

Project Implementation Explanation:

My implementation of the Biobank uses a 'Java Dynamic Project' structure. For the client side, it uses Bootstrap for the UI Design. For a dynamic client and server side communication, AJAX is implemented. Client-side scripting is handled by Typescript converted to Javascript.

For DB services, I used an AWS (Amazon Web Services) RDS server that was configured to use MySQL.

For Hosting, I used an AWS hosted Environment running Tomcat on a Java platform, then deployed a .war version of the file

How to Execute:

The project is available live at

Visit <http://biobank.eu-west-2.elasticbeanstalk.com/> for the live version

To execute locally:

- please use a local MySQL with a biobank schema following brief spec
- Import project into Eclipse IDE
- Create a Tomcat Server within the IDE
- 'Run as' on Tomcat Server
- View on any up to date browser

Key Files Breakdown:

Index.jsp

Biobank/WebContent/index.jsp

This is the main homepage for the Biobank website, it uses Bootstrap for managing the structure of the page as well as the Bootstrap classes for UI design. It is the only page in the website due to the more 'dynamic' approach used.

onLoad.ts

Biobank/WebContent/Scripts/TS/Initialization_Scripts/onLoad.ts

Since Javascript/Typescript only allows a single window.onload() event handler, I opted to use a single ts file for handling all of the shared onload events, this work around allows multiple methods to be executed on load from their own files and come back to this one.

```
onLoad.ts - Fetch_Initial_Col_Data_onload();
           - UI_Alert_onload();
           - etc
```

Fetch_Initial_Col_Data.ts

Biobank/WebContent/Scripts/TS/RDS_Services/Fetch_Initial_Col_Data.ts

When the website is loading, this script executes a AJAX Get request to 'RDS_InitialLoad_Service' to fetch all of the available bio-collections stored in the linked SQL database. Then it would receive a JSON response and output the data to a table on the page.

Fetch_Selected_Sample_Data.ts

Biobank/WebContent/Scripts/TS/RDS_Services/Fetch_Selected_Sample_Data.ts

When a user selects a Collection to view in more depth, i.e, checking all available samples for that specific sample, the site will use this script to fire a AJAX Post request to 'RDS_FetchSampleQuery_Service' with the selected collections DB ID and the service will respond with all the sample that are linked to that ID via a foreign key. The script will then render a table with all of the sample information.

Send_Collection_Data.ts

Biobank/WebContent/Scripts/TS/RDS_Services/Send_Collection_Data.ts

This script handles all of the logic and checks related to adding a new collection to the database. it will check that the input is valid, if not it will output an error notification, if however it is okay, the script will then send an AJAX Post request to 'RDS_AddCollection_Service' with all of the entered information. The service will then check and add the collection, responding with a status code, the script will then check this and display an error or success message to the user while refreshing the collection displayed.

Send_Sample_Data.ts

Biobank/WebContent/Scripts/TS/RDS_Services/Send_Sample_Data.ts

This script handles adding new/updating sample data, after the user views a collection and fills in the add sample form, the script will check the input and display a error message if there is an issue with the data, else it will send a AJAX Post request to 'RDS_AddSample_Service' with the data input. The service will then check if it is a new sample or an update, after handling it, the service will respond with an status code and the script will check this then display an error or success message to the user while refreshing all the available samples.

RDS_AddCollection_Service.java

Biobank/src/DB_Services/RDS_AddCollection_Service.java

RDS_AddSample_Service.java

Biobank/src/DB_Services/RDS_AddSample_Service.java

RDS_FetchSampleQuery_Service.java

Biobank/src/DB_Services/RDS_FetchSampleQuery_Service.java

RDS_InitialLoad_Service.java

Biobank/src/DB_Services/RDS_InitialLoad_Service.java