NodeJS

What is NodeJS

- Node.js is an open-source server side runtime environment built on Chrome's V8 JavaScript engine.
- It provides an event driven, non-blocking (asynchronous) I/O and cross-platform runtime environment for building highly scalable server-side application using JavaScript.
- Node.js can be used to build different types of applications such as command line application, web application, REST API server etc.
- It is mainly used to build network programs like web servers, similar to PHP, Java, or ASP.NET.
- Node.js was written and introduced by Ryan Dahl in 2009.

Advantages of NodeJS

- Node.js is an open-source framework under MIT(Massachusetts Institute of Technology) license.
- Uses JavaScript to build entire server side application.
- Lightweight framework that includes bare minimum modules. Other modules can be included as per the need of an application.
- Asynchronous by default. So it performs faster than other frameworks.
- Cross-platform framework that runs on Windows, MAC or Linux.

Setup NodeJS Environment

1. Node.js
2. Node Package Manager (NPM)
3. IDE (Integrated Development Environment) or TextEditor

NodeJS Console REPL

- Node.js comes with virtual environment called REPL (aka Node shell).
- REPL stands for Read-Eval-Print-Loop.
- It is a quick and easy way to test simple Node.js/JavaScript code.
- To launch the REPL, open command prompt and type *node.*

REPL Examples:

- Arithmatic operation
- String concatenation
- Functions
- External JS(we can execute an external JavaScript file by writing node filename command.)

NodeJS Module

- Module in Node.js is a simple or complex functionality organized in single or multiple JavaScript files which can be reused throughout the Node.js application.
- Each module in Node.js has its own context, so it cannot interfere with other modules.
- Each module can be placed in a separate .js file under a separate folder.

NodeJS Module Types

1. Core Modules
2. Local Modules
3. Third Party Modules

Core Module

- The core modules include bare minimum functionalities of Node.js.
- These core modules are compiled into its binary distribution and load automatically when Node.js process starts.
- However, you need to import the core module first in order to use it in your application.

NodeJS Local Module

- Local modules are modules created locally in your Node.js application.
- These modules include different functionalities of your application in separate files and folders.
- You can also package it and distribute it via NPM, so that Node.js community can use it.

Export Modules in NodeJS

- Export Literals
- Export Function
- Export function as a class
- The *module.exports* is a special object which is included in every JS file in the Node.js application by default.

- Use **module.exports** or **exports** to expose a function, object or variable as a module in Node.js.
- The require() function will return an object, function, property or any other JavaScript type, depending on what the specified module returns.

NPM – Node Package Manager

- Node Package Manager (NPM) is a command line tool that installs, updates or uninstalls Node.js packages in your application.
- It is also an online repository for open-source Node.js packages.
- The node community around the world creates useful modules and publishes them as packages in this repository.
- NPM is included with Node.js installation & you can verify using **npm –v** command.