Java 4 WEB

Lesson 7 - Practice

Lesson goals

Remember and extend

Domain

- Implement user management app with ability to search and add new users in runtime.
- Implement program by interfaces
- Implement unit tests

Model

User

- id - unique, immutable , non empty
- login - unique, non empty
- password - non empty
- Full name - immutable, non empty
- admin - boolean
- licenses - licenses list. Not more than 1 license is active in one moment

License

- Type
  - FULL (has access to both WEB and MOBILE)
  - WEB_ONLY (has access only to WEB)
  - MOBILE_ONLY (has access only to MOBILE)
- Start date (without time)
- Expiration date (without time)

UserService

- `save` - save new or update existing user with validation
    - User should have at least one license
    - License should be non expired for new users
    - Licenses dates should not intersect (expiration date of previous license should be less than start date of new license)
    - If any validation constraint is violated - throw exception with corresponding message
- `getByLogin`
- `getActiveUsers` - sorted by active license expiration date ascending (i.e. user with later license expiration date should be on top, then if the same expiration, compare full name lexicographically and then by login)
- `getExpriringUsers` - get users whose active license will expire in {argument} number of days
- `getExpriringUsers` - users whose license will expire at specific date
- `getAll` - sorted by full name and then by login

ManagementPanel

- Create new user. Only admin can create users (i.e. current user should be admin, if not admin trying to save user - throw exception)

- Update user by user id. Only admin can update users (i.e. current user should be admin, if not admin trying to update user - throw exception)

- Remove user by login. Deny to remove current user from database. If user not present or try to delete current user - throw exception

- Print all users sorted by full name and then by login
  - full name
  - login
  - license info
    - for active license: type, license expiration date, license days left
    - if user does not have active license - print INACTIVE

- Print users whose active license expires in next week, i.e. in 7 days after today. Print full name, login, license type, active license expiration date, license days left. Order by FullName and then by login.

- Get map of users partitioned by admin flag

- Get map of users grouped by active license type

- Get client-days count, total days of active user licenses till today inclusive by userId (start and end license dates are inclusive). For example if user had 3 licenses (2018-02-01 to 2018-02-10, 2018-07-06 to 2018-07-08, and 2018-11-18 to 2018-11-31) then result should be 10 (ten active days from first license) + 3 (three active days from second license) + 2 (days till today 2018-11-19 inclusive from current license) = 15

Additional requirements

All methods which returns collection should be safe for modifications. i.e. if try to update returned collection - original collection should not be affected

Home task

Implement user creation process
1. When user login is in use – print appropriate message
2. When user login is not in use – create new user

Implement missing functionality

Cover by unit tests on 100%