SAMP

Digital Twins for Industrial Sites

SKILL TEST

FRONT END DEVELOPER

Test Objectives

- **Evaluate your skills on the following topics:**
  - **Framework appropriation**
  - **Development methodology**
  - **Design**
  - **Coding**
  - **Error management**
  - **Testing**
  - **Packaging for deployment**
  - **Code Documentation**
- **From a imposed scenario and the core framework but:**
  - **You can use extra frameworks for :**
    - **GUI, coding, building, testing, packaging and documentation.**

Timebox of 48h – 5h of work

The test is not only focusing code writing, but also the way you proceed to generate software component in an industrial manner.

How it will be organized

- **Ti:** *Common agreement to define when to setup the test.*
- **T0:** **Test scenario is shared.**
- **T0+48H:** **Test results delivery.**
- **Tf:** **1 hour call review.**

Deliverables

- **5 Slides which summarize:**
  - **The development methodology you have applied.**
  - **The technological choices you have done.**
  - **The Design.**
  - **The Tests.**
  - **The Packaging for deployment.**
  - **The Documentation.**
- **Video to show results.**
- **Project (code, tests, documentation).**

Test Scenario

- **SAMP is focusing WEB3D and SAAS based applications, the scenario is based on a WEB3D application built from the 3D Framework CESIUMJS.**
  - **The main view is the 3D globe without terrain.**
  - **From a toolbar button, the user fills a form to create a billboard entity and place it on the globe if it not already exists. The definition of the entity is based on :**
    - **A city name defined by the user.**
    - **An unique identifier defined by the user.**
    - **Latitude and longitude to use to place it.**
      - **Elevation on the globe should be automatically defined by the app from the WGS84 ellipsoid.**
    - **A creation date.**
  - **The latitude and longitude of the city are provided by a geocoding service (nominative.org).**
  - **The billboard representation is based on an icon and a label displaying the city name & the identifier.**
  - **When picking the entity on the globe, the properties (city name, creation date) are displayed in an information dialog box.**

See next slide for Quick Start

Quick Start

- **Cesiumjs framework: https://github.com/CesiumGS/cesium**
  - **Cesiumjs webpack configuration : https://cesium.com/docs/tutorials/cesium-and-webpack/**
    - **Source code for quick start : https://github.com/CesiumGS/cesium-webpack-example**
  - **Quick start with REACT: https://github.com/reearth/craco-cesium**
  - **Cesium default widgets are based on Knockout.js**
- **Cesiumjs documentation: https://cesium.com/docs/cesiumjs-ref-doc/index.html**
- **Cesiumjs learning center: https://cesium.com/docs/**
- **Cesiumjs Sandcastle : https://sandcastle.cesium.com/**
  - **Recommendation : use the sandcastle to prototype.**
- **When using a test framework, it may be required to set global variable CESIUM_BASE_URL to "./" for example.**
- **Cesium framework is using KARMA and JASMINE for tests.**
- **Tutorial about billboard creation: https://sandcastle.cesium.com/?src=Billboards.html&label=Beginner**
- **Nominative API : https://nominatim.org/**
  - **Nominative Examples: https://nominatim.org/release-docs/develop/api/Search/#examples**