(comment);
            return true;
        } catch (Exception e) {
            e.printStackTrace();
        }
        return false;
    }

    @Override
    public Long queryCommentCount(String publishId, Integer type) {
        Query query = Query.query(Criteria.where("publishId").is(publishId).and("commentType").is(type));
        return this.mongoTemplate.count(query, Comment.class);
    }
}

```

1.1.3、编写接口服务

MovementsController：

```
/**
     * 点赞
     *
     * @param publishId
     * @return
     */
    @GetMapping("/{id}/like")
    public ResponseEntity<Long> likeComment(@PathVariable("id") String publishId) {
        try {
            Long likeCount = this.movementsService.likeComment(publishId);
            if (likeCount != null) {
                return ResponseEntity.ok(likeCount);
            }

```

```
        } catch (Exception e) {
            e.printStackTrace();
        }
        return
ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).build();
    }

    /**
     * 取消点赞
     *
     * @param publishId
     * @return
     */
    @GetMapping("/{id}/dislike")
    public ResponseEntity<Long> disLikeComment(@PathVariable("id") String
publishId) {
        try {
            Long likeCount =
this.movementsService.cancelLikeComment(publishId);
            if (null != likeCount) {
                return ResponseEntity.ok(likeCount);
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
        return
ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).build();
    }
```

1.1.4、编写服务实现

```
package com.tanhua.server.service;

import com.alibaba.dubbo.common.utils.CollectionUtils;
import com.alibaba.dubbo.config.annotation.Reference;
import com.baomidou.mybatisplus.core.conditions.query.QueryWrapper;
import com.tanhua.dubbo.server.api.QuanZiApi;
import com.tanhua.dubbo.server.pojo.Publish;
import com.tanhua.dubbo.server.vo.PageInfo;
import com.tanhua.server.pojo.User;
import com.tanhua.server.pojo.UserInfo;
import com.tanhua.server.utils.RelativeDateFormat;
import com.tanhua.server.utils.UserThreadLocal;
import com.tanhua.server.vo.Movements;
import com.tanhua.server.vo.PageResult;
import com.tanhua.server.vo.PicUploadResult;
import org.apache.commons.lang3.StringUtils;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.data.redis.core.RedisTemplate;
import org.springframework.stereotype.Service;
import org.springframework.web.multipart.MultipartFile;

import java.util.ArrayList;
import java.util.Date;
import java.util.List;

@Service
```

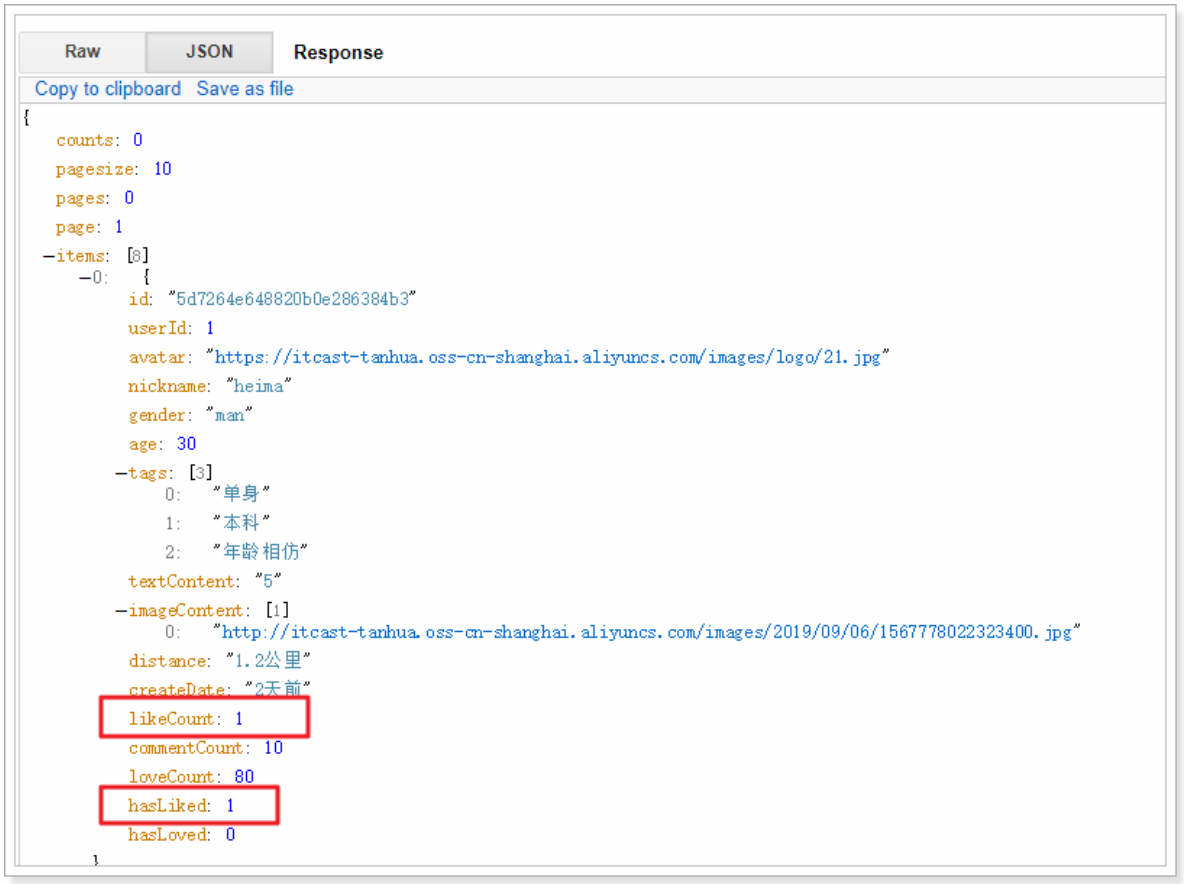
```java
public class MovementsService {

    @Reference(version = "1.0.0")
    private QuanZiApi quanZiApi;

    @Autowired
    private PicUploadService picUploadService;

    @Autowired
    private UserInfoService userInfoService;

    @Autowired
    private RedisTemplate<String, String> redisTemplate;

  /**
     * 点赞
     *
     * @param publishId
     * @return
     */
    public Long likeComment(String publishId) {
        User user = UserThreadLocal.get();
        boolean bool = this.quanZiApi.saveLikeComment(user.getId(), publishId);
        if (!bool) {
            return null;
        }

        Long likeCount = 0L;

        //保存点赞数到redis
        String key = "QUANZI_COMMENT_LIKE_" + publishId;
        if (!this.redisTemplate.hasKey(key)) {
            Long count = this.quanZiApi.queryCommentCount(publishId, 1);
            likeCount = count;
            this.redisTemplate.opsForValue().set(key, String.valueOf(likeCount));
        } else {
            likeCount = this.redisTemplate.opsForValue().increment(key);
        }

        //记录已点赞
        String userKey = "QUANZI_COMMENT_LIKE_USER_" + user.getId() + "_" + publishId;
        this.redisTemplate.opsForValue().set(userKey, "1");

        return likeCount;
    }

    /**
     * 取消点赞
     *
     * @return
     */
    public Long cancelLikeComment(String publishId) {
        User user = UserThreadLocal.get();
        boolean bool = this.quanZiApi.removeComment(user.getId(), publishId, 1);
```

```
81          if (bool) {
82              String key = "QUANZI_COMMENT_LIKE_" + publishId;
83              //数量递减
84              Long likeCount =
    this.redisTemplate.opsForValue().decrement(key);
85
86              //删除已点赞
87              String userKey = "QUANZI_COMMENT_LIKE_USER_" + user.getId() +
    "_" + publishId;
88              this.redisTemplate.delete(userKey);
89
90              return likeCount;
91          }
92          return null;
93      }
94  }
95
```

1.1.5、修改查询动态点赞数

```
movements.setNickname(userInfo.getNickName());
movements.setTags(StringUtils.split(userInfo.getTags(), separatorChar: ','));
movements.setCommentCount(10); //TODO 评论数
movements.setDistance("1.2公里"); //TODO 距离

String userKey = "QUANZI_COMMENT_LIKE_USER_" + user.getId() + "_" + movements.getId();
movements.setHasLiked(this.redisTemplate.hasKey(userKey) ? 1 : 0); //是否点赞（1是，0否）

movements.setHasLoved(0); //TODO 是否喜欢（1是，0否）

String key = "QUANZI_COMMENT_LIKE_" + movements.getId();
String value = this.redisTemplate.opsForValue().get(key);
if (StringUtils.isNotEmpty(value)) {
    movements.setLikeCount(Integer.valueOf(value)); //点赞数
} else {
    movements.setLikeCount(0);
}
```

1.1.6、测试



1.2、喜欢

1.2.1、MovementsController

```
/**
     * 喜欢
     *
     * @param publishId
     * @return
     */
    @GetMapping("/{id}/love")
    public ResponseEntity<Long> loveComment(@PathVariable("id") String publishId) {
        try {
            Long loveCount = this.movementsService.loveComment(publishId);
            if (null != loveCount) {
                return ResponseEntity.ok(loveCount);
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
        return ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).build();
    }

    /**
     * 取消喜欢
     *
     * @param publishId
     * @return
     */
    @GetMapping("/{id}/unlove")
```

```
    public ResponseEntity<Long> disLoveComment(@PathVariable("id") String publishId) {
        try {
            Long loveCount = this.movementsService.cancelLoveComment(publishId);
            if (null != loveCount) {
                return ResponseEntity.ok(loveCount);
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
        return ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).build();
    }
```

1.2.2、MovementsService

```
/**
     * 喜欢
     *
     * @param publishId
     * @return
     */
    public Long loveComment(String publishId) {
        User user = UserThreadLocal.get();
        boolean bool = this.quanZiApi.saveLoveComment(user.getId(), publishId);
        if (!bool) {
            return null;
        }

        Long loveCount = 0L;

        //保存喜欢数到redis
        String key = "QUANZI_COMMENT_LOVE_" + publishId;
        if (!this.redisTemplate.hasKey(key)) {
            Long count = this.quanZiApi.queryCommentCount(publishId, 3);
            loveCount = count ;
            this.redisTemplate.opsForValue().set(key, String.valueOf(loveCount));
        } else {
            loveCount = this.redisTemplate.opsForValue().increment(key);
        }

        //记录已喜欢
        String userKey = "QUANZI_COMMENT_LOVE_USER_" + user.getId() + "_" + publishId;
        this.redisTemplate.opsForValue().set(userKey, "1");

        return loveCount;
    }

    /**
     * 取消喜欢
     *
     * @return
     */
```

```
    public Long cancelLoveComment(String publishId) {
        User user = UserThreadLocal.get();
        boolean bool = this.quanZiApi.removeComment(user.getId(), publishId, 3);
        if (bool) {
            String key = "QUANZI_COMMENT_LOVE_" + publishId;
            //数量递减
            Long loveCount = this.redisTemplate.opsForValue().decrement(key);

            //删除已点赞
            String userKey = "QUANZI_COMMENT_LOVE_USER_" + user.getId() + "_" + publishId;
            this.redisTemplate.delete(userKey);

            return loveCount;
        }
        return null;
    }
```

1.2.3、测试

单身 本科 年龄相仿

1

距离1.2公里 42分钟前

1 10 1

heima ♂ 30

单身 本科 年龄相仿

test2

动态已喜欢

距离1.2公里 1小时前

0 10 1

heima ♂ 30

单身 本科 年龄相仿

发布

test1

交友 圈子 消息 视频 我的

1.3、查询单条动态

1.3.1、定义dubbo接口

QuanZiApi：

```
    /**
     * 根据id查询动态
     *
     * @param id
     * @return
     */
    Publish queryPublishById(String id);
```

1.3.2、dubbo接口实现

QuanZiApiImpl：

```
    @Override
    public Publish queryPublishById(String id) {
        return this.mongoTemplate.findById(new ObjectId(id), Publish.class);
    }
```

1.3.3、定义服务接口

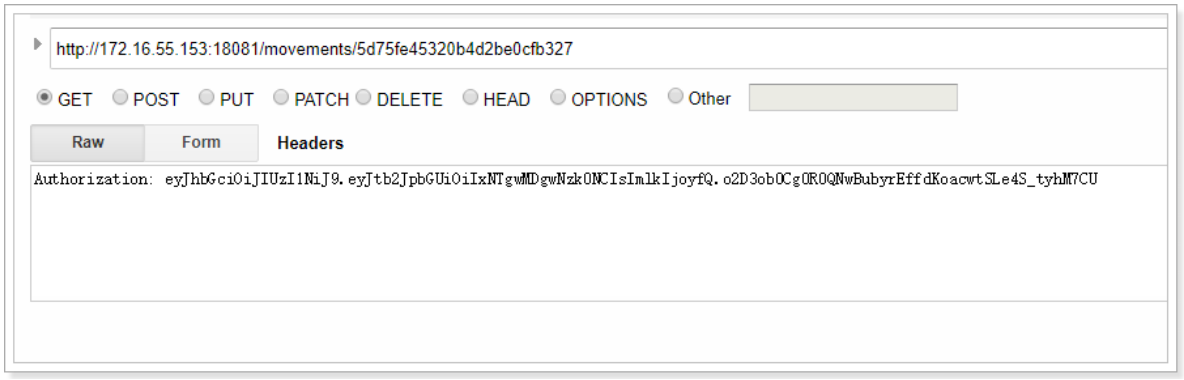
```
    /**
     * 查询单条动态信息
     *
     * @param publishId
     * @return
     */
    @GetMapping("/{id}")
    public ResponseEntity<Movements> queryById(@PathVariable("id") String publishId) {
        try {
            Movements movements = this.movementsService.queryById(publishId);
            if(null != movements){
                return ResponseEntity.ok(movements);
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
        return ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).build();
    }
```

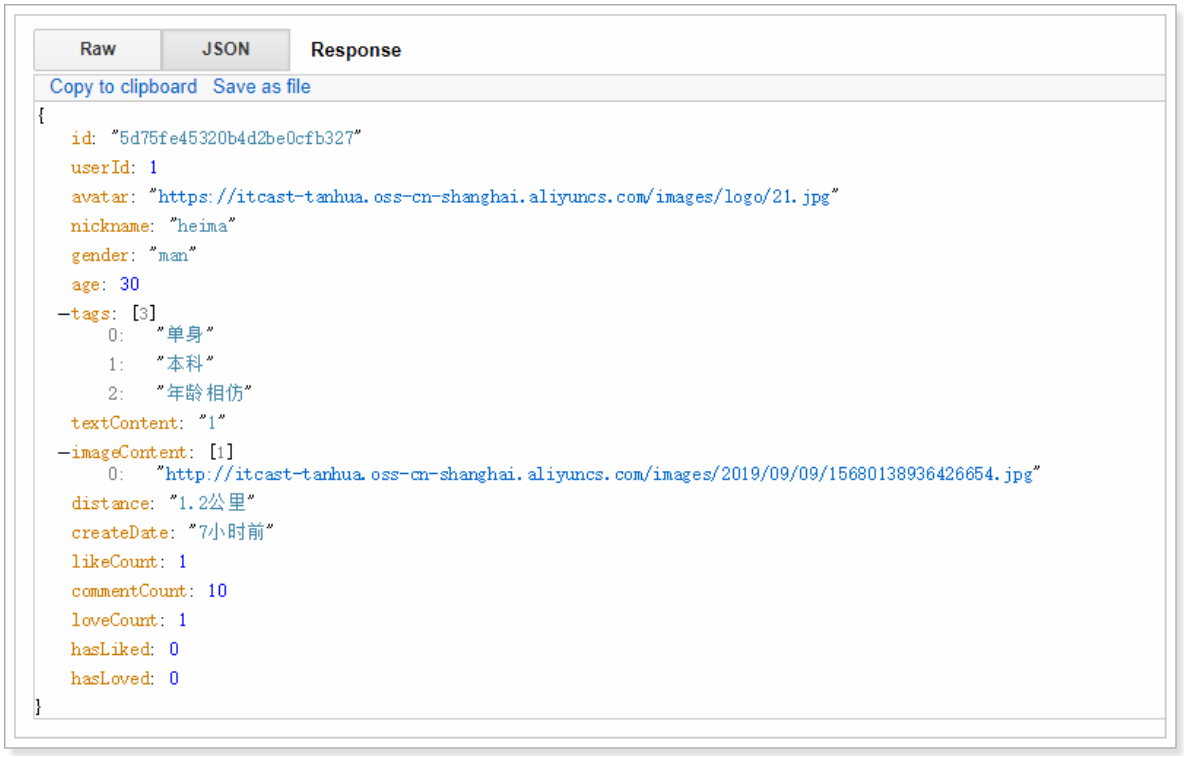
1.3.4、服务实现

```
    public Movements queryById(String publishId) {
        Publish publish = this.quanZiApi.queryPublishById(publishId);
        if (null == publish) {
            return null;
        }

        Movements movements = new Movements();

        movements.setId(publish.getId().toHexString());
        movements.setImageContent(publish.getMedias().toArray(new String[]{}));
        movements.setTextContent(publish.getText());
        movements.setUserId(publish.getUserId());
        movements.setCreateDate(RelativeDateFormat.format(new Date(publish.getCreated())));

        UserInfo userInfo = this.userInfoService.queryById(publish.getUserId());
        if (null == userInfo) {
            return null;
        }
        this.fillValueToMovements(movements, userInfo);

        return movements;

```

```
    }

    private void fillValueToMovements(Movements movements, UserInfo userInfo) {
        movements.setAge(userInfo.getAge());
        movements.setAvatar(userInfo.getLogo());
        movements.setGender(userInfo.getSex().name().toLowerCase());
        movements.setNickname(userInfo.getNickName());
        movements.setTags(StringUtils.split(userInfo.getTags(), ','));
        movements.setCommentCount(10); //TODO 评论数
        movements.setDistance("1.2公里"); //TODO 距离

        String userKey = "QUANZI_COMMENT_LIKE_USER_" + userInfo.getUserId() + "_" + movements.getId();
        movements.setHasLiked(this.redisTemplate.hasKey(userKey) ? 1 : 0); //是否点赞（1是，0否）

        String key = "QUANZI_COMMENT_LIKE_" + movements.getId();
        String value = this.redisTemplate.opsForValue().get(key);
        if (StringUtils.isNotEmpty(value)) {
            movements.setLikeCount(Integer.valueOf(value)); //点赞数
        } else {
            movements.setLikeCount(0);
        }

        String userLoveKey = "QUANZI_COMMENT_LOVE_USER_" + userInfo.getUserId() + "_" + movements.getId();
        movements.setHasLoved(this.redisTemplate.hasKey(userLoveKey) ? 1 : 0); //是否喜欢（1是，0否）

        key = "QUANZI_COMMENT_LOVE_" + movements.getId();
        value = this.redisTemplate.opsForValue().get(key);
        if (StringUtils.isNotEmpty(value)) {
            movements.setLoveCount(Integer.valueOf(value)); //喜欢数
        } else {
            movements.setLoveCount(0);
        }
    }
```

1.3.5、测试





1.4、单条动态评论

功能包括：查询评论列表，评论点赞、取消点赞。

1.4.1、定义dubbo接口

```
    /**
     * 查询评论
     *
     * @return
     */
    PageInfo<Comment> queryCommentList(String publishId, Integer page,
Integer pageSize);
```

1.4.2、编写实现

```
    @Override
    public PageInfo<Comment> queryCommentList(String publishId, Integer
page, Integer pageSize) {
        PageRequest pageRequest = PageRequest.of(page - 1, pageSize,
Sort.by(Sort.Order.asc("created")));
        Query query = new Query(Criteria
                .where("publishId").is(new ObjectId(publishId))
                .and("commentType").is(2)).with(pageRequest);

        //查询时间线表
        List<Comment> timeLineList = this.mongoTemplate.find(query,
Comment.class);

        PageInfo<Comment> pageInfo = new PageInfo<>();
        pageInfo.setPageNum(page);
        pageInfo.setPageSize(pageSize);
        pageInfo.setRecords(timeLineList);
        pageInfo.setTotal(0); //不提供总数
        return pageInfo;
```

```
    }
```

1.4.3、服务接口实现

```
package com.tanhua.server.vo;

import lombok.AllArgsConstructor;
import lombok.Data;
import lombok.NoArgsConstructor;

/**
 * 评论
 */
@Data
@NoArgsConstructor
@AllArgsConstructor
public class Comments {

    private String id; //评论id
    private String avatar; //头像
    private String nickname; //昵称
    private String content; //评论
    private String createDate; //评论时间: 08:27
    private Integer likeCount; //点赞数
    private Integer hasLiked; //是否点赞（1是，0否）

}

```

```
package com.tanhua.server.controller;

import com.tanhua.server.service.CommentsService;
import com.tanhua.server.service.MovementsService;
import com.tanhua.server.vo.Comments;
import com.tanhua.server.vo.PageResult;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.http.HttpStatus;
import org.springframework.http.ResponseEntity;
import org.springframework.web.bind.annotation.*;

import java.util.Map;

@RestController
@RequestMapping("comments")
public class CommentsController {

    @Autowired
    private CommentsService commentsService;

    @Autowired
    private MovementsService movementsService;

    /**
     * 查询评论列表
     *
     * @param publishId
```

```
     * @param page
     * @param pagesize
     * @return
     */
    @GetMapping
    public ResponseEntity<PageResult>
queryCommentsList(@RequestParam("movementId") String publishId,

 @RequestParam(value = "page", defaultValue = "1") Integer page,

 @RequestParam(value = "pagesize", defaultValue = "10") Integer pagesize)
{
        try {
            PageResult pageResult =
this.commentsService.queryCommentsList(publishId, page, pagesize);
            return ResponseEntity.ok(pageResult);
        } catch (Exception e) {
            e.printStackTrace();
        }
        return
ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).build();

    }

    /**
     * 保存评论
     */
    @PostMapping
    public ResponseEntity<Void> saveComments(@RequestBody
Map<String,String> param) {
        try {
            String publishId = param.get("movementId");
            String content = param.get("comment");
            Boolean result = this.commentsService.saveComments(publishId,
content);
            if (result) {
                return ResponseEntity.ok(null);
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
        return
ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).build();
    }

    /**
     * 点赞
     *
     * @param publishId
     * @return
     */
    @GetMapping("/{id}/like")
    public ResponseEntity<Long> likeComment(@PathVariable("id") String
publishId) {
        try {
            Long likeCount = this.movementsService.likeComment(publishId);
            if (likeCount != null) {
                return ResponseEntity.ok(likeCount);
```

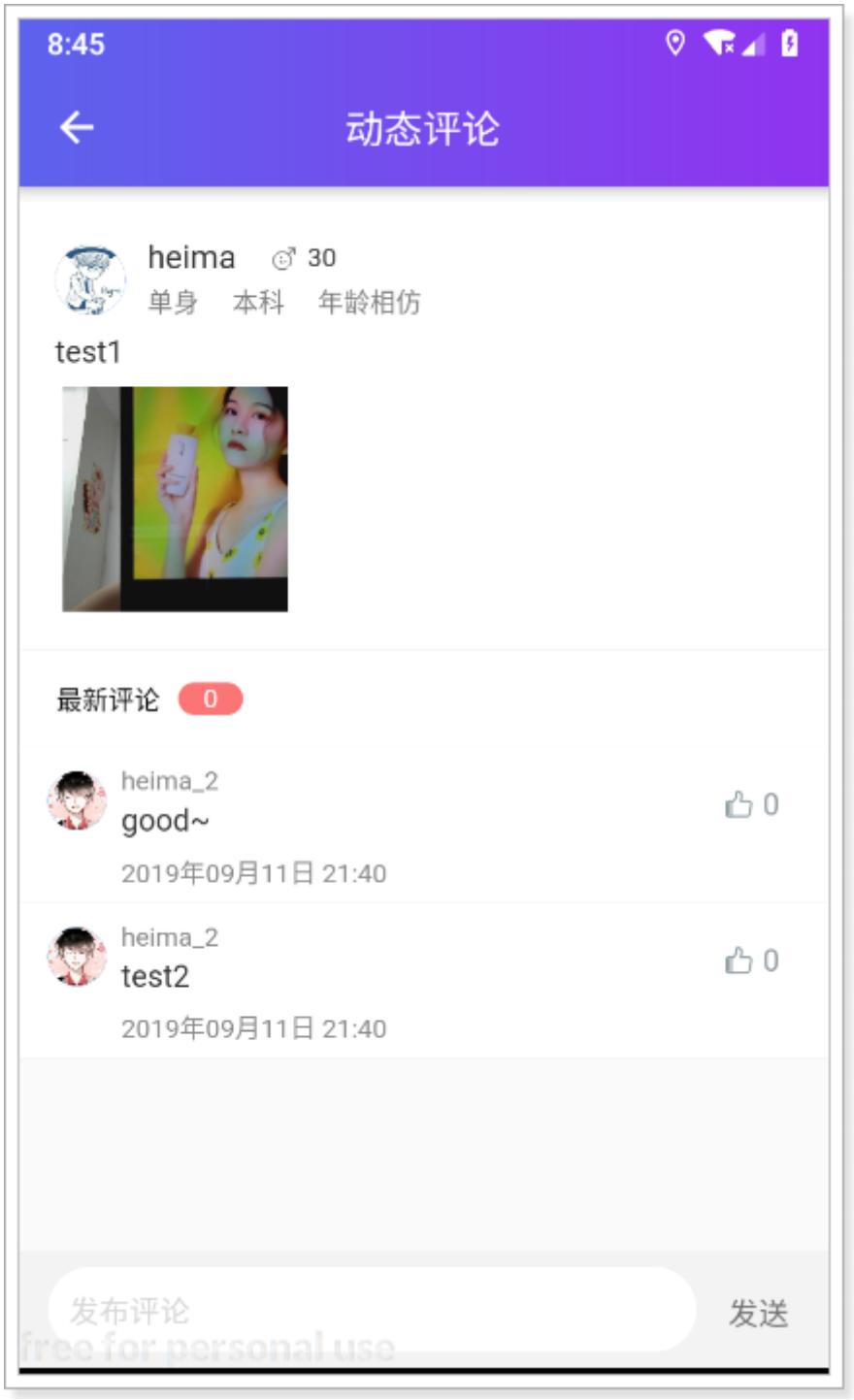
```
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
        return ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).build();
    }

    /**
     * 取消点赞
     *
     * @param publishId
     * @return
     */
    @GetMapping("/{id}/dislike")
    public ResponseEntity<Long> disLikeComment(@PathVariable("id") String publishId) {
        try {
            Long likeCount = this.movementsService.cancelLikeComment(publishId);
            if (null != likeCount) {
                return ResponseEntity.ok(likeCount);
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
        return ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).build();
    }

}
```

```
package com.tanhua.server.service;

import com.alibaba.dubbo.config.annotation.Reference;
import com.baomidou.mybatisplus.core.conditions.query.QueryWrapper;
import com.tanhua.dubbo.server.api.QuanZiApi;
import com.tanhua.dubbo.server.pojo.Comment;
import com.tanhua.dubbo.server.vo.PageInfo;
import com.tanhua.server.pojo.User;
import com.tanhua.server.pojo.UserInfo;
import com.tanhua.server.utils.UserThreadLocal;
import com.tanhua.server.vo.Comments;
import com.tanhua.server.vo.PageResult;
import org.apache.commons.lang3.StringUtils;
import org.joda.time.DateTime;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.data.redis.core.RedisTemplate;
import org.springframework.stereotype.Service;

import java.util.ArrayList;
import java.util.List;

@Service
public class CommentsService {

```

```
25      @Reference(version = "1.0.0")
26      private QuanZiApi quanZiApi;
27
28      @Autowired
29      private UserInfoService userInfoService;
30
31      @Autowired
32      private RedisTemplate<String, String> redisTemplate;
33
34      public PageResult queryCommentsList(String publishId, Integer page,
    Integer pagesize) {
35
36          User user = UserThreadLocal.get();
37
38          PageInfo<Comment> pageInfo =
    this.quanZiApi.queryCommentList(publishId, page, pagesize);
39
40          List<Comment> records = pageInfo.getRecords();
41
42          if (records.isEmpty()) {
43              PageResult pageResult = new PageResult();
44              pageResult.setPage(page);
45              pageResult.setPagesize(pagesize);
46              pageResult.setPages(0);
47              pageResult.setCounts(0);
48              return pageResult;
49          }
50
51          List<Long> userIds = new ArrayList<>();
52          for (Comment comment : records) {
53              if (!userIds.contains(comment.getUserId())) {
54                  userIds.add(comment.getUserId());
55              }
56
57          }
58
59          QueryWrapper<UserInfo> queryWrapper = new QueryWrapper<>();
60          queryWrapper.in("user_id", userIds);
61          List<UserInfo> userInfos =
    this.userInfoService.queryList(queryWrapper);
62
63          List<Comments> result = new ArrayList<>();
64          for (Comment record : records) {
65              Comments comments = new Comments();
66              comments.setContent(record.getContent());
67              comments.setCreateDate(new
    DateTime(record.getCreated()).toString("yyyy年MM月dd日 HH:mm"));
68              comments.setId(record.getId().toHexString());
69
70              for (UserInfo userInfo : userInfos) {
71                  if (record.getUserId().longValue() ==
    userInfo.getUserId().longValue()) {
72                      comments.setAvatar(userInfo.getLogo());
73                      comments.setNickname(userInfo.getNickName());
74                      break;
75                  }
76              }
77
```

```
            String key = "QUANZI_COMMENT_LIKE_" + comments.getId();
            String value = this.redisTemplate.opsForValue().get(key);
            if (StringUtils.isNotEmpty(value)) {
                comments.setLikeCount(Integer.valueOf(value)); //点赞数
            } else {
                comments.setLikeCount(0);
            }

            String userKey = "QUANZI_COMMENT_LIKE_USER_" + user.getId() + "_" + comments.getId();
            comments.setHasLiked(this.redisTemplate.hasKey(userKey) ? 1 : 0); //是否点赞（1是，0否）

            result.add(comments);
        }

        PageResult pageResult = new PageResult();
        pageResult.setItems(result);
        pageResult.setPage(page);
        pageResult.setPagesize(pagesize);
        pageResult.setPages(0);
        pageResult.setCounts(0);

        return pageResult;


    }

    /**
     * 保存评论
     *
     * @param publishId
     * @param content
     * @return
     */
    public Boolean saveComments(String publishId, String content) {
        User user = UserThreadLocal.get();
        return this.quanZiApi.saveComment(user.getId(), publishId, 2, content);
    }
}

```

1.4.4、测试

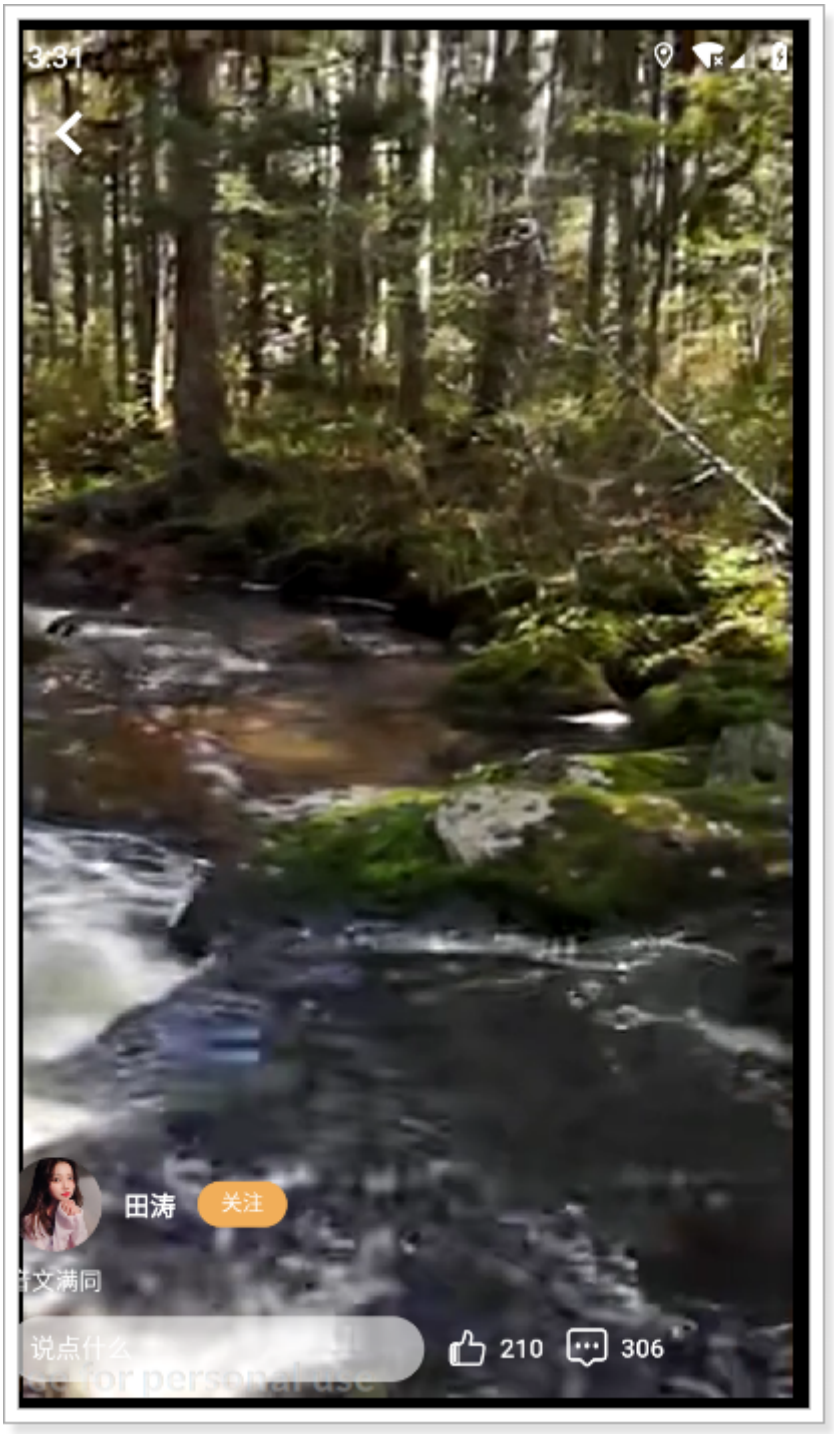

8:45
动态评论
heima
30
单身 本科 年龄相仿
test1
最新评论 0
heima_2
good~
2019年09月11日 21:40
0
heima_2
test2
2019年09月11日 21:40
0
发布评论
发送
free for personal use

2、小视频功能说明

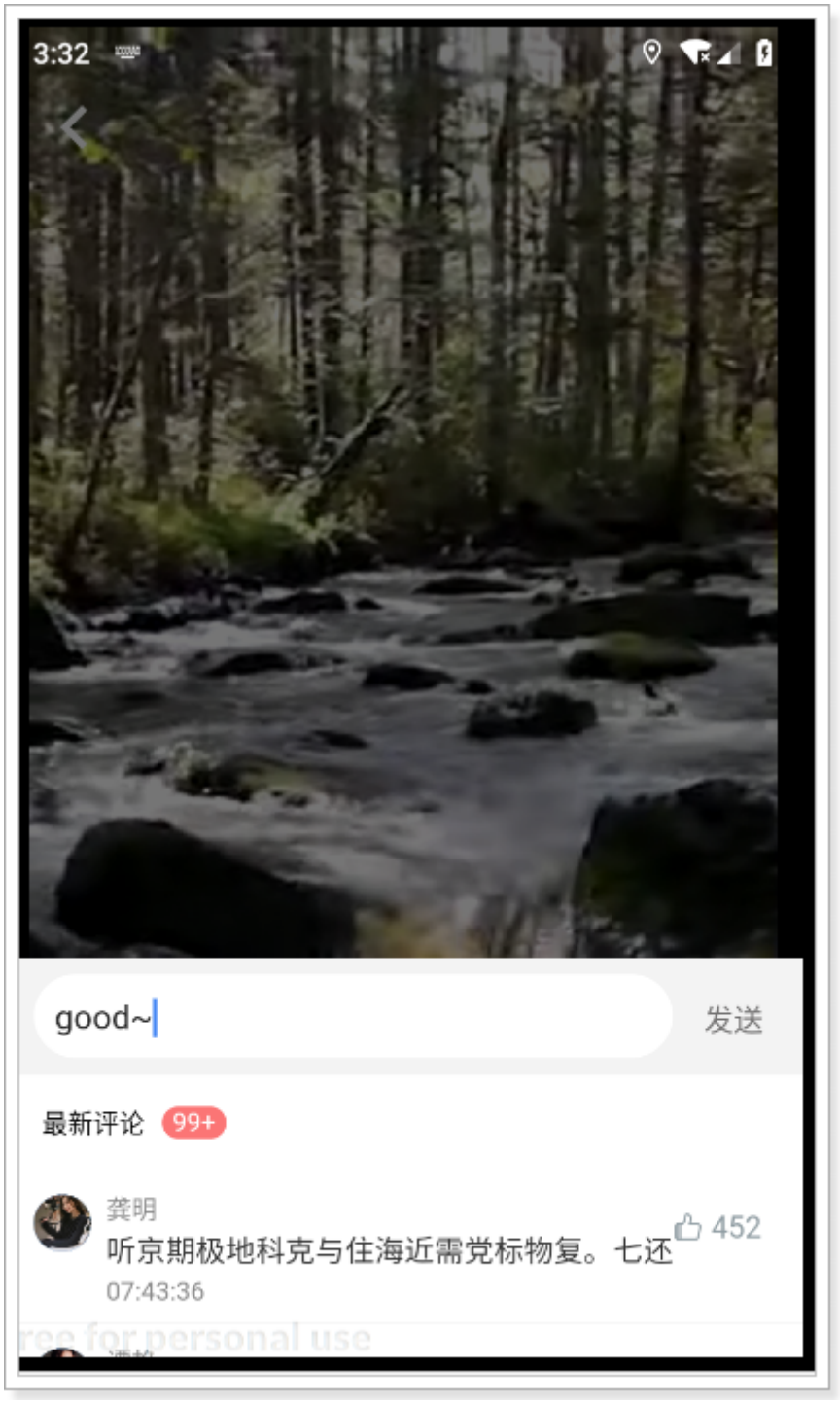
小视频功能类似于抖音、快手小视频的应用，用户可以上传小视频进行分享，也可以浏览查看别人分享的视频，并且可以对视频评论和点赞操作。

效果：

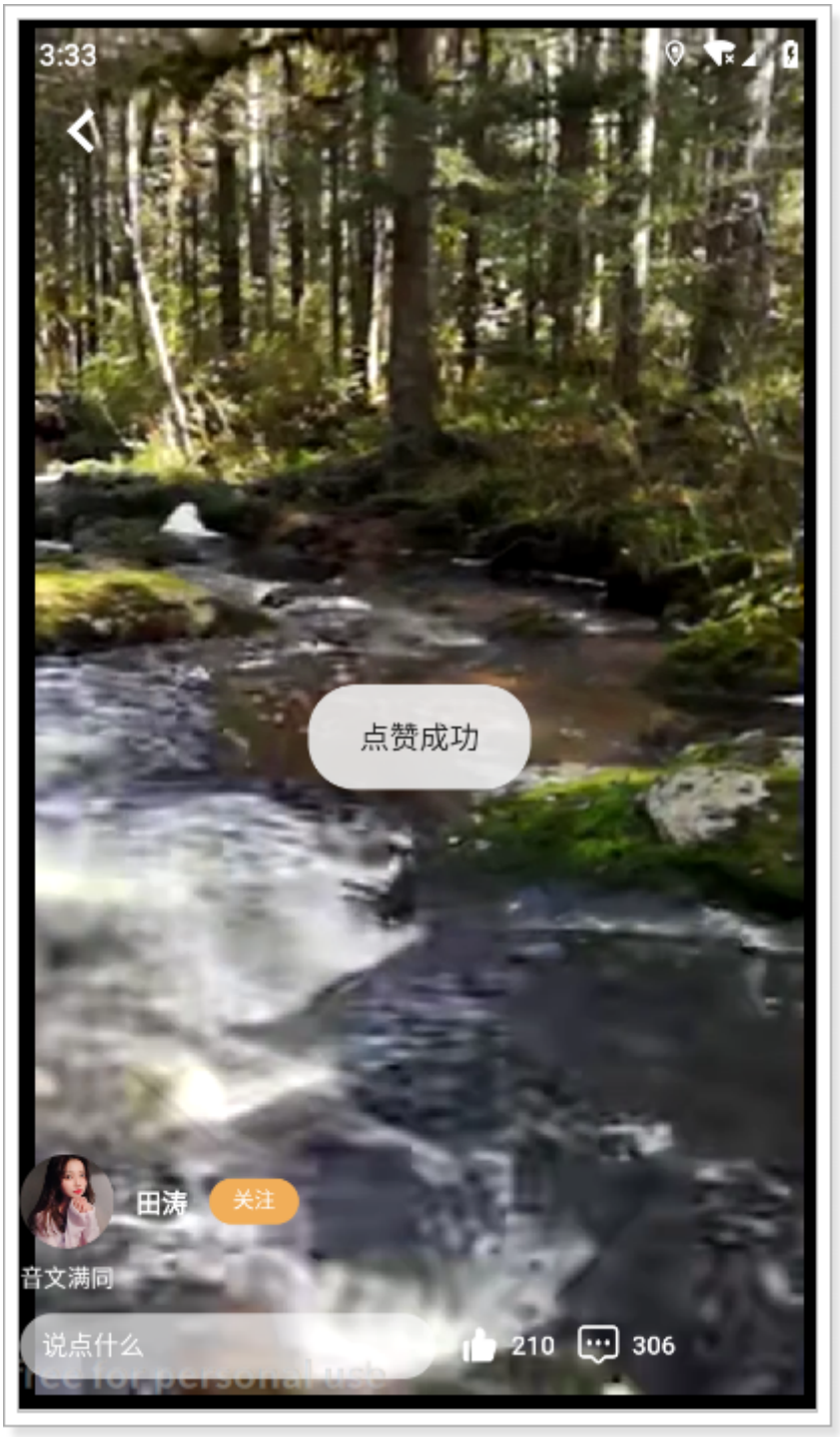
查看详情：



评论：


3:32
good~
发送
最新评论 99+
龚明
听京期极地科克与住海近需党标物复。七还
452
07:43:36
ree for personal use

点赞：



3、技术方案

对于小视频的功能的开发，核心点就是：存储 + 推荐 + 加载速度 。

- 对于存储而言，小视频的存储量以及容量都是非常巨大的
  - 所以我们选择自己搭建分布式存储系统 FastDFS进行存储
- 对于推荐算法，我们将采用多种权重的计算方式进行计算
- 对于加载速度，除了提升服务器带宽外可以通过CDN的方式进行加速，当然了这需要额外购买CDN服务

4、FastDFS环境搭建

4.1、搭建服务

我们使用docker进行搭建。

```
#拉取镜像
docker pull delron/fastdfs

#创建tracker容器
docker run -d --network=host --name tracker -v /var/fdfs/tracker:/var/fdfs
delron/fastdfs tracker

#创建storage容器
docker run -d --network=host --name storage -e
TRACKER_SERVER=192.168.31.81:22122 -v /var/fdfs/storage:/var/fdfs -e
GROUP_NAME=group1 delron/fastdfs storage

#进入storage容器，到storage的配置文件中配置http访问的端口，配置文件在/etc/fdfs目录下
的storage.conf。
docker exec -it storage /bin/bash

#默认的http端口为8888，可以修改也可以配置
# the port of the web server on this storage server
http.server_port=8888

#配置nginx，在/usr/local/nginx目录下，修改nginx.conf文件
#默认配置如下：

    server {
        listen       8888;
        server_name  localhost;
        location ~/group[0-9]/ {
            ngx_fastdfs_module;
        }
        error_page   500 502 503 504  /50x.html;
        location = /50x.html {
            root html;
        }
    }

#默认的存储路径为/var/fdfs/data

```

```
[root@itcast data]# ls
00  0C  18  24  30  3C  48  54  60  6C  78  84  90  9C  A8  B4  C0  CC  D8  E4  F0  FC
01  0D  19  25  31  3D  49  55  61  6D  79  85  91  9D  A9  B5  C1  CD  D9  E5  F1  FD
02  0E  1A  26  32  3E  4A  56  62  6E  7A  86  92  9E  AA  B6  C2  CE  DA  E6  F2  FE
03  0F  1B  27  33  3F  4B  57  63  6F  7B  87  93  9F  AB  B7  C3  CF  DB  E7  F3  FF
04  10  1C  28  34  40  4C  58  64  70  7C  88  94  A0  AC  B8  C4  D0  DC  E8  F4  fdfs_
05  11  1D  29  35  41  4D  59  65  71  7D  89  95  A1  AD  B9  C5  D1  DD  E9  F5  stora
06  12  1E  2A  36  42  4E  5A  66  72  7E  8A  96  A2  AE  BA  C6  D2  DE  EA  F6  sync
07  13  1F  2B  37  43  4F  5B  67  73  7F  8B  97  A3  AF  BB  C7  D3  DF  EB  F7
08  14  20  2C  38  44  50  5C  68  74  80  8C  98  A4  B0  BC  C8  D4  E0  EC  F8
09  15  21  2D  39  45  51  5D  69  75  81  8D  99  A5  B1  BD  C9  D5  E1  ED  F9
0A  16  22  2E  3A  46  52  5E  6A  76  82  8E  9A  A6  B2  BE  CA  D6  E2  EE  FA
0B  17  23  2F  3B  47  53  5F  6B  77  83  8F  9B  A7  B3  BF  CB  D7  E3  EF  FB
```

4.2、java client

导入依赖：

```xml
<dependency>
    <groupId>com.github.tobato</groupId>
    <artifactId>fastdfs-client</artifactId>
    <version>1.26.7</version>
    <exclusions>
        <exclusion>
            <groupId>ch.qos.logback</groupId>
            <artifactId>logback-classic</artifactId>
        </exclusion>
    </exclusions>
</dependency>
```

4.2.1、application.properties

```
# ====================================================================
# 分布式文件系统FDFS配置
# ====================================================================
fdfs.so-timeout = 1501
fdfs.connect-timeout = 601
#缩略图生成参数
fdfs.thumb-image.width= 150
fdfs.thumb-image.height= 150
#TrackerList参数,支持多个
fdfs.tracker-list=192.168.31.81:22122
```

4.2.2、测试

```java
package com.tanhua.server;

import com.github.tobato.fastdfs.domain.fdfs.StorePath;
import com.github.tobato.fastdfs.service.FastFileStorageClient;
import org.apache.commons.io.FileUtils;
import org.junit.Test;
import org.junit.runner.RunWith;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.boot.test.context.SpringBootTest;
import org.springframework.test.context.junit4.SpringRunner;

import java.io.File;
import java.io.IOException;

@RunWith(SpringRunner.class)
@SpringBootTest
public class TestFastDFS {

    @Autowired
    protected FastFileStorageClient storageClient;

    @Test
    public void testUpload(){
        String path = "C:\\Users\\zhijun\\Desktop\\pics\\1.jpg";
        File file = new File(path);

        try {
```

```
            StorePath storePath = this.storageClient.uploadFile(FileUtils.openInputStream(file), file.length(), "jpg", null);

            System.out.println(storePath); //StorePath [group=group1, path=M00/00/00/wKgfUV2GJSuAOUd_AAHnjh7KpOc1.1.jpg]

 System.out.println(storePath.getFullPath());//group1/M00/00/00/wKgfUV2GJSuAOUd_AAHnjh7KpOc1.1.jpg
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}

```

5、发布小视频

5.1、编写pojo

在dubbo接口工程中编写pojo：

```
package com.tanhua.dubbo.server.pojo;

import lombok.AllArgsConstructor;
import lombok.Data;
import lombok.NoArgsConstructor;
import org.bson.types.ObjectId;
import org.springframework.data.mongodb.core.mapping.Document;

import java.util.List;

@Data
@NoArgsConstructor
@AllArgsConstructor
@Document(collection = "video")
public class Video implements java.io.Serializable {

    private static final long serialVersionUID = -3136732836884933873L;

    private ObjectId id; //主键id
    private Long userId;
    private String text; //文字
    private String picUrl; //视频封面文件
    private String videoUrl; //视频文件
    private Long created; //创建时间
    private Integer seeType; // 谁可以看，1-公开，2-私密，3-部分可见，4-不给谁看
    private List<Long> seeList; //部分可见的列表
    private List<Long> notSeeList; //不给谁看的列表
    private String longitude; //经度
    private String latitude; //纬度
    private String locationName; //位置名称
}

```

5.2、定义接口

```
package com.tanhua.dubbo.server.api;

import com.tanhua.dubbo.server.pojo.Video;

public interface VideoApi {

    /**
     * 保存小视频
     *
     * @param video
     * @return
     */
    Boolean saveVideo(Video video);

}

```

5.3、实现

```
package com.tanhua.dubbo.server.api;

import com.alibaba.dubbo.config.annotation.Service;
import com.tanhua.dubbo.server.pojo.Video;
import org.bson.types.ObjectId;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.data.mongodb.core.MongoTemplate;

@Service(version = "1.0.0")
public class VideoApiImpl implements VideoApi {

    @Autowired
    private MongoTemplate mongoTemplate;

    @Override
    public Boolean saveVideo(Video video) {
        if(video.getUserId() == null){
            return false;
        }

        video.setId(ObjectId.get());
        video.setCreated(System.currentTimeMillis());

        this.mongoTemplate.save(video);
        return true;
    }
}

```

5.4、接口服务

接口路径： POST /smallVideos

Mock地址： https://mock.boxuegu.com/mock/164/smallVideos

请求参数

Headers：

参数名称	参数值	是否必须	示例	备注
Content-Type	multipart/form-data	是		

Body:

参数名称	参数类型	是否必须	示例	备注
videoThumbnail	文件	是		视频封面文件
videoFile	文件	是		视频文件

返回数据

5.4.1、VideoController

```
package com.tanhua.server.controller;

import com.tanhua.server.service.VideoService;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.http.HttpStatus;
import org.springframework.http.ResponseEntity;
import org.springframework.web.bind.annotation.PostMapping;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RequestParam;
import org.springframework.web.bind.annotation.RestController;
import org.springframework.web.multipart.MultipartFile;

@RestController
@RequestMapping("smallVideos")
public class VideoController {

    @Autowired
    private VideoService videoService;

    @PostMapping
    public ResponseEntity<Void> saveVideo(@RequestParam(value = "videoThumbnail", required = false) MultipartFile picFile,
                                          @RequestParam(value = "videoFile", required = false) MultipartFile videoFile) {
        try {
            Boolean bool = this.videoService.saveVideo(picFile, videoFile);
            if(bool){
                return ResponseEntity.ok(null);
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
```

```
        return
ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).build();
    }
}

```

5.4.2、VideoService

```
package com.tanhua.server.service;

import com.alibaba.dubbo.config.annotation.Reference;
import com.github.tobato.fastdfs.domain.conn.FdfsWebServer;
import com.github.tobato.fastdfs.domain.fdfs.StorePath;
import com.github.tobato.fastdfs.service.FastFileStorageClient;
import com.tanhua.dubbo.server.api.VideoApi;
import com.tanhua.dubbo.server.pojo.Video;
import com.tanhua.server.pojo.User;
import com.tanhua.server.utils.UserThreadLocal;
import com.tanhua.server.vo.PicUploadResult;
import org.apache.commons.lang3.StringUtils;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Service;
import org.springframework.web.multipart.MultipartFile;

@Service
public class VideoService {

    @Autowired
    private PicUploadService picUploadService;

    @Autowired
    protected FastFileStorageClient storageClient;

    @Autowired
    private FdfsWebServer fdfsWebServer;

    @Reference(version = "1.0.0")
    private VideoApi videoApi;

    public Boolean saveVideo(MultipartFile picFile, MultipartFile
videoFile) {
        User user = UserThreadLocal.get();
        Video video = new Video();
        video.setUserId(user.getId());
        video.setSeeType(1);
        try {
            //上传封面图片
            PicUploadResult picUploadResult =
this.picUploadService.upload(picFile);
            video.setPicUrl(picUploadResult.getName()); //图片路径

            //上传视频
            StorePath storePath =
storageClient.uploadFile(videoFile.getInputStream(),
                    videoFile.getSize(),

 StringUtils.substringAfter(videoFile.getOriginalFilename(), "."),
```

```
                    null);
            video.setVideoUrl(fdfsWebServer.getWebServerUrl() + "/" +
storePath.getFullPath());

            this.videoApi.saveVideo(video);

            return true;
        } catch (Exception e) {
            e.printStackTrace();
        }

        return false;
    }
}

```

5.4.3、测试

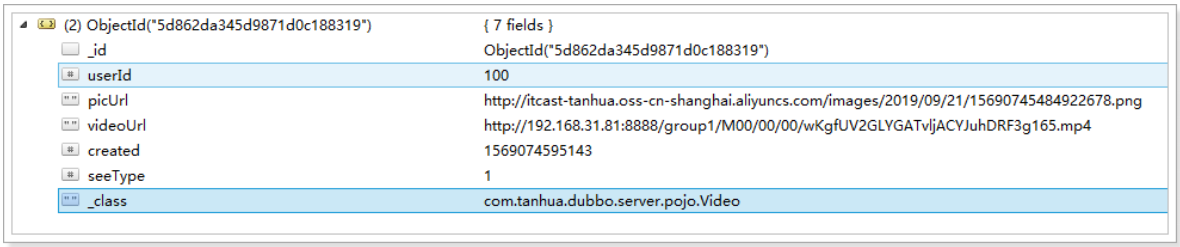
如果上传视频，会导致异常，是因为请求太大的缘故：

```
java.io.IOException: Stream closed
    at org.apache.catalina.connector.InputBuffer.read(InputBuffer.java:338) ~[tomcat-embed-core-
    at org.apache.catalina.connector.CoyoteInputStream.read(CoyoteInputStream.java:132) ~[tomcat
    at org.apache.catalina.connector.CoyoteInputStream.read(CoyoteInputStream.java:110) ~[tomcat
    at org.apache.commons.io.IOUtils.copyLarge(IOUtils.java:2314) ~[commons-io-2.6.jar:2.6]
    at org.apache.commons.io.IOUtils.copy(IOUtils.java:2270) ~[commons-io-2.6.jar:2.6]
    at org.apache.commons.io.IOUtils.copyLarge(IOUtils.java:2291) ~[commons-io-2.6.jar:2.6]
    at org.apache.commons.io.IOUtils.copy(IOUtils.java:2246) ~[commons-io-2.6.jar:2.6]
    at org.apache.commons.io.IOUtils.toByteArray(IOUtils.java:765) ~[commons-io-2.6.jar:2.6]
    at com.tanhua.server.interceptor.MyServletRequestWrapper.<init>(MyServletRequestWrapper.java
    at com.tanhua.server.interceptor.RequestReplaceFilter.doFilterInternal(RequestReplaceFilter.
    at org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterChain.j
    at org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.java:166)
    at org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterChain.j
    at org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.java:166)
```

解决：application.properties

```
spring.servlet.multipart.max-file-size=30MB
spring.servlet.multipart.max-request-size=30MB
```

问题解决：



6、小视频列表

6.1、定义dubbo服务

```
package com.tanhua.dubbo.server.api;

import com.tanhua.dubbo.server.pojo.Video;
import com.tanhua.dubbo.server.vo.PageInfo;

public interface VideoApi {

```

```
    /**
     * 保存小视频
     *
     * @param video
     * @return
     */
    Boolean saveVideo(Video video);

    /**
     * 分页查询小视频列表，按照时间倒序排序
     *
     * @param page
     * @param pageSize
     * @return
     */
    PageInfo<Video> queryVideoList(Integer page, Integer pageSize);

}
```

6.2、实现dubbo服务

```
package com.tanhua.dubbo.server.api;

import com.alibaba.dubbo.config.annotation.Service;
import com.tanhua.dubbo.server.pojo.Video;
import com.tanhua.dubbo.server.vo.PageInfo;
import org.bson.types.ObjectId;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.data.domain.PageRequest;
import org.springframework.data.domain.Pageable;
import org.springframework.data.domain.Sort;
import org.springframework.data.mongodb.core.MongoTemplate;
import org.springframework.data.mongodb.core.query.Query;

import java.util.List;

@Service(version = "1.0.0")
public class VideoApiImpl implements VideoApi {

    @Autowired
    private MongoTemplate mongoTemplate;

    @Override
    public Boolean saveVideo(Video video) {
        if (video.getUserId() == null) {
            return false;
        }

        video.setId(ObjectId.get());
        video.setCreated(System.currentTimeMillis());

        this.mongoTemplate.save(video);
        return null;
    }

    @Override
```

```
    public PageInfo<Video> queryVideoList(Integer page, Integer pageSize) {
        Pageable pageable = PageRequest.of(page - 1, pageSize,
Sort.by(Sort.Order.desc("created")));
        Query query = new Query().with(pageable);
        List<Video> videos = this.mongoTemplate.find(query, Video.class);
        PageInfo<Video> pageInfo = new PageInfo<>();
        pageInfo.setRecords(videos);
        pageInfo.setPageNum(page);
        pageInfo.setPageSize(pageSize);
        pageInfo.setTotal(0); //不提供总数
        return pageInfo;
    }
}

```

6.3、定义VideoVo

```
package com.tanhua.server.vo;

import lombok.AllArgsConstructor;
import lombok.Data;
import lombok.NoArgsConstructor;

@Data
@NoArgsConstructor
@AllArgsConstructor
public class VideoVo {

    private String id;
    private Long userId;
    private String avatar; //头像
    private String nickname; //昵称
    private String cover; //封面
    private String videoUrl; //视频URL
    private String signature; //签名
    private Integer likeCount; //点赞数量
    private Integer hasLiked; //是否已赞（1是，0否）
    private Integer hasFocus; //是是否关注 （1是，0否）
    private Integer commentCount; //评论数量
}

```

6.4、VideoController

```
@RestController
@RequestMapping("smallVideos")
public class VideoController {
/**
     * 查询小视频列表
     *
     * @param page
     * @param pageSize
     * @return
     */
    @GetMapping

```

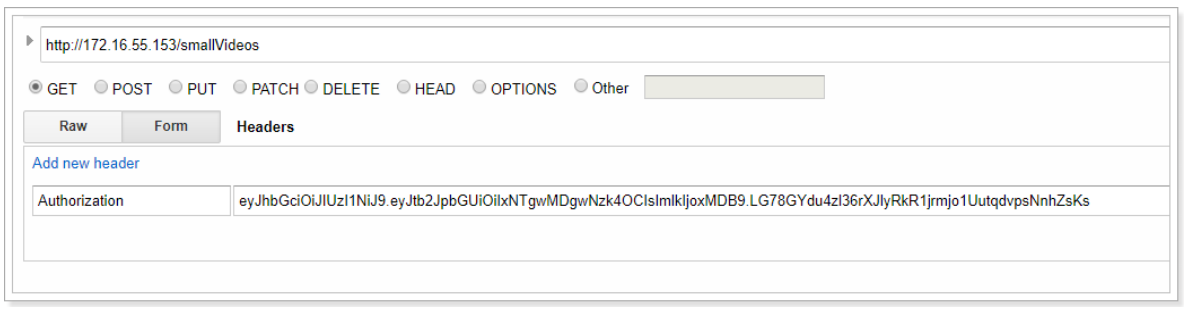
```
    public ResponseEntity<PageResult> queryVideoList(@RequestParam(value = "page", defaultValue = "1") Integer page,
                                                     @RequestParam(value = "pagesize", defaultValue = "10") Integer pageSize) {
        try {
            if (page <= 0) {
                page = 1;
            }
            PageResult pageResult = this.videoService.queryVideoList(page, pageSize);
            if (null != pageResult) {
                return ResponseEntity.ok(pageResult);
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
        return ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).build();
    }
}
```

6.5、VideoService

```
public PageResult queryVideoList(Integer page, Integer pageSize) {

        User user = UserThreadLocal.get();

        PageResult pageResult = new PageResult();
        pageResult.setPage(page);
        pageResult.setPagesize(pageSize);
        pageResult.setPages(0);
        pageResult.setCounts(0);

        PageInfo<Video> pageInfo = this.videoApi.queryVideoList(page, pageSize);
        List<Video> records = pageInfo.getRecords();
        List<VideoVo> videoVoList = new ArrayList<>();
        List<Long> userIds = new ArrayList<>();
        for (Video record : records) {
            VideoVo videoVo = new VideoVo();

            videoVo.setUserId(record.getUserId());
            videoVo.setCover(record.getPicUrl());
            videoVo.setVideoUrl(record.getVideoUrl());
            videoVo.setId(record.getId().toHexString());
            videoVo.setSignature("我就是我~");

            Long commentCount = this.quanZiApi.queryCommentCount(videoVo.getId(), 2);
            videoVo.setCommentCount(commentCount == null ? 0 : commentCount.intValue()); // 评论数

            String followUserKey = "VIDEO_FOLLOW_USER_" + user.getId() + "_" + videoVo.getUserId();
            videoVo.setHasFocus(this.redisTemplate.hasKey(followUserKey) ? 1 : 0); //是否关注

```

```
            String userKey = "QUANZI_COMMENT_LIKE_USER_" + user.getId() +
"_" + videoVo.getId();
            videoVo.setHasLiked(this.redisTemplate.hasKey(userKey) ? 1 :
0); //是否点赞（1是，0否）

            String key = "QUANZI_COMMENT_LIKE_" + videoVo.getId();
            String value = this.redisTemplate.opsForValue().get(key);
            if (StringUtils.isNotEmpty(value)) {
                videoVo.setLikeCount(Integer.valueOf(value)); //点赞数
            } else {
                videoVo.setLikeCount(0);
            }

            if (!userIds.contains(record.getUserId())) {
                userIds.add(record.getUserId());
            }

            videoVoList.add(videoVo);
        }

        QueryWrapper<UserInfo> queryWrapper = new QueryWrapper();
        queryWrapper.in("user_id", userIds);
        List<UserInfo> userInfos =
this.userInfoService.queryList(queryWrapper);
        for (VideoVo videoVo : videoVoList) {
            for (UserInfo userInfo : userInfos) {
                if (videoVo.getUserId().longValue() ==
userInfo.getUserId().longValue()) {

                    videoVo.setNickname(userInfo.getNickName());
                    videoVo.setAvatar(userInfo.getLogo());

                    break;
                }
            }

        }

        pageResult.setItems(videoVoList);
        return pageResult;
    }
```

6.6、测试



Raw JSON Response

Copy to clipboard Save as file


```
{
  counts: 0
  pagesize: 10
  pages: 0
  page: 1
 -items: [4]
   -0:  {
        id: "5d8adb1445d987183c7b237a"
        userId: 100
        avatar: "https://itcast-tanhua.oss-cn-shanghai.aliyuncs.com/images/logo/2.jpg"
        nickname: "heima_99"
        cover: "http://itcast-tanhua.oss-cn-shanghai.aliyuncs.com/images/2019/09/25/15693811392917845.png"
        videoUrl: "http://192.168.31.81:8888/group1/M00/00/02/wKgfUV2K2xSAUWdzACYJuhDRF3g320.mp4"
        signature: "我就是我~"
        likeCount: 0
        hasLiked: 0
        hasFocus: 0
        commentCount: 0
    }
   -1:  {
        id: "5d86314645d9871d0c18831a"
        userId: 100
        avatar: "https://itcast-tanhua.oss-cn-shanghai.aliyuncs.com/images/logo/2.jpg"
        nickname: "heima_99"
        cover: "http://itcast-tanhua.oss-cn-shanghai.aliyuncs.com/images/2019/09/21/15690755231506416.png"
        videoUrl: "http://192.168.31.81:8888/group1/M00/00/00/wKgfUV2GMUaAQRG5ACYJuhDRF3g076.mp4"
        signature: "我就是我~"
        likeCount: 1
        hasLiked: 1
        hasFocus: 0
        commentCount: 0
    }
   -2:  {
        id: "5d862da345d9871d0c188319"
        userId: 100
        avatar: "https://itcast-tanhua.oss-cn-shanghai.aliyuncs.com/images/logo/2.jpg"
```


7、视频点赞

点赞逻辑与之前的圈子点赞一样，所以实现也是一样的。

mock地址：https://mock.boxuegu.com/project/164/interface/api/77987

接口路径： POST /smallVideos/:id/dislike

Mock地址： https://mock.boxuegu.com/mock/164/smallVideos/:id/dislike

请求参数

路径参数：

参数名称	示例	备注
id		视频id

Headers：

参数名称	参数值	是否必须	示例	备注
Content-Type	application/x-www-form-urlencoded	是		

VideoController：

```
    /**
     * 视频点赞
     *
     * @param videoId 视频id
     * @return
     */
    @PostMapping("/{id}/like")
    public ResponseEntity<Long> likeComment(@PathVariable("id") String videoId) {
        return this.movementsController.likeComment(videoId);
    }

    /**
     * 取消点赞
     *
     * @param videoId
     * @return
     */
    @PostMapping("/{id}/dislike")
    public ResponseEntity<Long> disLikeComment(@PathVariable("id") String videoId) {
        return this.movementsController.disLikeComment(videoId);
    }
```

8、小视频评论

小视频的评论与圈子的评论逻辑类似，所以也可以使用同一套逻辑进行实现。

8.1、评论列表

mock地址：https://mock.boxuegu.com/project/164/interface/api/72177

```
    /**
     * 评论列表
     */
    @GetMapping("/{id}/comments")
    public ResponseEntity<PageResult> queryCommentsList(@PathVariable("id") String videoId,
                                                        @RequestParam(value = "page", defaultValue = "1") Integer page,
                                                        @RequestParam(value = "pagesize", defaultValue = "10") Integer pagesize) {
        return this.commentsController.queryCommentsList(videoId, page, pagesize);
    }
```

8.2、发布评论

mock地址：https://mock.boxuegu.com/project/164/interface/api/72919

```
    /**
     * 提交评论
     *
     * @param param
     * @param videoId
     * @return
     */
    @PostMapping("/{id}/comments")
    public ResponseEntity<Void> saveComments(@RequestBody Map<String,
String> param,
                                             @PathVariable("id") String
videoId) {
        param.put("movementId", videoId);
        return this.commentsController.saveComments(param);
    }
```

8.3、评论点赞

mock地址：https://mock.boxuegu.com/project/164/interface/api/75306

```
    /**
     * 评论点赞
     *
     * @param publishId
     * @return
     */
    @PostMapping("/comments/{id}/like")
    public ResponseEntity<Long> commentsLikeComment(@PathVariable("id")
String publishId) {
        return this.movementsController.likeComment(publishId);
    }

    /**
     * 评论取消点赞
     *
     * @param publishId
     * @return
     */
    @PostMapping("/comments/{id}/dislike")
    public ResponseEntity<Long> disCommentsLikeComment(@PathVariable("id")
String publishId) {
        return this.movementsController.disLikeComment(publishId);
    }
```

8.4、关注用户

关注用户是关注小视频发布的作者，这样我们后面计算推荐时，关注的用户将权重更重一些。

8.4.1、定义dubbo服务

```
package com.tanhua.dubbo.server.pojo;

import lombok.AllArgsConstructor;
import lombok.Data;
import lombok.NoArgsConstructor;
```

```java
import org.bson.types.ObjectId;
import org.springframework.data.mongodb.core.mapping.Document;

@Data
@NoArgsConstructor
@AllArgsConstructor
@Document(collection = "follow_user")
public class FollowUser implements java.io.Serializable{

    private static final long serialVersionUID = 3148619072405056052L;

    private ObjectId id; //主键id
    private Long userId; //用户id
    private Long followUserId; //关注的用户id
    private Long created; //关注时间
}

```

```java
package com.tanhua.dubbo.server.api;

import com.tanhua.dubbo.server.pojo.Video;
import com.tanhua.dubbo.server.vo.PageInfo;

public interface VideoApi {

    /**
     * 保存小视频
     *
     * @param video
     * @return
     */
    Boolean saveVideo(Video video);

    /**
     * 分页查询小视频列表，按照时间倒序排序
     *
     * @param page
     * @param pageSize
     * @return
     */
    PageInfo<Video> queryVideoList(Integer page, Integer pageSize);

    /**
     * 关注用户
     *
     * @param userId
     * @param followUserId
     * @return
     */
    Boolean followUser(Long userId, Long followUserId);

    /**
     * 取消关注用户
     *
     * @param userId
     * @param followUserId
     * @return
```

```
     */
    Boolean disFollowUser(Long userId, Long followUserId);

}

```

接口实现：

```
 //VideoApiImpl：
 @Override
    public Boolean followUser(Long userId, Long followUserId) {
        try {
            FollowUser followUser = new FollowUser();
            followUser.setId(ObjectId.get());
            followUser.setUserId(userId);
            followUser.setFollowUserId(followUserId);
            followUser.setCreated(System.currentTimeMillis());
            this.mongoTemplate.save(followUser);
            return true;
        } catch (Exception e) {
            e.printStackTrace();
        }
        return false;
    }

    @Override
    public Boolean disFollowUser(Long userId, Long followUserId) {
        Query query =
Query.query(Criteria.where("userId").is(userId).and("followUserId").is(foll
owUserId));
        DeleteResult deleteResult = this.mongoTemplate.remove(query,
FollowUser.class);
        return deleteResult.getDeletedCount() > 0;
    }
```

8.4.2、服务实现

```
//VideoController：
    /**
     * 视频用户关注
     */
    @PostMapping("/{id}/userFocus")
    public ResponseEntity<Void> saveUserFocusComments(@PathVariable("id")
Long userId) {
        try {
            Boolean bool = this.videoService.followUser(userId);
            if (bool) {
                return ResponseEntity.ok(null);
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
        return
ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).build();
    }

```

```java
    /**
     * 取消视频用户关注
     */
    @PostMapping("/{id}/userUnFocus")
    public ResponseEntity<Void> saveUserUnFocusComments(@PathVariable("id") Long userId) {
        try {
            Boolean bool = this.videoService.disFollowUser(userId);
            if (bool) {
                return ResponseEntity.ok(null);
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
        return ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).build();
    }
```

```java
//VideoService:
    /**
     * 关注用户
     *
     * @param userId
     * @return
     */
    public Boolean followUser(Long userId) {
        User user = UserThreadLocal.get();
        this.videoApi.followUser(user.getId(), userId);

        //记录已关注
        String followUserKey = "VIDEO_FOLLOW_USER_" + user.getId() + "_" + userId;
        this.redisTemplate.opsForValue().set(followUserKey, "1");

        return true;
    }

    /**
     * 取消关注
     *
     * @param userId
     * @return
     */
    public Boolean disFollowUser(Long userId) {
        User user = UserThreadLocal.get();
        this.videoApi.disFollowUser(user.getId(), userId);

        String followUserKey = "VIDEO_FOLLOW_USER_" + user.getId() + "_" + userId;
        this.redisTemplate.delete(followUserKey);

        return true;
    }
```