1. Pre-requisites
a. Install NODE + NPM -
   i. https://askubuntu.com/questions/426750/how-can-i-update-my-nodejs-to-the-latest-version
   ii. https://linuxize.com/post/how-to-install-node-js-on-ubuntu-20-04/
b. Install YARN -
   https://classic.yarnpkg.com/lang/en/docs/install/#windows-stable
c. Check your versions -
   i. NodeJS >=16 LTS
   ii. Yarn >=1.13.0 ===> Recommended
   iii. NPM > 8.19

2. Setup a storefront project
a. Go to html directory
b. **yarn create @magento/pwa**

```
@magento/create-pwa v2.3.2
Creating a PWA Studio project
? Project root directory (will be created if it does not exist) pwa
? Short name of the project to put in the package.json "name" field pwa
? Name of the author to put in the package.json "author" field magedigest
? Which template would you like to use to bootstrap pwa? Defaults to "@magento/venia-concept". @magento/venia-concept
? Magento instance to use as a backend (will be added to `.env` file)
  Magento 2.3.3 with Venia sample data installed
  Magento 2.4-develop with Venia sample data installed
❯ Other (I will provide my own backing Magento instance)
```

```
success Saved lockfile.
Done in 179.13s.
   ✔ Installed dependencies for 'pwa' project
   ⚠ Created new PWA project pwa. Next steps:

     - cd pwa before running the below commands.

     - yarn run buildpack create-custom-origin . to generate a unique, secure custom domain for your new project. Highly recommended.

     - yarn run watch to start the dev server and do real-time development.

     - yarn run storybook to start Storybook dev server and view available components in your app.

     - yarn run build to build the project into optimized assets in the '/dist' directory.

     - yarn start after build to preview the app on a local staging server.

Done in 373.31s.
```

c. **cd pwa** => before running the below commands.
d. **yarn run buildpack create-custom-origin ./** => to generate a unique, secure custom domain for your new project. Highly recommended.
e. **yarn run watch** => to start the dev server and do real-time development.

```
$ webpack-dev-server --progress --color --env.mode development
As of version 12.1.0, PWA Studio requires the appropriate PWA metapackage to be installed on the backend.
For more information, refer to the 12.1.0 release notes here: https://github.com/magento/pwa-studio/releases/tag/v12.1.0
Error: Cannot query field "newsletter_enabled" on type "StoreConfig". (... 1 errors total)
    at /var/www/html/pwa/node_modules/@magento/pwa-buildpack/lib/Utilities/graphQL.js:54:21
    at processTicksAndRejections (node:internal/process/task_queues:96:5)
    at async module.exports (/var/www/html/pwa/webpack.config.js:62:29)
Done in 10.10s.
```

- Go to magento root directory and run below commands to solve the error.
- **git clone git@github.com:magento/magento2-pwa.git /var/www/html/magento243/vendor/ext/magento/magento2-pwa**
- **composer config minimum-stability dev**
- **composer config repositories.ext path "./vendor/ext/*/*/*"**
- **composer require magento/pwa**
- **php bin/magento module:enable --clear-static-content Magento_ContactGraphQlPwa**
- **php bin/magento module:enable --clear-static-content Magento_NewsletterGraphQlPwa**
- Come back to PWA directory and execute => **yarn run watch**

```
yarn run v1.22.19
$ webpack-dev-server --progress --color --env.mode development
Custom origins are enabled for this project, but one has not yet been set up. Run buildpack create-custom-origin <projectRoot> to initialize a custom origin.
Emitting no ServiceWorker in development mode.
 ℹ wdsJ: wait until bundle finished:
 ℹ wdsJ: Project is running at http://0.0.0.0:10001/
 ℹ wdsJ: webpack output is served from /
17% [0] building 62/65 modules 3 active /var/www/html/pwa/node_modules/ansi-html/index.js
warn - You have enabled the JIT engine which is currently in preview.
warn - Preview features are not covered by semver, may introduce breaking changes, and can change at any time.
 ℹ wdmJ: Child client-config:
        1595 modules
 ℹ wdmJ: Compiled successfully.

                                    ┌─────────────────────────────────────────────────────────┐
                                    │            PWADevServer ready at                         │
                                    │            http://0.0.0.0:10001/                         │
                                    │                                                          │
                                    │  GraphQL Playground ready at http://0.0.0.0:10001/graphiql│
                                    └─────────────────────────────────────────────────────────┘

 ℹ wdmJ: Compiling...
 ℹ wdmJ: Child client-config:
        1595 modules
 ℹ wdmJ: Compiled successfully.
[HPM] Proxy created: /  ->  http://localhost:8080/magento243/index.php/
(node:14363) [DEP0066] DeprecationWarning: OutgoingMessage.prototype._headers is deprecated
(Use `node --trace-deprecation ...` to show where the warning was created)
```
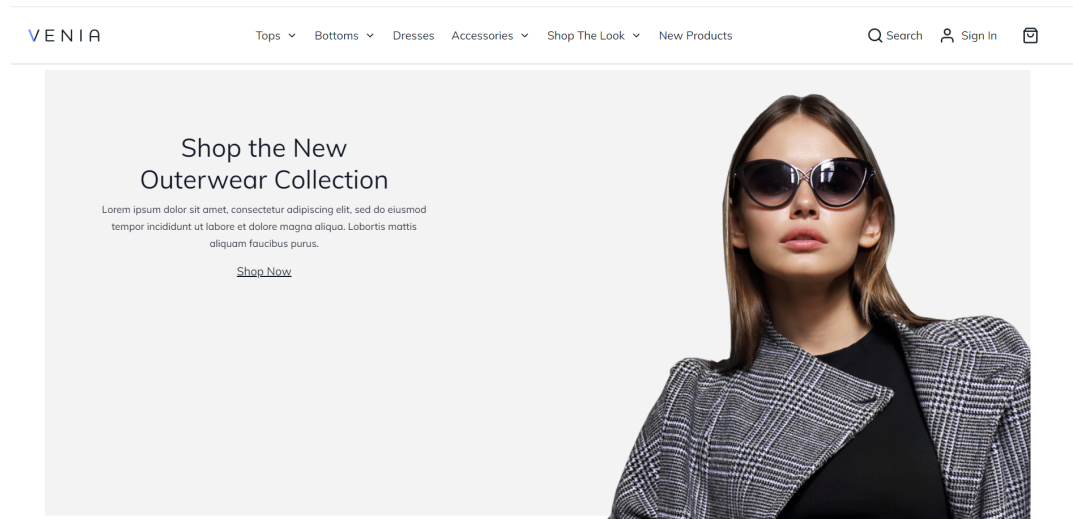
f. **yarn run storybook** => to start Storybook dev server and view available components in your app.

g. **yarn run build** => to build the project into optimized assets in the '/dist' directory.
h. **yarn start** => after build to preview the app on a local staging server.

Note - edit **.env** file to change the Magento Backend Url