hw3: Multithread & Caching

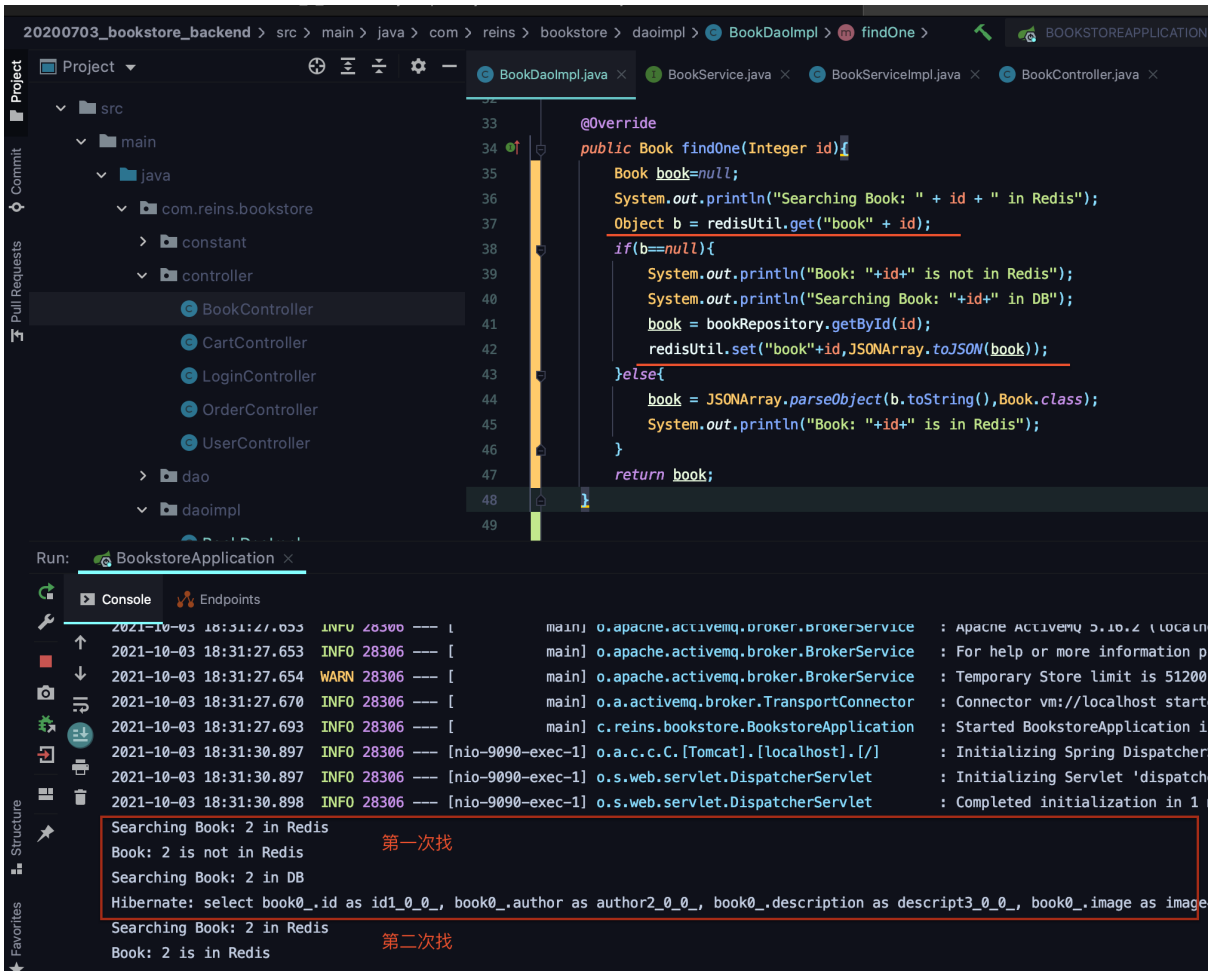
Multithread

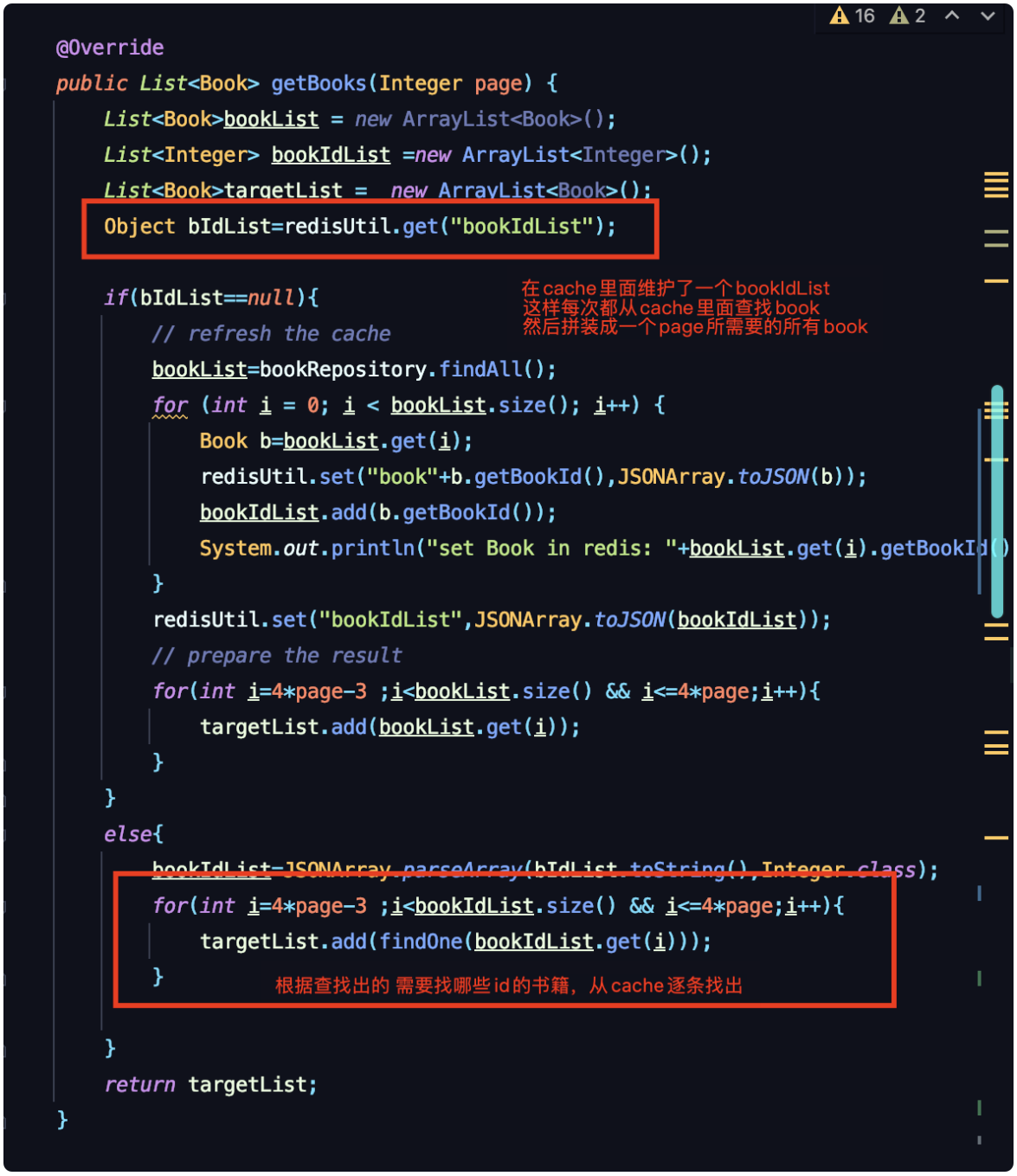
```
private AtomicInteger num = new AtomicInteger( initialValue: 0);
@Override
public Integer addHomePV() { return num.incrementAndGet(); }
```

使用AtomicInteger保证原子性

Caching

查找书籍





修改书籍信息

先写cache,再写数据库，set方法可以覆盖原来redis的键值对

原来的cache

```
127.0.0.1:6379> get book202
"[\"com.alibaba.fastjson.JSONObject\",{\"image\":\"8\",\"author\":\"4\",\"price\":5,\"isbn\":\"1\",
\"name\":\"2\",\"description\":\"6\",\"inventory\":7,\"type\":\"3\",\"bookId\":202}]"
```

```
http://localhost:9090/changeBook?isbn=1-1-1-1&name=2-2-2-2&type=3&author=4&price=5&description=6&inventory=7&image=8&id=202
```

修改后的cache

```
127.0.0.1:6379> get book202
"[\"com.alibaba.fastjson.JSONObject\",{\"image\":\"8\",\"author\":\"4\",\"price\":5,\"isbn\":\"1-1-1-1\",\"name\":\"2-2-2-2\",\"description\":\"6\",\"inventory\":7,\"type\":\"3\",\"bookId\":202}]"
127.0.0.1:6379>
```

对于查找删除操作更新cache中的bookidList,然后再删除增加对应的cache记录

```java
public void updateIdList(Boolean add, Integer id){   增加 add=true,删除=false
    Object bIdList=redisUtil.get("bookIdList");
    if(bIdList==null)return;
    List<Integer> bookIdList =new ArrayList<Integer>();
    bookIdList=JSONArray.parseArray(bIdList.toString(),Integer.class);
    if(add){
        bookIdList.add(id);
    }
    else{
        for (Integer item : bookIdList) {
            if(id.equals(item)) {
                bookIdList.remove(item);
            }
        }
    }                                   找到cache的bookIdList ,进行修改
    redisUtil.set("bookIdList",JSONArray.toJSON(bookIdList));
}
```

删除

```java
@Override
public Book deleteBook(Integer bookId) {
    Optional<Book> b=bookRepository.findById(bookId);
    bookRepository.deleteById(bookId);
        //isPresent方法用来检查Optional实例中是否包含值
        if (b.isPresent()) {
            //在Optional实例内调用get()返回已存在的值
            // update cache
            redisUtil.del( ...key: "book"+b.get().getBookId());
            updateIdList( add: false,b.get().getBookId());
            return b.get();
        }else return null;
}
```

```
1-1\",\"name\":\"2-2-2-2\",\
127.0.0.1:6379> get book202
(nil)
127.0.0.1:6379>
```

增加

```java
@Override
public Book addBook( String isbn, String name, String type, String author, Integer price, String description, Integer inventor
    Book book= new Book(isbn,name, type, author, price, description, inventory, image);
    Book b=bookRepository.save(book);
    redisUtil.set("book"+b.getBookId(),JSONArray.toJSON(b));
    updateIdList( add: true,b.getBookId());
    return book;
}
```