OJET: Oracle Javascript Extension Toolkit

It is used mainly to create SPA (Single Page Applications)

What are SPA

These are the applications, where only one page will be loaded and everything happens in one page and you perform any actions it refreshes part of the page

OJET: It is mainly used to create SPA to connect with Oracle Products (Weblogic, Oracle Cloud..)

Pre-requisites

* HTML
* CSS
* Javascript (Latest features of Javascript)

HTML: Display the content in the web page

CSS: Styling the HTML

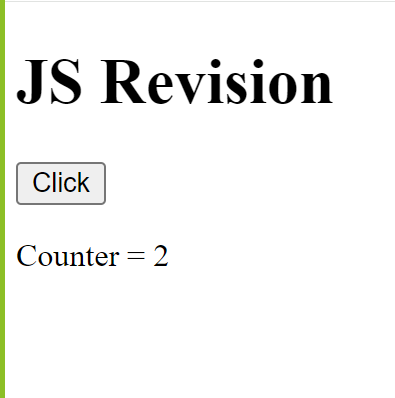
Javascript: It is to access HTML & CSS at runtime to add effects

Software’s:

1. VS Code
2. Node.js

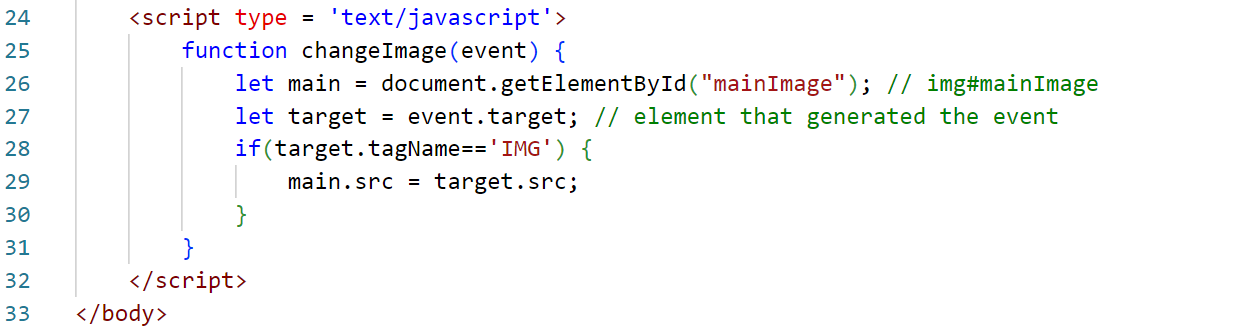


Output:



Accessing HTML elements using events

Image Changing at runtime



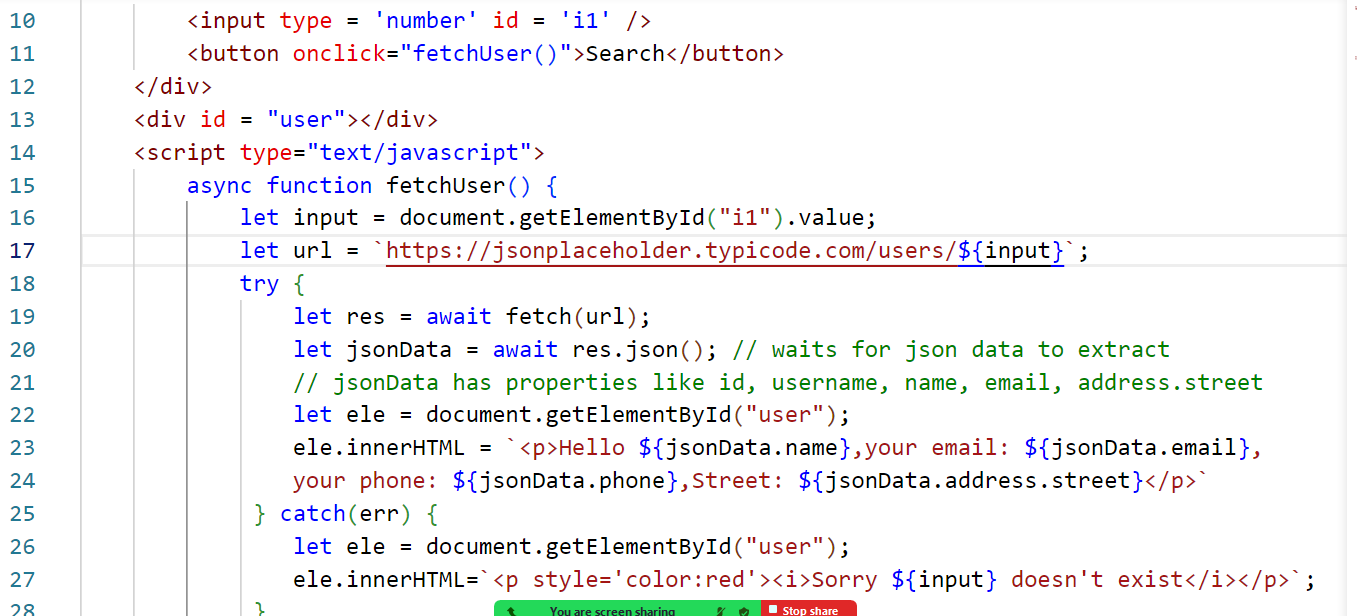
Output:



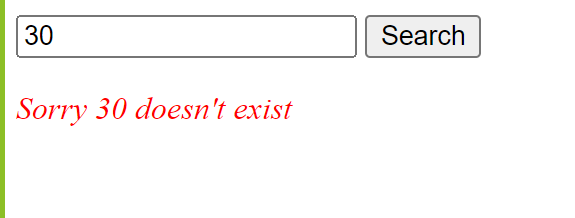
fetch API

It is mainly used to access the backend services through Javascript code, it returns a Promise object with resolved / rejected status

fetch( URL).then( callbackFn ).catch( callbackFn )



Output:



Creating backend webservice using node.js

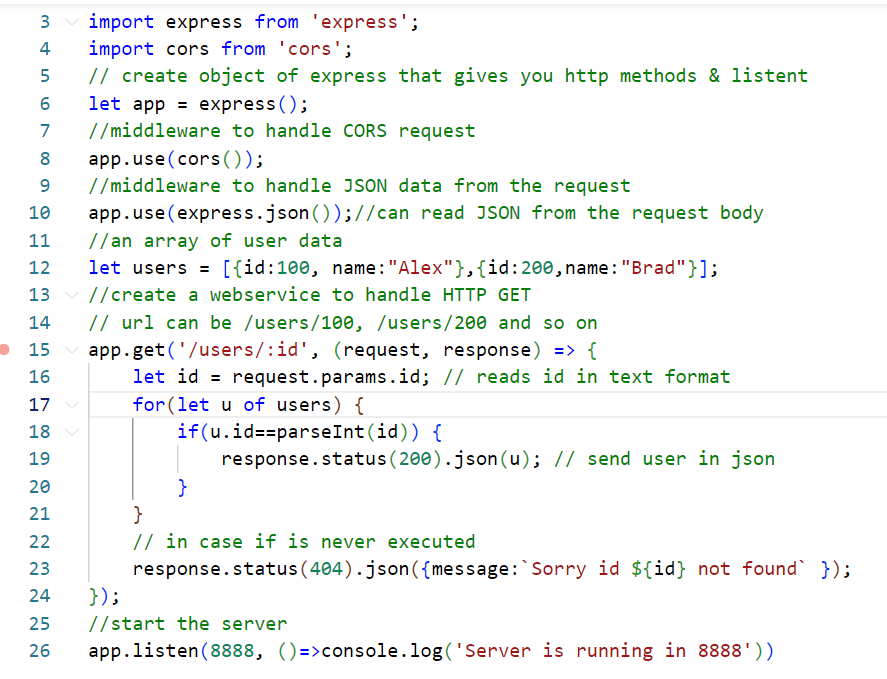
You must have package.json which keeps all the dependencies, similar to pom.xml in maven

*npm init -fy* : to create package.json

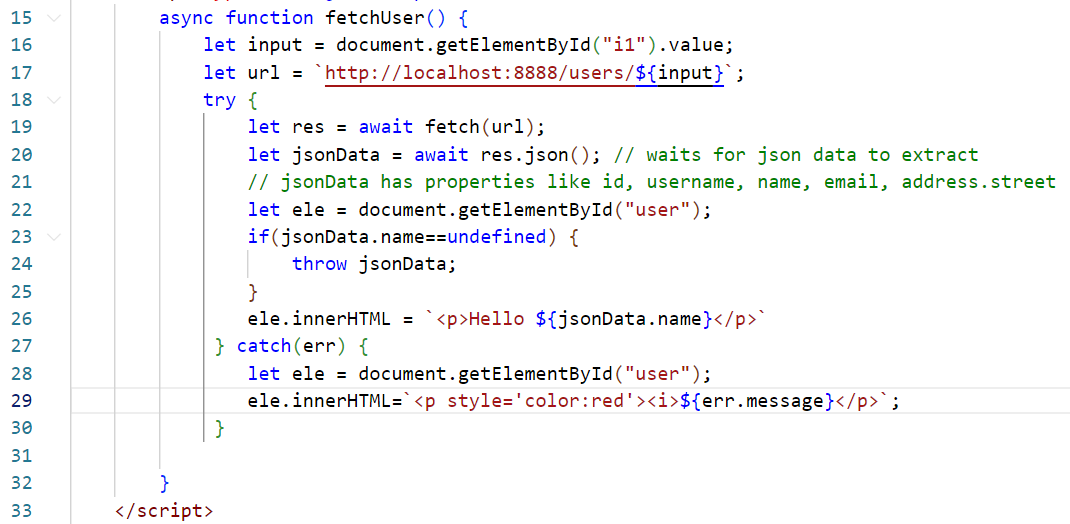
*npm install express cors* : this installs express & cors library

express: it is to create a server & backend webservice with HTTP methods

cors: It is to handle cross-origin request



index.htm



Output:

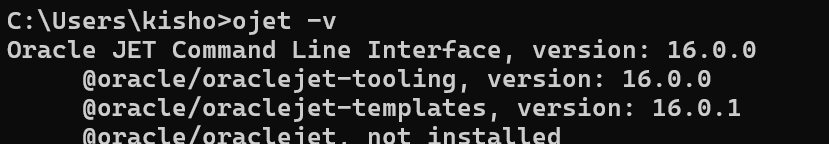


OJET: It is a Javascript toolkit that provides inbuilt UI components to create buttons, tables, lists, menu and so on, you need to install OJET using npm command.

Installation



Verify



OJET gives you starter projects which will have predefined layouts

OJET uses Javascript / Typescript for development

Javascript

function add(x, y) { … }   
add(20, 30);  
add(“HELLO”, “WORLD”);

Typescript

function add(x: number, y: number) {   
}

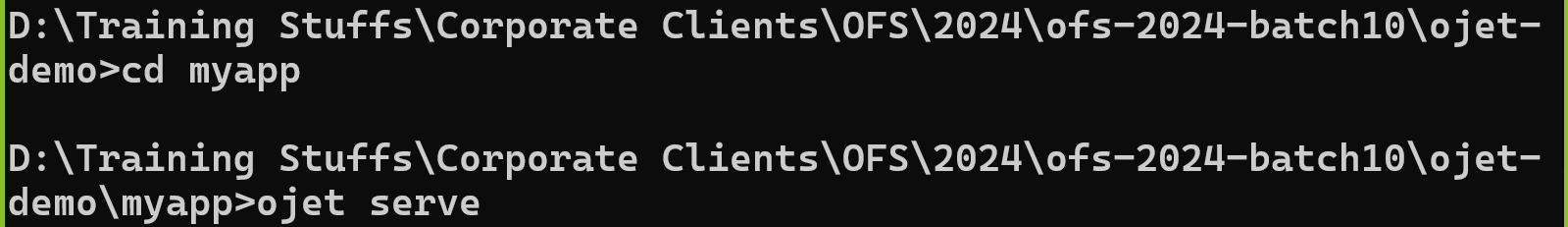
add(20, 30); // works

add(“hello”, “world”); compilation error

Creating the project



Navigate to the project & use ojet serve



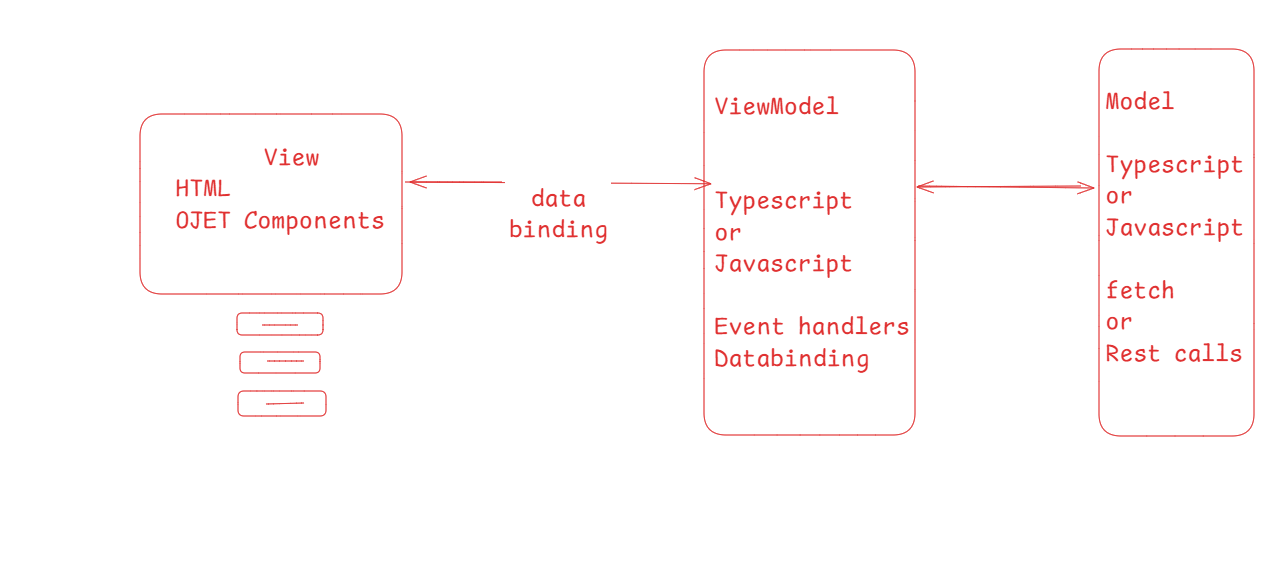
OJET architecture

It uses MVVM architecture

M: Model

V: View

VM: ViewModel



OJET depends on Knockout.js for data binding

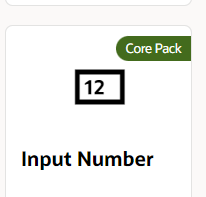
data binding: It is a process of sharing the data from view to viewModel and vice versa

Steps to follow while using the OJET components

* Use the oracle cookbook
* Import the components in the TS/JS file
* Use the components in the html file
* Declare variables of Observable<T> type.

OJET components have inbuilt validators, converters

Try to use Input Number



Internationalization & Localization

Making your application adapting to different regions makes your application internationalized, however you need localized languages for each language

ex: French - fr  
ex: English - en

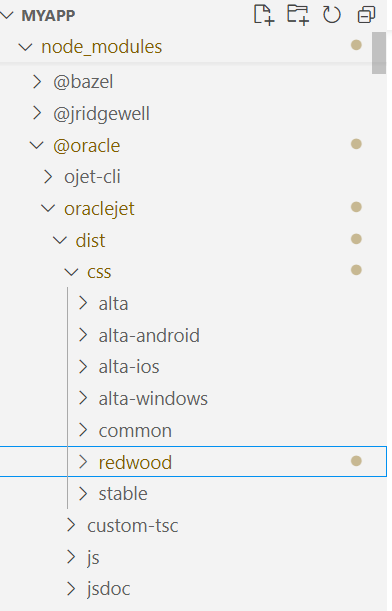
Activity-01  
Use OJET cookbook as a reference to create a form layout, that will have following components in the existing project inside any one of the view & viewModels file

1. Form Layout: align the controls to take lesser width
2. Input Text
3. Input Secret
4. Input Date Time
5. Radio buttons
6. Checkbox
7. Drop down
8. Progress bar
9. Button : This must produce hello world message in alert box on click

Push the HTML & TS file in a folder named activity-01 in your repository

OJET Themes

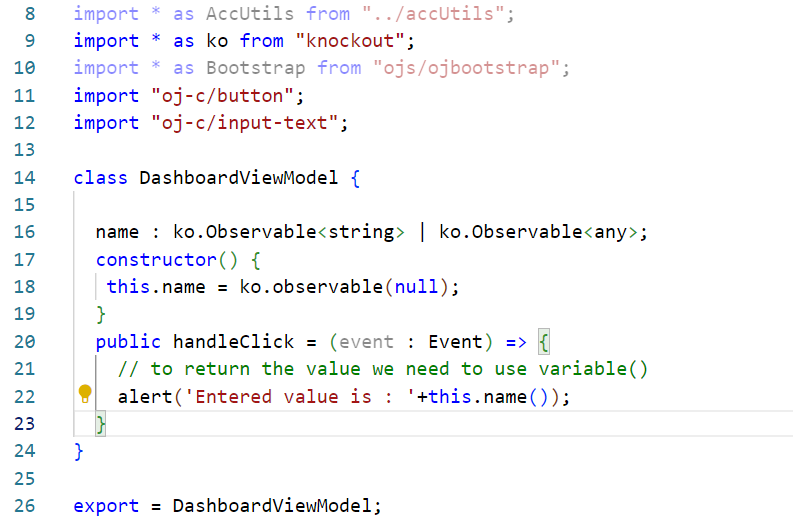
By default OJET uses Redwood theme, but oracle recommends not to use any third party themes



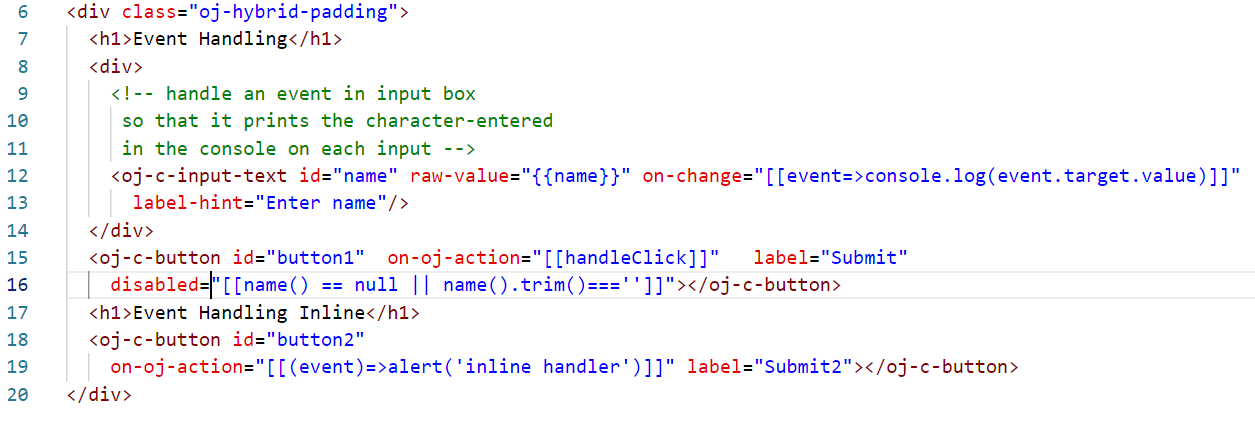
How to handle events in OJET

In Javascript you write event name in the HTML element and invoke the Javascript function, in OJET you use some attributes specified in the Cookbook to handle events.

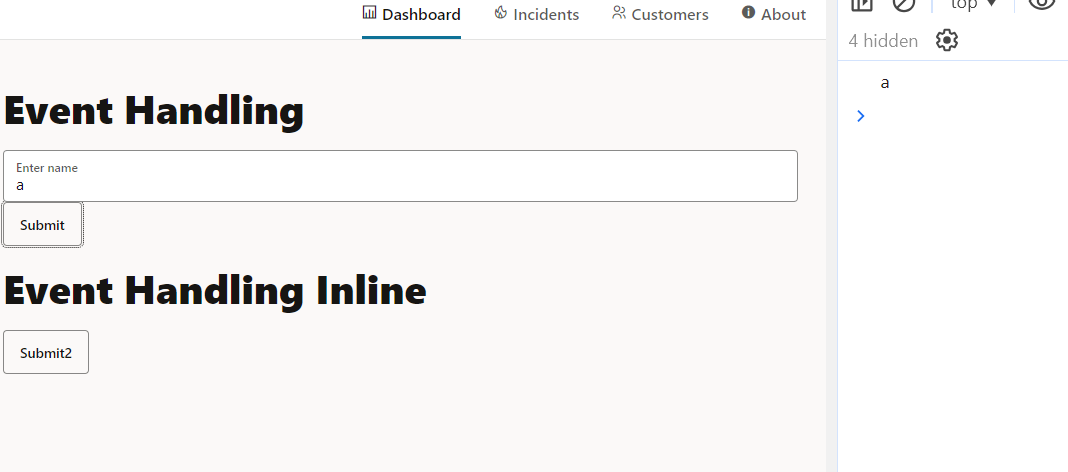
dashboard.ts



dashboard.html



Output:

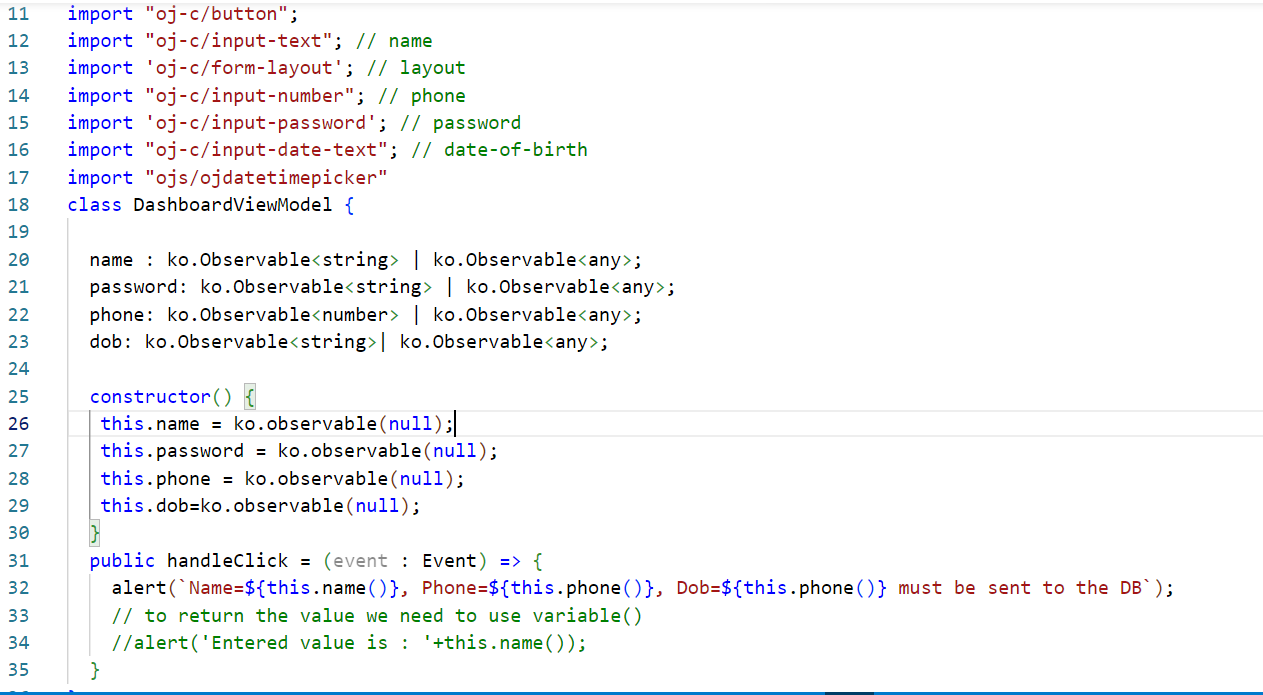


Debugging your application

Inspect -> Element -> Select any element and make changes if required

Layouts to properly align the elements

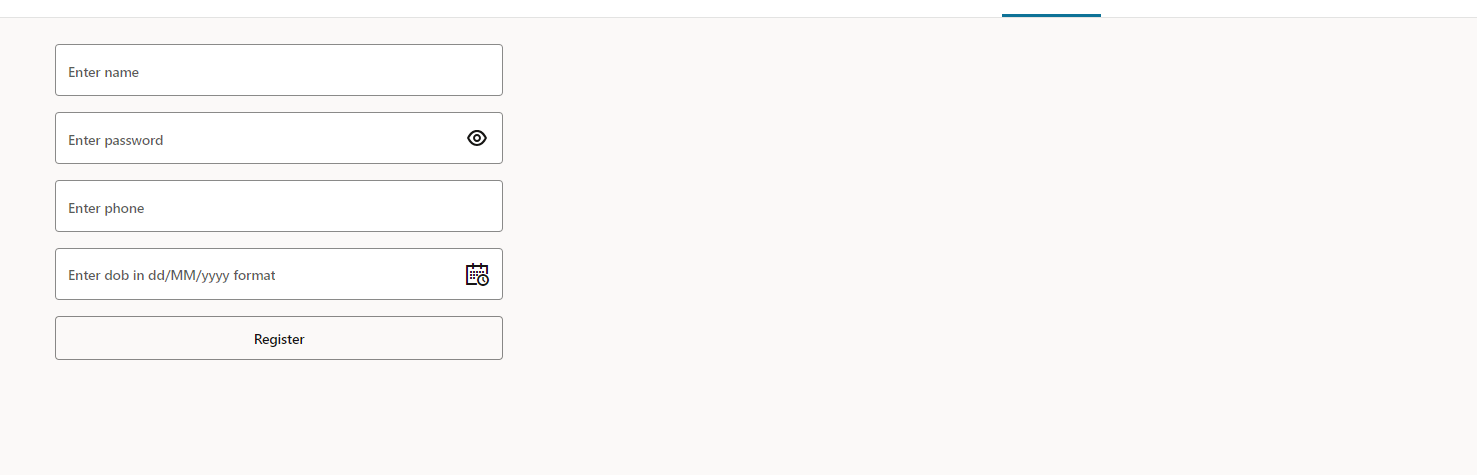
dashboard.ts



dashboard.html



Output:



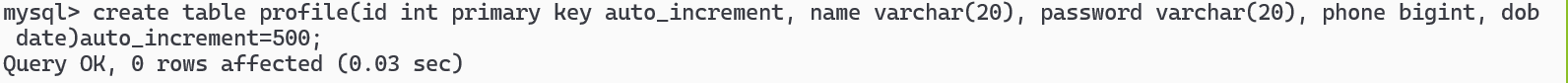
Collection & Model APIs

OJET provides components like Collections & Models to display the data in various formats like tables, lists, grid and so on, which are part of Collections.

Model is mainly used to maintain complex data like data coming from the backend, there are few models you can use to maintain complex data

1. ArrayDataProvider: To maintain complex data in the form array
2. RestDataProvider: To fetch the data from the backend & also helps to perform CRUD operations on the data that reflects the backend

Create table with 5 columns

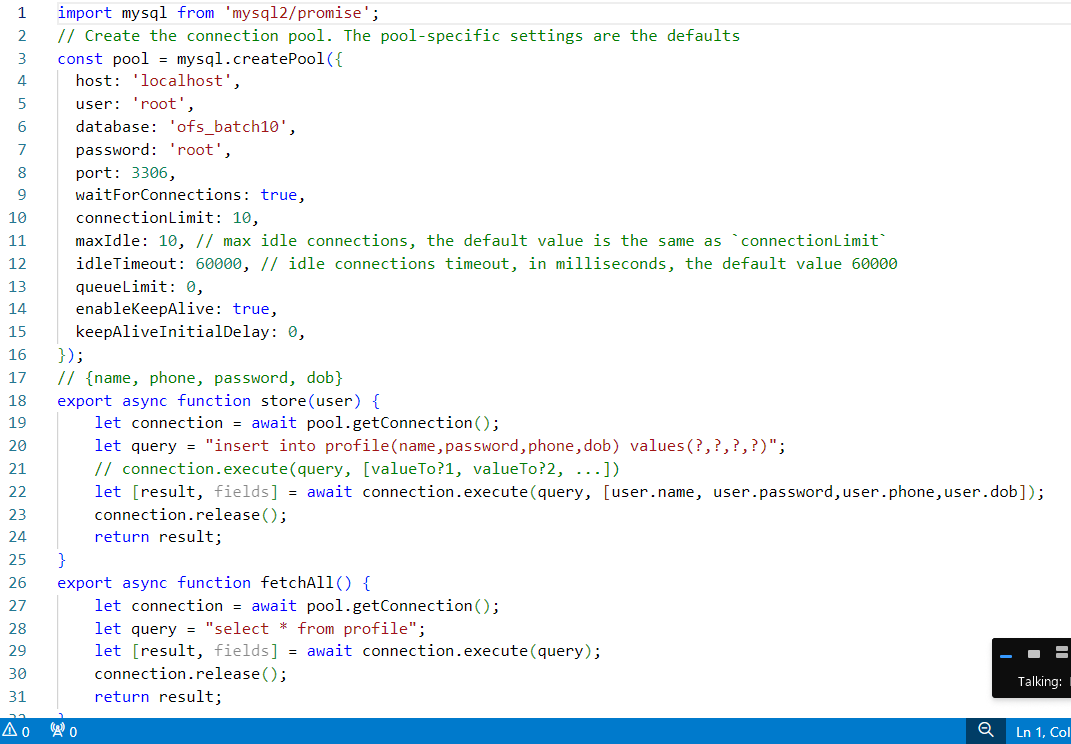


Note: Date follows ISO standard which is yyyy/MM/dd format

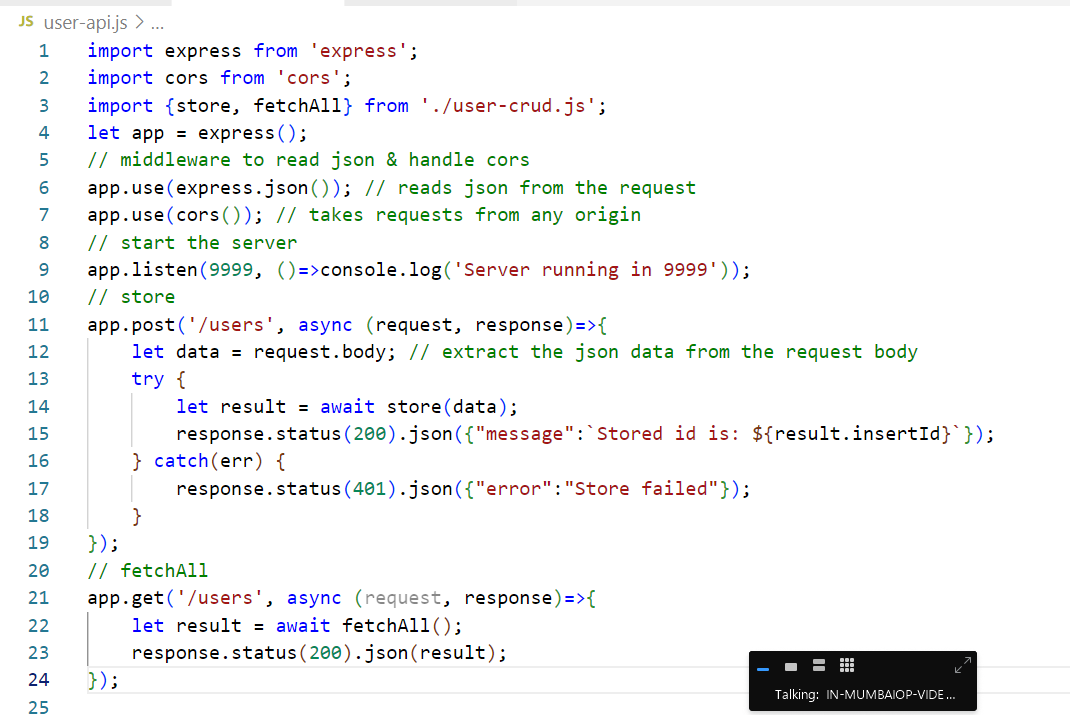
Install mysql2 client in the node application



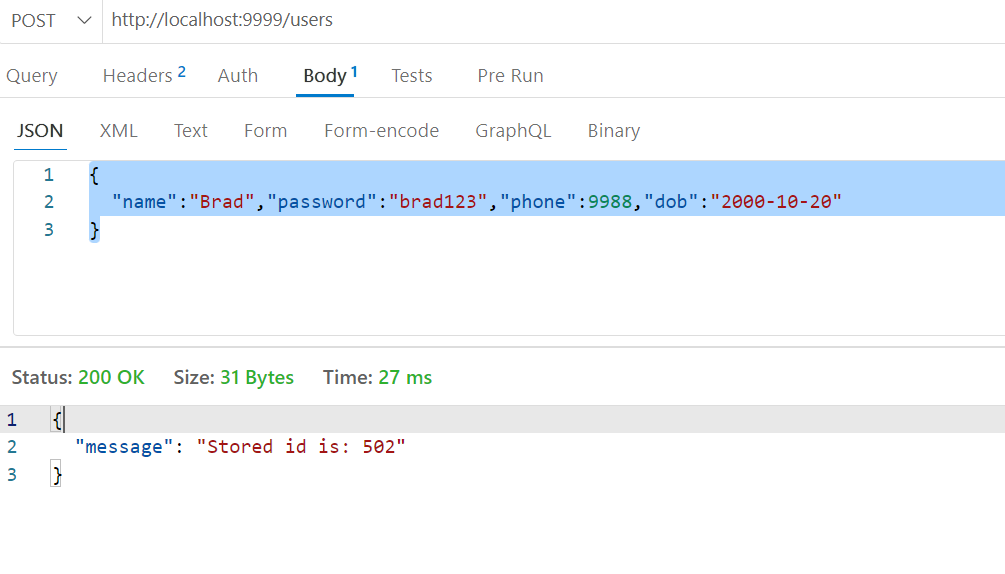
user-crud.js



user-api.js



Output:

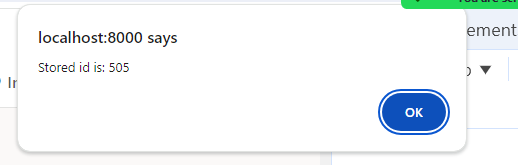


How to access the backend API’s from OJET

You can use RestDataProvider to manage the data and use fetch to send the request



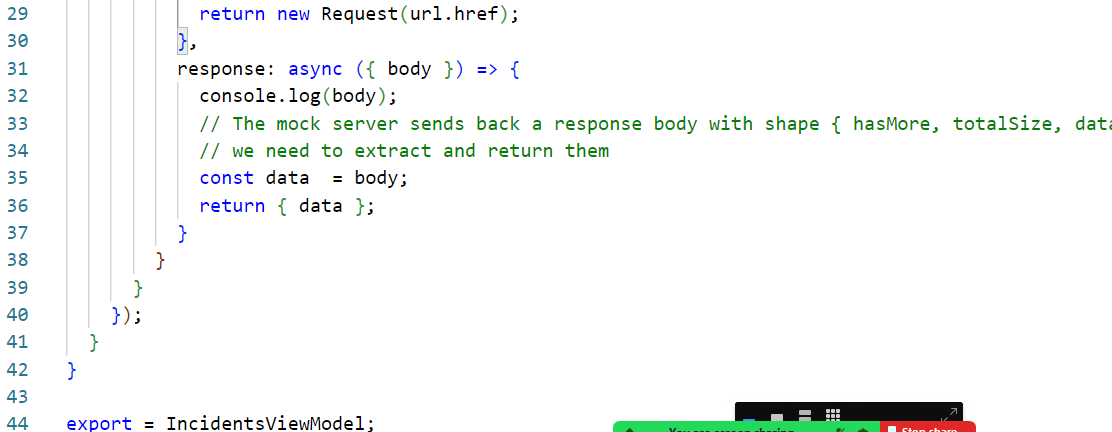
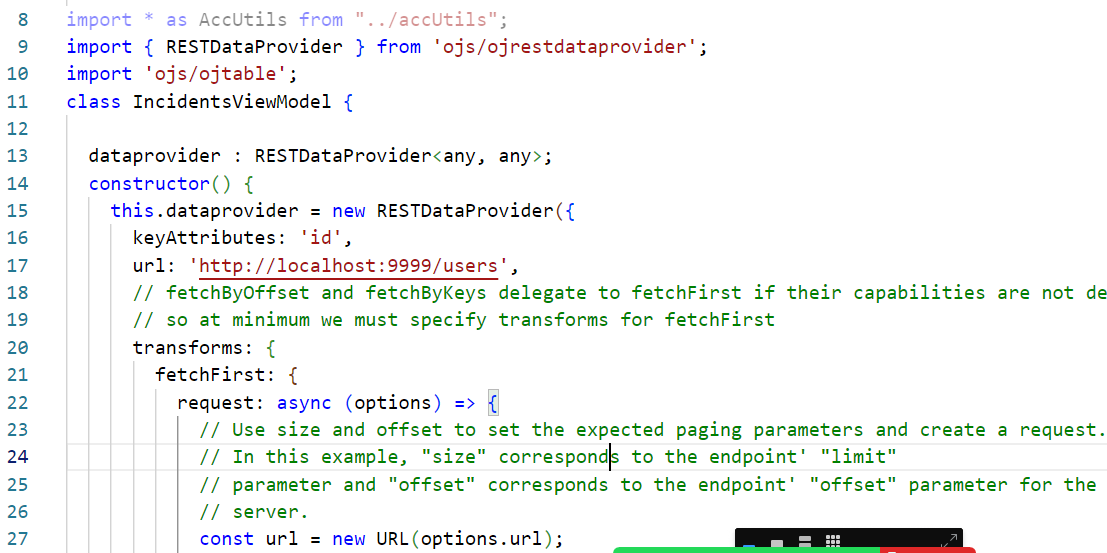
Output:



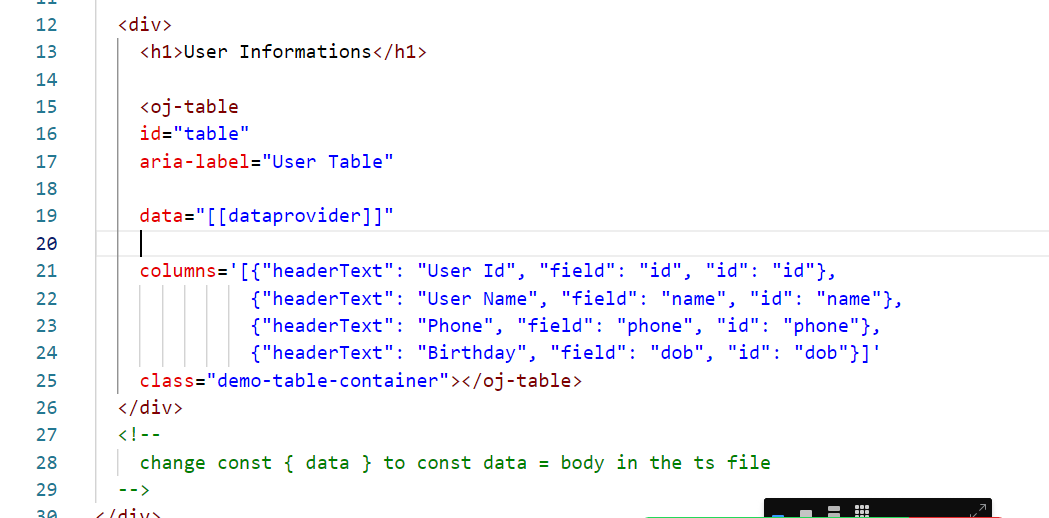
Read the users and show in the UI

RestDataProvider: This helps to initialize a data that will have all the data coming from the backend.

incidents.ts



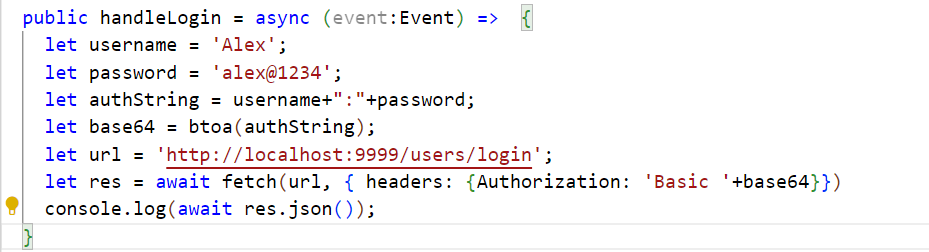
incidents.html



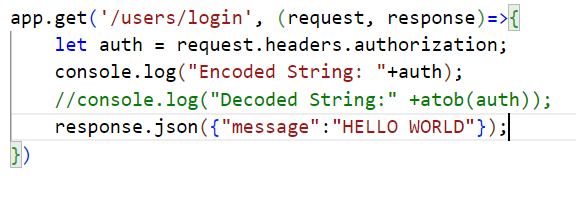
How to secure your ojet application

OJET application must pass sensitive informations in the authorization header, so that sensitive data’s are encrypted and sent, backend must decrypt.

let username = “Abc”;  
let password = “abc123”;  
let encoded = btoa(username, password);



Backend



Activity:

In the incident view & viewModel create 2 features that will access the backend

1. An input box that takes an user-id
2. Two buttons named Delete & Fetch
   1. When you click on Delete button it must delete the user having the id
   2. When you click on the Fetch button it must fetch the user based on the id and display the user in the same page
   3. If id is not present display the error message saying id is not present in the same page

Submit the solution to the git repository in a folder activity-02, you need to push TS, HTML files and node.js files

For future reference visit oracle ojet docs

<https://docs.oracle.com/en/middleware/developer-tools/jet/17/develop/index.html>

1. How to test the applications : in OJET also you can do a test
2. How to deploy the application in a server