Task

- What is npm?

- NPM, which stands for Node Package Manager, is a package manager for JavaScript. npm is the world's largest Software Registry. The registry contains over 800,000 code packages.

- Open-source developers use npm to share software. Many organizations also use npm to manage private It comes bundled with Node.js, a runtime environment for executing JavaScript on the server side.

- NPM is used for managing libraries and tools that developers need for their Node.js applications, and it allows you to easily install, share, and manage dependencies. development.

- What are the difference between npm and npx?

NPM

- The npm stands for Node Package Manager and it is the default package manager for Node.js. It is written entirely in JavaScript

- The npm manages all the packages and modules for node.js and consists of command-line client npm. It gets installed into the system with the installation of node.js. The required packages and modules in the Node project are installed into the system.

Common Commands:

- npm install (or npm i): Installs packages listed in your package.json or a specific package if you provide a name.
- npm update: Updates packages to their latest versions according to the versioning rules in package.json.
- npm run <script>: Runs a script defined in your package.json file.

NPX

- The npx stands for Node Package Execute and it comes with the npm

- It is an npm package runner that can execute any package that you want from the npm registry without even installing that package.

- You can check npx is installed or not by running the following command:

- npx –v

- If npx is not installed you can install that separately by running the below command.

- npm install -g npx

➢ What are the difference between framework and library

Both frameworks and libraries are collections of pre-written code that developers can use to speed up software development. However, they differ in a few key ways:

Framework:

- A framework provides a structure for developing software applications.

- Frameworks can also define the workflow of an application and invoke the developer's code when needed.

- Some frameworks are specific to certain programming languages, like Python, C++, or Java.

Library:

- A library is a collection of pre-written code that developers can use to perform common tasks.

- It provides functions and tools to accomplish specific tasks or to enhance the functionality of your application

➢ What are the difference between React and Angular

React and Angular are both popular front-end JavaScript technologies for building web applications, but they differ significantly in several key areas:

1. Library vs. Framework:

- React:

  Is a JavaScript library focused on building user interfaces. It handles the view layer of your application, leaving other aspects like routing, state management, and data fetching to external libraries.

- Angular:
  Is a full-fledged framework that provides a complete solution for building web applications. It includes built-in features for routing, state management, forms handling, and more.

  2. Data Binding:

- React:

  Uses one-way data binding, which means data flows in one direction from the component to the view. Changes in the view do not automatically update the component's state.

- Angular:
  Uses two-way data binding, which means changes to the view automatically update the component's state, and vice versa. This can make development faster and simpler in some cases but can also lead to performance issues in large applications.

  3. Language:

- React:

  Primarily uses JavaScript (with JSX for defining component structure) and increasingly TypeScript.

- Angular:
  Primarily uses TypeScript, a superset of JavaScript that adds static typing and other features.

  4. Component Structure:

- React: Uses functional components (with hooks) or class components.
- Angular: Uses classes with decorators to define components.

  5. Performance:

- React:

Generally considered faster due to its virtual DOM, which minimizes direct manipulations to the actual DOM, leading to better performance in large applications.

- Angular:
  Can be slower in large applications due to its two-way data binding and change detection mechanism.
  6. Learning Curve:
- React:
  Has a simpler learning curve compared to Angular, especially for developers familiar with JavaScript.
- Angular:
  Has a steeper learning curve due to its complex architecture and the need to learn TypeScript.
  7. Community and Ecosystem:
- React:
  Has a large and active community with a vast ecosystem of third-party libraries and tools.
- Angular:
  Also has a large community and ecosystem, but it is not as extensive as React's.
  Choosing Between React and Angular:
  - For smaller projects or rapid prototyping: React might be a better choice due to its simplicity and flexibility.
  - For large, complex applications: Angular might be a better choice due to its comprehensive features and structured approach.
  - For developers familiar with JavaScript: React might be easier to learn.
  - For developers who prefer static typing: Angular might be a better choice.