Back End Java Web Developer Candidate Technical Exam

Please carefully read and understand this document then start your work.
Develop the following web app as per the business described below – Time 3 hours
The app is used to save configuration files into client PC in the form of H2 databases.

- Create a default configuration file in form of an H2 database file of a known static path. The file is called defaults.cfg. Mention the path in your solution report so that the environment for your solution could be built by the reviewer.
- Create a service that loads the default values from the database to the interface for configuration page and default configuration page upon app loading.
- Use the following tables to build up your models and scenarios.

Configuration page interface description:

Component Name	Component Description	Default Value?
Project Picture	The user selects a photo from his/her PC and it is shown in this place in the page.	No
Project Description	A text area where the user can write a description.	No
Mass Unit Dropdown	Dropdown menu to determine the mass unit, the options are shown in the screen below.	Yes
Temperature Unit Dropdown	Dropdown menu to determine the Temperature unit, the options are shown in the screen below.	Yes
Mass	Numerical Value input by the user.	Yes
Temperature	Numerical Value input by the user.	Yes
Mass Unit Label	Label where the unit is loaded upon unit selection in Mass Unit Dropdown	Yes
Temperature Unit Label	Label where the unit is loaded upon unit selection in Temperature Unit Dropdown	Yes

Start	Numerical Value input by the user.	No
Step	Numerical Value input by the user.	No
End	Numerical Value input by the user.	No

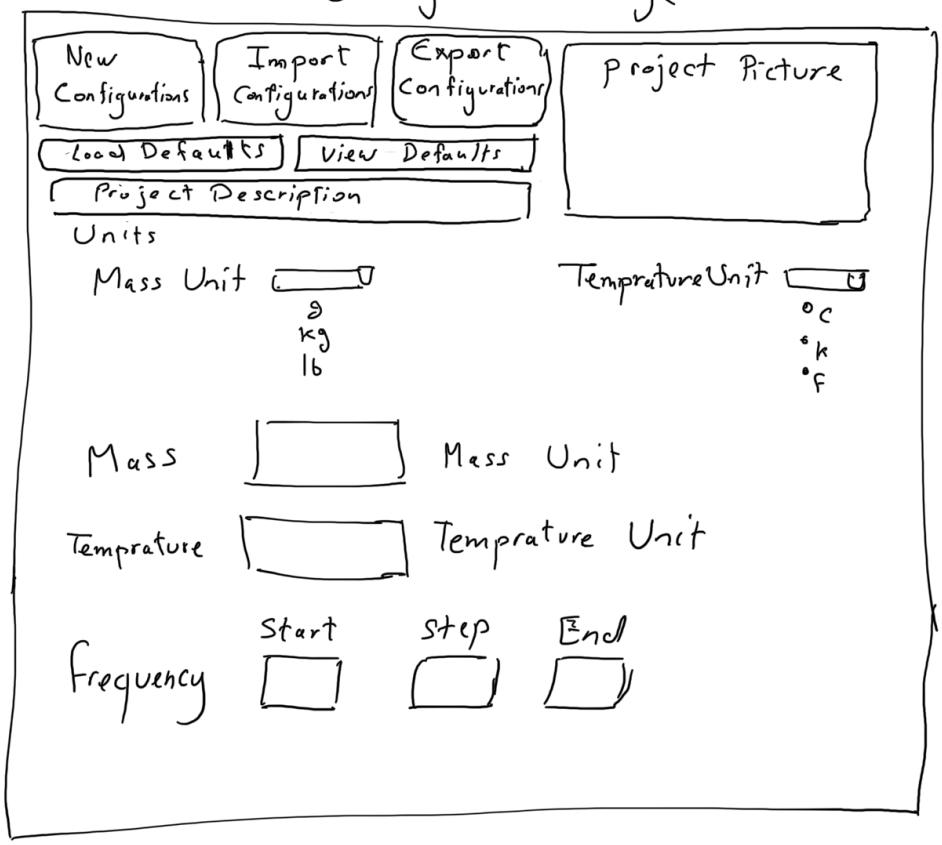
Default configuration page interface description:

Component Name	Component Description
Default Mass Unit Dropdown	Dropdown menu to determine the default mass unit, the options are shown in the screen below.
Default Temperature Unit Dropdown	Dropdown menu to determine the default Temperature unit, the options are shown in the screen below.
Default Mass	Numerical Value input by the user.
Default Temperature	Numerical Value input by the user.

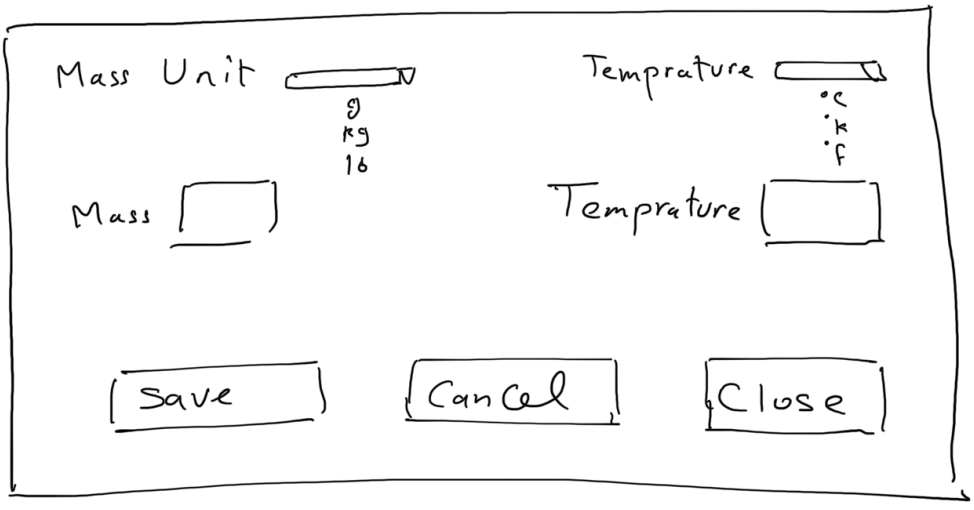
Configuration page Scenarios:
The system takes user inputs from the interface and saves them in configuration file in the form of H2 database in a path and name on the PC selected by the user. This is done through **Export Configuration button**.
Import Configuration is used to load a presaved configuration file selected from the PC by the user.
Load Defaults is used to load the default values from defaults.cfg in the interface and keep the values for the other interface elements that have no defaults as is.
New Configurations is used to load the default values from defaults.cfg in the interface and clear the other interface elements that have no defaults.
View Defaults is used to open Default configuration page interface.

Default configuration page interface scenario:
Save: Save default values into defaults.cfg and nothing happens.
Cancel: Cancel Default configuration page interface and load Configuration page interface.
Close: Close Default configuration page interface and loads Configuration page interface, usually used after saving to return to Configuration page interface.

Configurations Page



Defaut Configurations Page



Development Considerations:

Front End: Use html, css and javascript through single page web application. Using javascript framework is a plus for bonus.

Back End

Use Spring boot through API services interacting with front end.

Architecture

Use MVC, Single page app, Microservices, APIs for all system services, H2 databases in forms of files and ORM.

Deployment

Application outcome should be seamlessly hosted on both glassfish and tomcat servers.

Testing

Conduct, Unit and Integration Testing.

Documentation

The following should be submitted:

- Source code.
- Deployed package.
- Installation/Deployment on server steps.
- Solution Architecture.
- Database diagram.
- Class diagram.
- Execution flow chart.
- Testing reports.

Grading:

Item	Points
Commitment to the business	20
Commitment to Development considerations.	20
Source code	10
package	10
Database	10
Unit Testing	5
Integration Testing	5
Documentation with sub items mentioned above	20
Total	100
Bonus	10
Please note that failure in submission for one of those items means failure in the exam.	

Thank You
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Good Luck