**Project structure:**

**Project folder:**

**Includes:**

* Configuration files:
  + Package.json – installation of all necessary npm packages and running npm scripts configuration
  + Bower.json – installation of all necessary bower packages and resolve configuration for package conflicts
  + Webpack.config.js – webpack build tool configuration file
  + Jsconfig.json – helper JavaScript configuration file.
  + .gitignore – ignore configuration for git version control tool
  + .bowerrc – bower packages installation helper configuration
  + Project structure documentation
* **App** folder – includes all application files – serving directory
* **e2e-tests** folder – includes protractor configuration files and scenarios for end 2 end testing
* **.vscode** folder – includes Visual Studio Code IDE configuration files – launch.json – debugging for Chrome configuration, settings.json – custom user settings configuration
* **node\_modules** folder – folder will appear after installation of the npm packages and will include all npm packages that were installed – according to package.json configuration file.
* **bower\_components** folder - folder will appear after installation of the bower packages and will include all bower packages that were installed – according to bower.json configuration file.
* **typings** folder – will include all types for Visual Studio Code IDE that were installed – according to package.json configuration file.

**Launching Project:**

* Before launching, make sure that the following software is installed: Node.js (includes npm), java development kit, git.
* Open terminal window (cmd, powerShell, git bash) in the **Project folder**, and run the following commands:
* **npm install** – will install:
* all necessary npm packages according to package.json configuration file
* all necessary bower packages according to bower.json configuration file
* all necessary typings according to package.json configuration file
* **npm run build-pack** – will run webpack build tool, and build all defined bundle files according to webpack.config.js configuration file. Bundle files will be hosted in

Project directory/app/static folder

* **npm start** – will start running node server according to

Project directory/app/server.js file, serving root folderwill beProject directory/app**.**

**Server will run in watch mode – no need to restart after changing project files.**

* **npm run protractor**  - running this command must be done in separate terminal window, make sure that node server is running and serving files from Project directory/app

Command will launch protractor end 2 end testing framework, and will execute series of tests according to

Project directory/e2e-testing/scenarios.js configuration file.

After running the tests, protractor will inform about test results – success or error about each test.