

236197

Web Layer

- Users are able to view any transactions related to them.
- A separate notification page allows users to see payment requests and when payment is made.
- Users can request payments by entering the recipient's user name and the amount to be made.

I was unable to implement the function to check if a user exists as such entering a non-existent user will show errors.

I was also unable to implement a payment accept and reject function.

- Admins can view all user accounts, including their usernames, currency, and balances.
- Admin can view all transactions made
- Admin can register more admins

Business Layer

- A transaction storage service has been implemented to store transactions
Users are able to view transactions related to them
- TransactionService is an EJB to make payments to other users
- Requests are in the form of notifications with the tag "Payment Request"
- Admin can view all user accounts and balances, passwords are not viewable as they are hashed anyways.
- Admins can view all transactions
- Admin can register more admins

Persistence Layer

- JavaDB called WebappsDB is used
- All entities are accessed through EJBs

Security Layer

- Confidential is chosen in transport guarantee
- Form based authentication is used
- Users and admins can log out
- @RolesAllowed and @PermitAll are used for certain methods
- A singleton is used to register an admin upon deployment

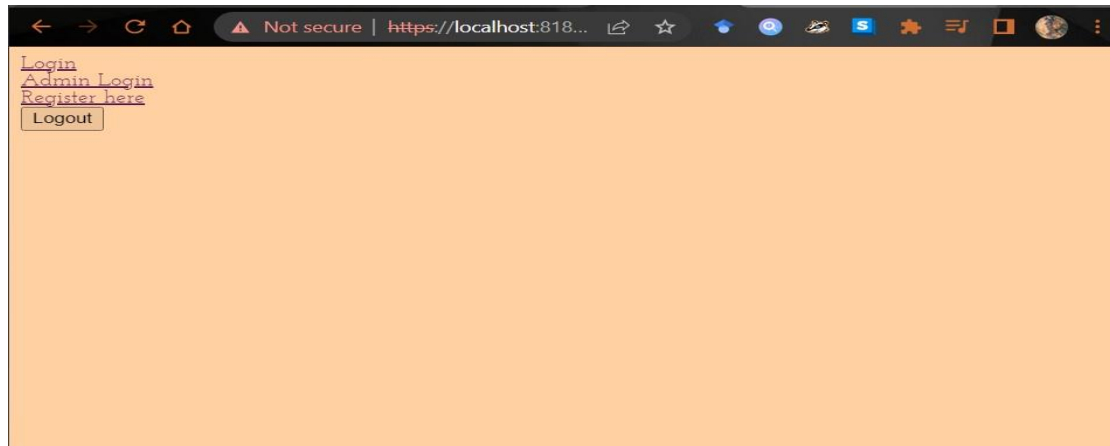
Web Services

- A functional currency conversion service is implemented, this works on both the advanced rest client and the project
-

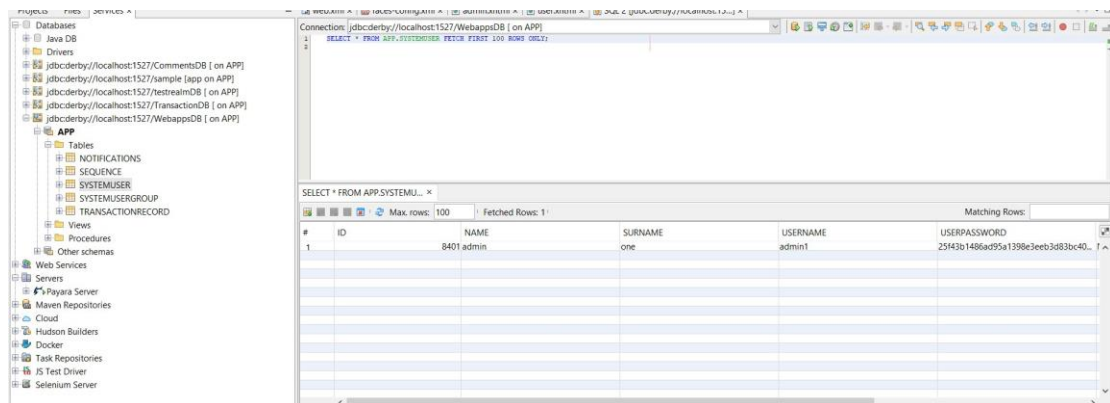
Thrift

- The thrift service is used to get a timestamp in milliseconds which is then converted to Date.

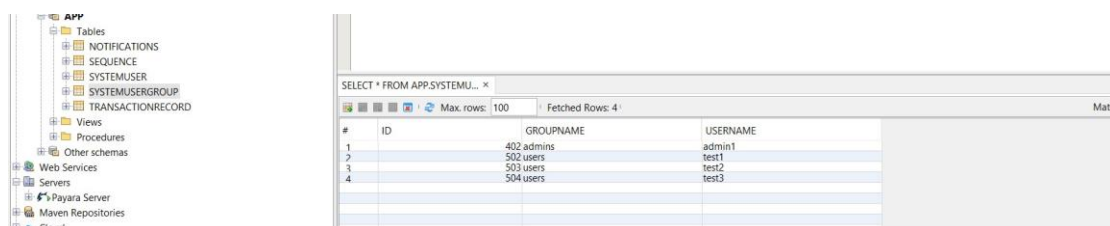
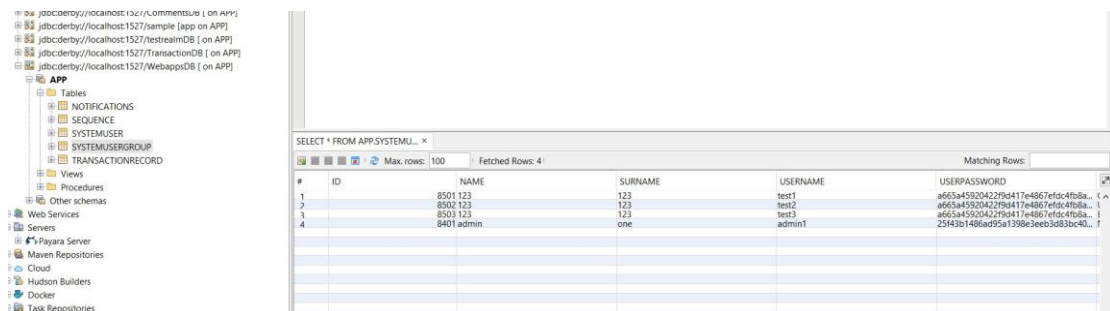
User Manual



The user is greeted with this screen upon deployment.



Admin1 is registered upon deployment



Three users are registered, each with a different currency

Fill in the details and press the register button.

*User name:

*Password:

*First Name:

*Last Name:

*Currency:

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Normal user register page

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Current User: admin1

[View users](#)

[View transactions](#)

[Register new admins](#)

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Admin page after log in as admin1

User Name	Name	Surname	Currency	Balance
test1	123	123	GBP	1000.0
test2	123	123	USD	1301.785
test3	123	123	EUR	1207.31278
admin1	admin one		N/A	0.0

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View users page with all 4 users and converted balance.

Fill in the details and press the register button.

*User name:

*Password:

*First Name:

*Last Name:

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Admin register page

User Name	Name	Surname	Currency	Balance
test1	123	123	GBP	1000.0
test2	123	123	USD	1301785
test3	123	123	EUR	1207.31278
admin2	admin two		N/A	0.0
admin1	admin one		N/A	0.0

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View user page with newly registered admin2

Current User: test1
[View notifications](#)
[View transactions](#)
[Make payment](#)
[Request payment](#)
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Log in as normal user test1

Request Payments

Username:

Amount:

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Payment request of 100GBP sent to user test2

View Notifications
 User Name: test1
 User Currency: GBP
 User Balance 1000.0

Notification Type:	From User	Sender Currency	To User	Recipient Currency	Amount	Date
Payment Request	test1	GBP	test2	USD	130.17849999999999	Sun Apr 2 17:42:41 BST 2022

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Notifications of test1

View Notifications
 User Name: test2
 User Currency: USD
 User Balance 1301.785

Notification Type:	From User	Sender Currency	To User	Recipient Currency	Amount	Date
Payment Request	test1	GBP	test2	USD	130.17849999999999	Sun Apr 24 17:42:41 BST 2022

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Notifications of test2, the amount requested is already converted to test2's currency

Make Payments
 Username:

 Amount:

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Payment made to test1

View Notifications
 User Name: test2
 User Currency: USD
 User Balance 1171.6065001000002

Notification Type:	From User	Sender Currency	To User	Recipient Currency	Amount	Date
Payment Request	test1	GBP	test2	USD	130.17849999999999	Sun Apr 24 17:42:41 BST 2022
Payment Made	test2	USD	test1	GBP	99.99999985989639	Sun Apr 24 17:44:59 BST 2022

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Notifications of test2, note Payment Made.

View Transactions

User Name: test2

User Currency: USD

Balance: 1171.6065001000002

Current User: test2

From User	Sender Currency	To User	Recipient Currency	Amount	Date
test2	GBP	test1	USD	99.99999985989639	Sun Apr 24 17:44:59 BST 2022

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Transaction record of test2

View Notifications						
User Name: test1						
User Currency: GBP						
User Balance 1099.9999998598964						
Notification Type:	From User	Sender Currency	To User	Recipient Currency	Amount	Date
Payment Request	test1	GBP	test2	USD	130.17849999999999	Sun Apr 24 17:42:41 BST 2022
Payment Made	test2	USD	test1	GBP	99.99999985989639	Sun Apr 24 17:44:59 BST 2022
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Notifications of test1

View Transactions

User Name: test1

User Currency: GBP

Balance: 1099.9999998598964

Current User: test1

From User	Sender Currency	To User	Recipient Currency	Amount	Date
test2	GBP	test1	USD	99.99999985989639	Sun Apr 24 17:44:59 BST 2022

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Transaction record of test1

The balance of both users has changed. Timestamp can also be seen.

Current User:
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[Logout](#)

- User is logged out

Log out function

User Name	Name	Surname	Currency	Balance
test1	123	123	GBP	1099.9999998598964
test2	123	123	USD	1171.6065001000002
test3	123	123	EUR	1207.31278
admin2	admin two		N/A	0.0
admin1	admin one		N/A	0.0

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Admin view user page with updated balance

From User	Sender Currency	To User	Recipient Currency	Amount	Date
test2	GBP	test1	USD	99.99999985989639	Sun Apr 24 17:44:59 BST 2022

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Admin transaction page