Assignment T3: First Iteration Team Iceberg

Chong Hu (ch3467) Weijie Huang (wh2447) Zeyang Chen (zc2483) Wenjie Chen (wc2685)

Part 1:

https://github.com/JackSnowWolf/Iceberg

Database behind our application is already configured in the github repo. We used AWS cloud database.

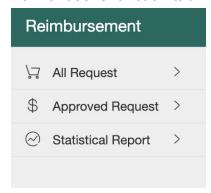
Part 2:

User Stories and Acceptance Tests

8 User Stories in total: 4 for Normal User, 2 for Group Manager, 2 for Administrator

Normal User Part

Normal user's function tab:



User Story 1:

As a normal user, I want to apply for reimbursement so that I can upload invoices to submit an expense account.

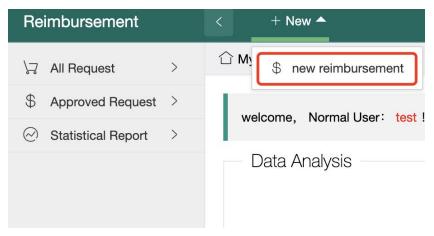
My conditions of satisfaction are:

Users can fill reimbursement forms to make reimbursement requests to the financial department to examine.

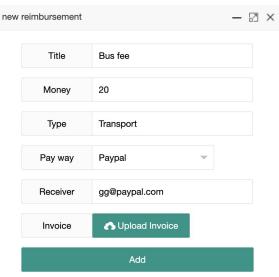
Acceptance Test:

Valid Input:

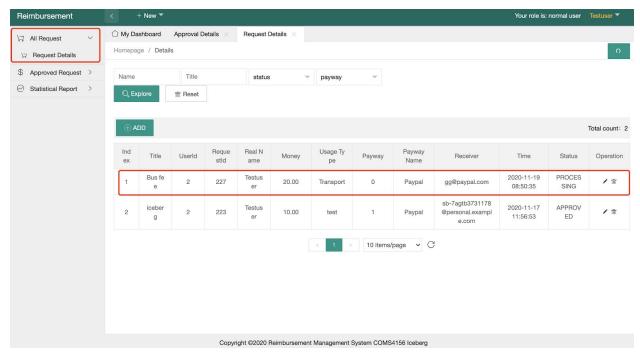
At the homepage, click "new reimbursement"



Then fill your information in the form, click "Add"



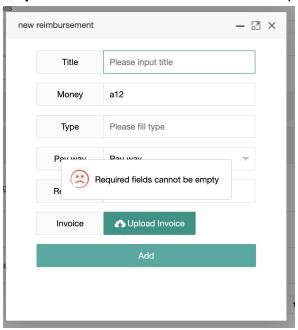
Then in "All Request"-"Request Details" Tab, you can check posted requests.



We can see a new request is added.

Invalid Input:

When adding information, if a user enters an invalid money amount, like not a number. Or if he leaves key information blank. He is not able to post a request.



Discussion

At first, even if a user fills in the form correctly, he is still not able to add the request. When clicking "Add", it shows "Operation failed, call exception".

This is because the sql statements in codes don't match database tables. For example, table names or column names don't match. Check the database and revise it.

What's more, at first, the front-end doesn't read the back-end data very accurately, so some of the columns may be wrongly filled. This is because when we try to initiate the form from the parent table element, we haven't aligned the elements and we have fixed it now.

User Story 2:

As a normal user, I want to check reimbursement status so that I can keep track of the reimbursement process and manage my expenses.

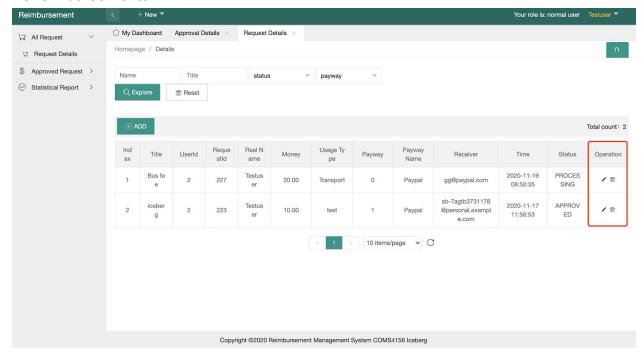
My conditions of satisfaction are:

- i. Users can check the status of each reimbursement.
- ii. Users can revise or supplement their reimbursement information.
- iii. Users can delete their requests.

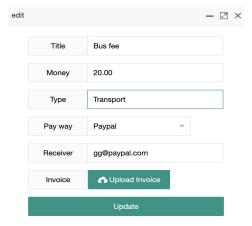
Acceptance Test:

Valid Input:

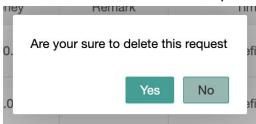
In "All Request" Tab, click "Request Details". Then users can check the status of his reimbursements.



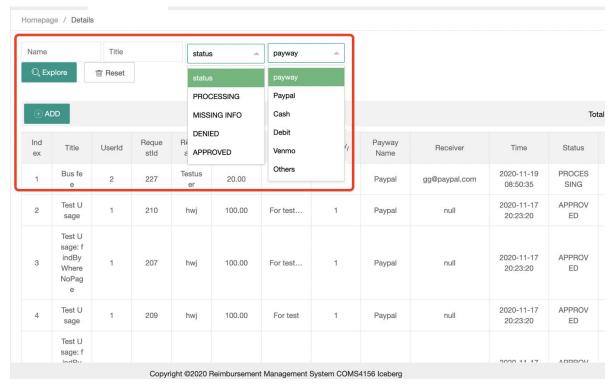
Then at the "Operation" column. Click the little pencil button, users are able to edit his requests.



Click the trash bin button, users are able to delete the request.

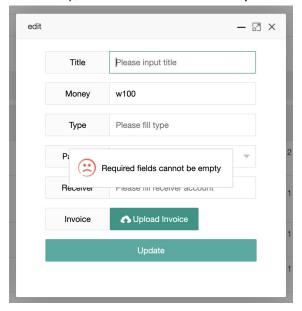


What's more, users are able to search and filter requests by "Name", "Title", "status", "payway".



Invalid Input

When a user edits a request, if the revised information is not valid (like tile is empty or money is not a number), then he is not able to update.



Also when searching, if users type in a keyword that doesn't exist, the result will be null.

Discussion

After clicking Request Details, it may appear "Operation failed, call exception" and can't load requests' information. That is because it misses a row in the "payway" table which represents a "null" payway that causes foreign key constraint. Add such a row and the system works correctly.

What's more, firstly we just show the paywayid in the front-end, but it is better to show the payway string like "Paypal", "Venmo" and "Cash" in order to be more explicit.

(This user story is deleted. Its function is merged into user story 2.) *User Story:*

As a normal user, I want to revoke my request so that I can make some changes if I typed in wrong information.

My conditions of satisfaction are:

i. I can revoke my processing requests, then the status of that request will be changed to "CANCELLED".

User Story 3:

As a normal user, I want to receive emails so that I can get noticed when I successfully post a request or my requests' status changes.

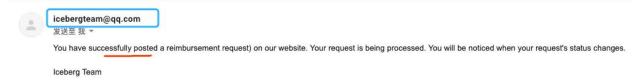
My conditions of satisfaction are:

- i. When I finish a request and submit, I should receive an email to notify me about this.
- ii. When group managers approve or deny my request. I should receive an email that tells me how my request is going so that I needn't log in to the system to do that.

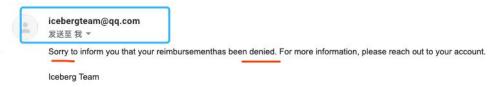
Acceptance Test:

Valid Input

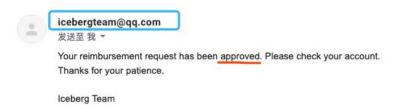
When a user successfully posts a reimbursement request (like in user story 1), he will receive a confirmation email that notifies him about the request.



When a user's requests are denied by his group manager, he will receive an email.



When a user's requests are approved by his group manager, he will receive an email.



Invalid Input

This user story could not possibly involve invalid inputs. Because the satisfactions are not fulfilled by normal users' operation. They are mainly triggered by group managers' operation. As long as users' requests status change, he will receive email.

However if a user's email information is not valid. He can not receive emails when his requests' status change.

Discussion

Even if a user's information is correct, he is still not able to receive emails. We found that it is because the email configuration is not correct so that the system cannot access email service. Fix the configuration.

What's more, we should try to make the sending email process asynchronous in the future in order to make our process run more smoothly.

(This user story is deleted. This function can't operate successfully now. We will fulfill this user story later.)

User Story:

As a normal user, I want that it can automatically help me fill the reimbursement application form when I upload the scanning file of my invoice or receipt, so that it will save me some time.

My conditions of satisfaction are:

- i. I can upload my scanning file of invoice and receipt.
- ii. The system can recognize the character on my file and fill in the form automatically (it is acceptable that there may be some mistakes), and provide me with the form that I can re-edit and revise the information.

User Story 4:

As a normal user, I want to see my statistics of my historical reimbursements so that I can manage my expenses better.

My conditions of satisfaction are:

I can view my historical reimbursement data in terms of different charts, such as pie charts (different types of reimbursements), bar charts (expense versus data), etc.

Acceptance Test:

Valid Input

Log in the homepage, click "All Request" - "Request Details". Then the user is able to see all his requests.



Click "Approved Request" - "Approval Details". The user is able to Click "Statistical Report" and the user will see 3 charts analysing all his bills.



The first pie chart represents the percentage of approved and unapproved money amounts. The second chart shows how much a user has spent for a specific category. The third chart shows a user's request by day.

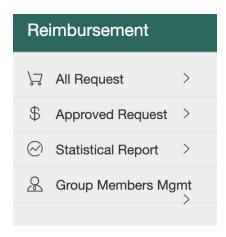
Invalid Input

This acceptance test could not possibly involve invalid inputs. Because this test only involves click operations.

Discussion

At first, we can just plot the first chart and the second and third chart are invalid in the front-end view. It is because there are some bugs in the Javascript function we wrote in the front-end. After fixing the bugs, the charts have been showed accurately.

Group Manager Part Group manager's function tab:



User Story 1:

As a group manager, I want to examine and approve all reimbursement applications submitted by normal users so that I can manage all reimbursements through the system.

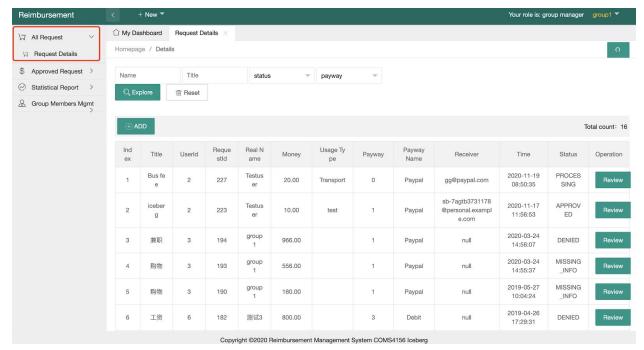
My conditions of satisfaction are:

- i. Group managers can examine and approve reimbursement applications submitted by employees.
- ii. Group manager can change the status reimbursement applications to PROCESSING, MISSING INFO, DENIED, APPROVED.

Acceptance Test:

Valid Input

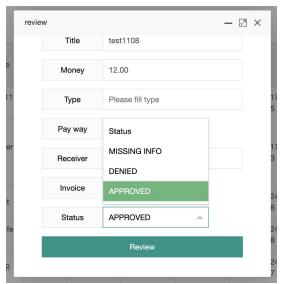
When logging in with a group manager account, on homepage click "Outcome Mgmt" - "Outcome Details". The group manager will see all the requests posted by group members.



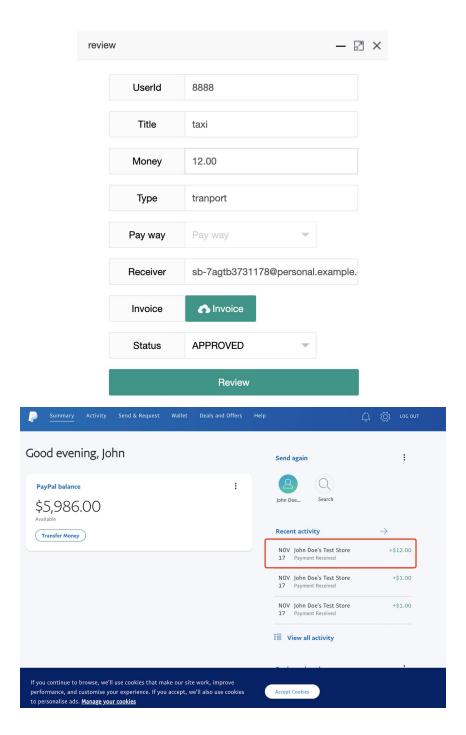
For every request, the group manager can click on "review" button. Then he is able to check the details of the requests.



After reviewing the requests, the group manager can change the status of the request to "MISSING INFO", "DENIED" or "APPROVED".

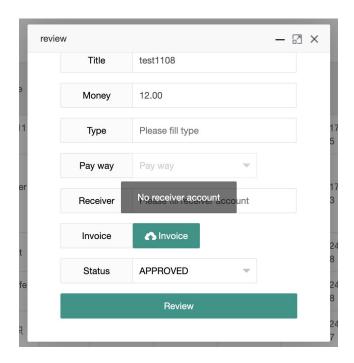


If the request is denied, the user will receive an email. If the request is approved, the user will receive an email and money will be sent to his account automatically.



Invalid Input

If the group manager approves a request that doesn't have a related receiver's account, which means the money can't be sent to paypal correctly, this operation can't pass.



Discussion

If the receiver account a user provides is not valid, when the request is approved, the process may time out and fail. We can fix it by doing these two operations asynchronously.

There is a front-end and back-end data synchronization error at the beginning, after fixing some codes in the HTML file, we have fixed the bugs.

User Story 2:

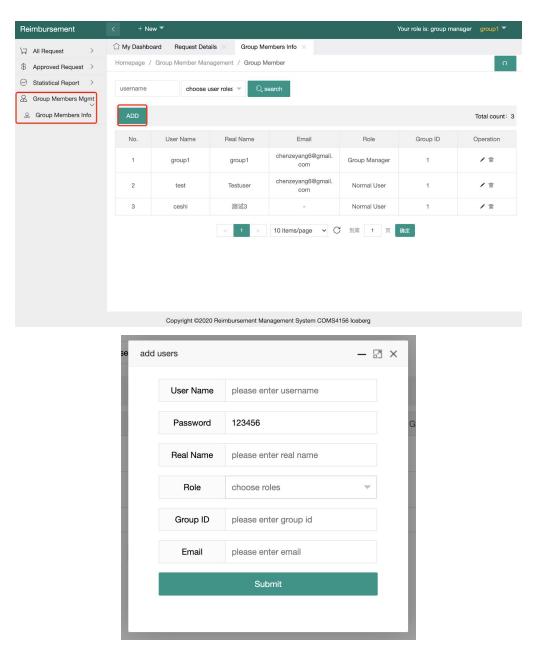
As a group manager, I want to add group members and check the whole group's bills so that I am able to better manage my group.

My conditions of satisfaction are:

- i. On the group page, I can add a group member into my group.
- ii.On the group page, I can see all visualized statics charts of the group's budget. I can view my group historical reimbursement data in terms of different charts, such as pie charts (different types of reimbursements), bar charts (expense versus data), etc.

Acceptance Test:

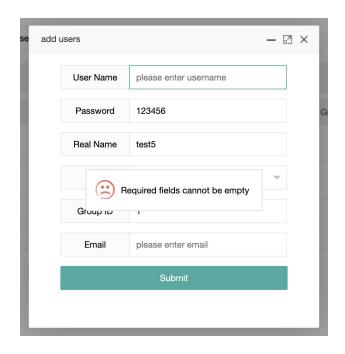
- Valid Input
- i. When logging in as a group manager, click "Group Members Mgmt" "Group Members Info" "Add".



Fill in the user information form and click submit. Then a new user is added successfully.

ii. Click "Statistical Report" and the group manager will see 3 charts which is the same as shown in normal user's user story 4. However, it counts the whole group's bills here.

Invalid Input When filling user's information, all the information must be provided and Group ID must be an existing group. Otherwise the add operation cannot succeed.

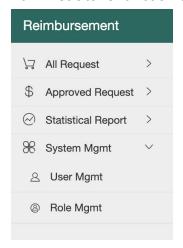


Discussion

After clicking submit, it shows "Operation fail, call exception". Check the database and we find that column names don't match between frontend pages and database tables.



Administrator Part Administrator's function tab:



User Story 1:

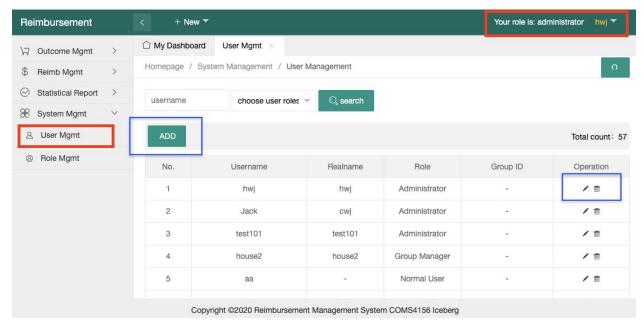
As an administrator, I want to manage the reimbursement groups accounts so that I can give them the right to the group manager to manage their group member's reimbursement.

My satisfaction conditions are:

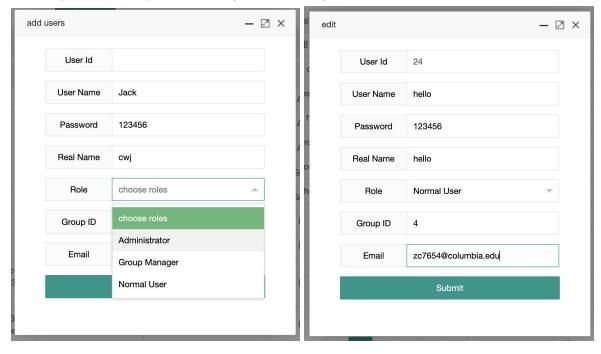
- i. Administrator can create, edit or delete the accounts
- ii. Administrators can create many groups depending on setting different group numbers.

Acceptance Test:

- Valid Input
- i. As an administrator, I click the System Mgmt then click the User Mgmt (red framed).



Then I will enter the user management page. Then I press the "add", "edit", "delete" button (blue framed) to do the operation. If I press "delete", the user is deleted.



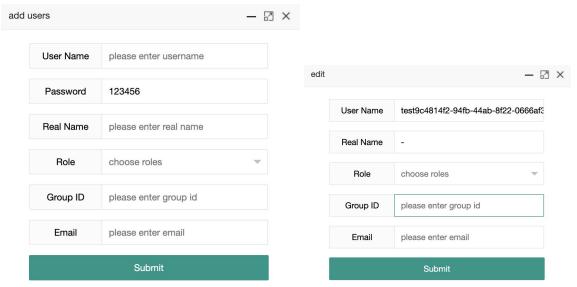
| No. | Username | Realname | Role | Group ID | Operation |
|-----|----------|-------------|---------------|----------|-----------|
| 1 | hwj | hwj | Administrator | ~ | / 🖮 |
| 2 | Jack | cwj | Administrator | - | / 🖮 |
| 3 | house2 | house2 | Group Manager | - | / 🖮 |
| 4 | test | Wenjie Chen | Group Manager | - | / m |

This is the two windows pop up after I press the "add", "edit". I give the user a role. Then submit the change. The change shows up on the page successfully. The first satisfaction passes.

ii.

| ADD | | | | | | Total count: 4 |
|-----|--|-----------|--------------------|---------------|----------|----------------|
| No. | User Name | Real Name | Email | Role | Group ID | Operation |
| 1 | hwj | hwj | hwj97055@gmail.com | Administrator | 2 | / п |
| 2 | 1117test | 1117test | - | Group Manager | 2 | / = |
| 3 | test9c4814f2-94fb-44 ab-8f22-0666af36835 8 | - | - | Normal User | 2 | / m |
| 4 | test1116 | - | - | Normal User | 2 | / m |

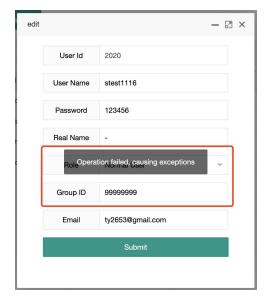
As an administrator, I set the group ID for a user to make him/her in different groups.



Then the user is successfully set to a group. The second satisfaction passes.

Invalid Input

If a user is assigned to a group that does not exist. The add/update operation will fail.



Discussion

At first we found the update operation failed. It was because some parameter types don't match between entities and database fields. Fix it and it works.

User Story 2:

As an administrator, I want to have the report of the reimbursement statistics of each group so that I can understand the allocation and use of the company's funds.

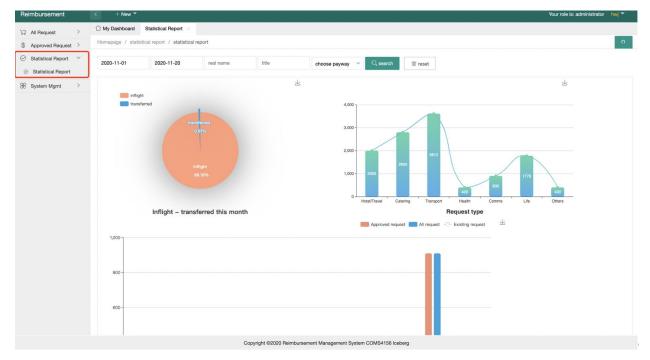
My satisfaction conditions are:

i. Administrators can see the reimbursement statistics of each group.

Acceptance Test:

Valid Input

As an administrator, I clicked on "statistical report", then I saw various charts. I set different variables including start date, end date, and so on. Then clicked "search". The corresponding chart showed up. The default condition is all data.



Invalid Input

On the search bar, we have to insert valid input. If I insert invalid one, such as invalid time, the system will alert me to insert valid input.

Discussion
 TODO: Trying to show charts with different groups to admin.

Part 3:

The link to the folder(s) within your github repository containing all the test cases that are automatically invoked by your unit testing tool.

Test cases:

https://github.com/JackSnowWolf/Iceberg/tree/master/src/test/java/com/iceberg

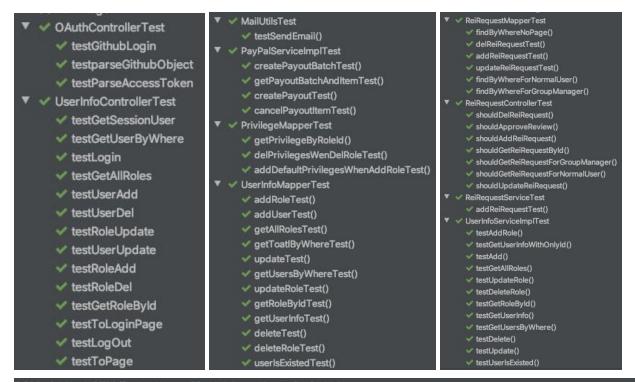
To run all the cases: right click the project main directory and click "run all test cases" or "run all test cases for coverage". (Not using "maven test!")

The link to the file(s) in your repository that configure the build tool and/or package manager and the automated unit testing tool. pom.xml:

https://github.com/JackSnowWolf/Iceberg/blob/master/pom.xml

application.yml:

https://github.com/JackSnowWolf/Iceberg/blob/master/src/main/resources/application.yml



| 93% classes, 67% lines covered in pac | kage 'com.iceberg' | |
|---------------------------------------|--------------------|--------------|
| Element | Class, % | Method, % |
| configs | 100% (4/4) | 100% (10/10) |
| controller | 100% (3/3) | 85% (24/28) |
| D dao | 100% (0/0) | 100% (0/0) |
| contity | 71% (5/7) | 83% (73/87) |
| m externalapi | 100% (2/2) | 100% (10/10) |
| service | 100% (3/3) | 70% (14/20) |
| tils utils | 100% (10/10) | 78% (43/55) |
| lcebergApplication | 100% (1/1) | 0% (0/2) |

Part 4:

CheckStyle Results

Generated by Checkstyle 8.29 with ${\tt google_checks.xml}$



Summary

| Classes | Bugs | Errors | Missing Classes | |
|---------|------|--------|-----------------|--|
| 37 | 10 | 0 | 0 | |

Files

| Class | Bugs |
|---|------|
| com.iceberg.controller.OAuthController | 1 |
| com.iceberg.controller.UserInfoController | 1 |
| com.iceberg.entity.ReimbursementRequest | 2 |
| com.iceberg.entity.ReimbursementRequest\$Status | 1 |
| com.iceberg.service.impl.ReiRequestServiceImpl | 2 |
| com.iceberg.service.impl.UserInfoServiceImpl | 1 |
| com.iceberg.utils.PageModel | 2 |

com.iceberg.controller.OAuthController

| Bug | Category | Detalls |
|---|----------|------------------|
| Store of non serializable com.iceberg.entity.UserInfo into HttpSession in com.iceberg.controller.OAuthController.setSessionUserInfo(UserInfo, HttpSession) | | J2EE_STORE_OF_NO |

com.iceberg.controller.UserInfoController

| Bug | Category | Details |
|---|----------|----------------|
| Store of non serializable com.iceberg.entity.UserInfo into HttpSession in com.iceberg.controller.UserInfoController.setSessionUserInfo(UserInfo, HttpSession) | | J2EE_STORE_OF_ |