1. **Install grunt for building**

* Step 1: Install nodejs 32/64 bit, version 10.34
* Step 2: Open cmd in administrator mode, go to the project directory which contains package.json, Gruntfile.js
* Step 3: Run npm install grunt-cli -g. Run only one time when initialing
* Step 4: Run npm install bower -g. Run only one time when initialing
* Step 5: Run npm install
* Step 6: Run bower install
* Step 7: Run grunt install
* Step 8: Run grunt

1. **Directory structure for front-end code**

* Complied: contains all compiled html files
* Data: contains json files which are used in hbs files
* Fonts: contains fonts for css
* Images: contains image for css and images in pages
* Scripts: contains javascript files
* Styles: contains css code for common elements, helpers
* Validation\_html: contains vnu.jar which is used for validating html in grunt. Need to add this directory to PATH variable in Windows
* Views: contains html code of pages and components
* Index.hbs: html code for viewing pages and components easily

1. **How cmd commands work**

* npm install: download packages from npm. Need to run it again when there are any new packages added.
* bower install: download libraries from bower. Need to run it again when there are any new libraries added.
* grunt install: copy library files from bower directories to development directories.
* grunt: execute default grunt task which will build hbs, scss, javascript …

1. **What grunt does when building**

* Clear files in previous build
* Copy javascript files from “static” directory to “js” directory at root. Or concatenate all js files to a file when deploy.
* Copy image files from “static” directory to “img” directory at root
* Copy font files from “static” directory to “fonts” directory at root
* Build hbs files to html files
* Build scss files to css files