Theory Assignment

1. What is `npm`? :

1. About :

It is a tool used for package management.

Note :

`npm` does not stand for node package manager but everything else.

1. `npm` alternative -> `yarn`

2. `npm` setup :

```
npm init
```

`npm init -y` can be used to skip the setup step, `npm` takes care of it and creates the `package.json` file automatically, but without configurations.

2. What is `Parcel/Webpack`? Why do we need it?

Parcel/Webpack are types of bundlers that we use to power our application with different types of functionalities and features.

We need these bundlers in our projects so that we can make production ready optimized (JS, Images),

minified, and performant applications. Builders are used to bundling our code into single JS, HTML and CSS files.

3. What is `.parcel-cache`?

`.parcel-cache` is used by parcel to reduce the building time. `.parcel-cache` contains the information about the project so that it can reduce the building time if we rebuild the application again.

4. What is `npx` ?

`npx` is used to execute the installed packages that are locally or globally installed

`npx` will check whether the package exists in $PATH, or the local project binaries and if so it will execute it.

`npx` is also used to execute a package that does not exist or is installed in your working directory $PATH without installing it in your directory.

5. What is difference between `dependencies` vs `devDependencies` ? :

A dependency is a library that a project needs to function effectively. DevDependencies are the packages a developer needs during development.

7. What is Tree Shaking?

Tree Shaking => removing unwanted code suppose you have library it has 10 funtion we just want to use 2 so we use 2 then all the 8 are ignored by parcel (it is known as tree shaking)

8. What is Hot Module Replacement?

Hot Module Replacement or HMR is a feature that bundler provides. HMR uses File Watcher algorithms to keep track of file changes while development and renders those changes on the Web UI.

`Hot Module Replacement` is a technique used by modern bundlers(web pack / parcel) for updating code without fully refreshing the page in your browser. `HMR` updates a code by replacing an old code with a new code.

9. List down your favourite 5 superpowers of Parcel and describe any 3 of them in your own words.

- HMR - Hot module replacement : Parcel provides HMR properties to keep track of files changes by using file watcher algorithms.
- Compression : Parcel provides compression properties to compress our files e.g images to optimize the performance of our app.
- Minification : Parcel minifies the code.
- Zero config : Unlike Webpack, Parcel requires zero configurations to setup.
- Old browser competibility : Parcel allows support for older broser also.

11. What is `.gitignore`? What should we add and not add into it?

.gitignore is a file that we create in our working directory. Which is used to ignore files/folders that we don't want to track in our git repo.

The files or folders we should put in `.gitignore` that can be autogenerated by your system or packages like `node_module`or that can be generated by the server.

The files or folders we should not add in `.gitignore` that are required in your production build and development builds like `package.json` and `package-lock.json` files.

3. What is the difference betweeen `package.json` and `package-lock.json`.

1. `package.json` :
    - this file is mandatory for every project
    - It contains basicinformation about the project
    - Application name/version/scripts (ng scripts)
2. `package-lock.json` :
    - This file is automatically generated for those operations where npm modifies either the node_module tree or package-json.
    - It is generated after an npm install
    - It allows future devs & automated systems to download the same dependencies as the project.
    - it also allows to go back to the past version of the dependencies without actual ‘committing the node_modules folder.
    - It records the same version of the installed packages which allows to reinstall them. Futuee installs wll be capable of building identical description tree.
3. ~ or ^ in `package.json` file : These are used with the versions of the package installed.

- For example in `package.json` file:

```
"dependencies": {
    "react": "^18.2.0",
    "react-dom": "^18.2.0"
  }
```

- ~ : we can use it for minor version updates for a package.
- ^ : we can use it for major version updates for a package.

If none of them is present , that means only the version specified in `package.json` file is used in the development.

12. Why should I not modify `package-lock.json`?

`package-lock.json` file contains the information about the dependencies and their versions used in the project. Deleting it would cause depencies issues in the production environment.

13. What is `node_modules` ? Is it a good idea to push that on git?

`node_modules` is a folder that contains all the packages and dependecies used the the development of the applicaion. \n It is big file that we should not push to github.

14. What is the `dist` folder?

`dist` folder is created when parcel creates the build for the application . It contains the HTML and CSS and JS with other files for the build.

What is `browserlists`?

`browserlist` is a list brosers that our applicaion should support . It also covers the browser coverage over a geographical area.

```
browserlists is a packages used to make my code compatible for older versions of
browsers.
```