

# Mernstack assignment

# Software Engineering Assignment

## MODULE: 1 (SDLC)

- What is software? What is software engineering?
- Explain types of software
- What is SDLC? Explain each phase of SDLC
- What is DFD? Create a DFD diagram on Flipkart
- What is Flow chart? Create a flowchart to make addition of two numbers
- What is Use case Diagram? Create a use-case on bill payment on paytm.

## **MODULE: 2.1 (C Language Fundamental)**

- Display This Information using printf
  1. Your Name
  2. Your Birth date
  3. Your Age
  4. Your Address
- Write a program to make Simple calculator (to make addition, subtraction, multiplication, division and modulo)
- WAP to find area of circle, rectangle and triangle
- WAP to find simple interest
- WAP to check if the given year is a leap year or not.
- WAP to convert years into days and days into years

## **MODULE: 2.2 (C Language Programming with C)**

- WAP to make simple calculator (operation include Addition, Subtraction, Multiplication, Division, modulo)
- WAP to swap two numbers without using third variable
- WAP to find number is even or odd using ternary operator
- WAP to show
  1. Monday to Sunday using switch case
  2. Vowel or Consonant using switch case
- Looping programs:
  1. WAP to print 972 to 897 using for loop
  2. WAP to take 10 no. Input from user and find out ...
  3. How many Even numbers are there
  4. How many odd numbers are there
  5. Sum of even numbers
  6. Sum of odd numbers WAP to print table up to given numbers

- WAP to print factorial of given number
- WAP to print Fibonacci series up to given numbers
- WAP to print number in reverse order e.g.: number = 64728 ---> reverse = 82746
- Write a program to find out the max from given number (E.g., No: -1562 Max number is 6)
- Write a program make a summation of given number (E.g., 1523 Ans: -11)
- Write a program you have to make a summation of first and last Digit. (E.g., 1234 Ans: -5)

Patterns:

1	A	*	*
1 0	B C	* * *	* *
1 0 1	D E F	* * * * *	* * *
1 0 1 0	G H I J	* * * * * *	* * *
1 0 1 0 1	K L M N O	* * * * * * *	* * * *
			* * * *
			* * *
1	A		* * *
2 3	A B		* * *
4 5 6	A B C		* *
7 8 9 10	A B C D		*
11 12 13 14 15	A B C D E		

## MODULE: 2.3 (File Handling and Debugging)

- Write a program to find out the max number from given array using function
- WAP of Addition, Subtraction, Multiplication and Division using Switch case.(Must Be Menu Driven)
- WAP to find reverse of string using recursion
- WAP to find factorial using recursion
- WAP to take two Array input from user and sort them in ascending or descending order as per user's choice

- WAP to make addition, Subtraction and multiplication of two matrix using 2-D Array
- WAP Find out length of string without using inbuilt function
- WAP to reverse a string and check that the string is palindrome or not
- Write a program of structure employee that provides the following information -print and display empno, empname, address and age
- Write a program of structure for five employee that provides the following information -print and display empno, empname, address and age
- WAP to show difference between Structure and Union.

## **MODULE: 3.1 (C++ Basic)**

- WAP to print “Hello World” using C++
- What is OOP? List OOP concepts
- What is the difference between OOP and POP?

## **MODULE: 3.2 (Programming with C++)**

- WAP to create simple calculator using class
- Define a class to represent a bank account. Include the following members:
  1. Data Member:
    - Name of the depositor
    - Account Number
    - Type of Account
    - Balance amount in the account

## 2. Member Functions

- To assign values
- To deposited an amount
- To withdraw an amount after checking balance
- To display name and balance

- Write a program to find the multiplication values and the cubic values using inline function
- Write a program of Addition, Subtraction, Division, Multiplication using constructor.
- Write a program of Addition, Subtraction, Division, Multiplication using constructor.
- Assume a class cricketer is declared. Declare a derived class batsman from cricketer. Data member of batsman. Total runs, Average runs and best performance. Member functions input data, calculate average runs, Display data. (Single Inheritance)
- Create a class person having members name and age. Derive a class student having member percentage. Derive another class teacher having member salary. Write necessary member function to initialize, read and write data. Write also Main function (Multiple Inheritance)
- Assume that the test results of a batch of students are stored in three different classes. Class Students are storing the roll number. Class Test stores the marks obtained in two subjects and class result contains the total marks obtained in the test. The class result can inherit the details of the marks obtained in the test and roll number of students. (Multilevel Inheritance)
- Write a program to Mathematic operation like Addition, Subtraction, Multiplication, Division Of two number using different parameters and Function Overloading
- Write a Program of Two 1D Matrix Addition using Operator Overloading
- Write a program to concatenate the two strings using Operator Overloading

- Write a program to calculate the area of circle, rectangle and triangle using Function Overloading
  - Rectangle: Area \* breadth
  - Triangle:  $\frac{1}{2} * \text{Area} * \text{breadth}$
  - Circle: Pi \* Area \* Area
- Write a program to swap the two numbers using friend function without using third variable
- Write a program to find the max number from given two numbers using friend function

## **MODULE: 3.3 (C, C++ Templates)**

- Write a program of to swap the two values using templates
- Write a program of to sort the array using templates.

## **MODULE: 4 (Database)**

- What do you understand By Database
- What is Normalization?
- What is Difference between DBMS and RDBMS?
- What is MF Cod Rule of RDBMS Systems?
- What do you understand By Data Redundancy?
- What is DDL Interpreter?
- What is DML Compiler in SQL?
- What is SQL Key Constraints writing an Example of SQL Key Constraints
- What is save Point? How to create a save Point write a Query?
- What is trigger and how to create a Trigger in SQL?

## Task

1. Create Table Name : Student and Exam

**Primary Key**

<b>Student</b>		
<b>Rollno</b>	<b>Name</b>	<b>Branch</b>
1	Jay	Computer Science
2	Suhani	Electronic and Com
3	Kriti	Electronic and Com

**Foreign Key**

<b>Exam</b>			
<b>Rollno</b>	<b>S_code</b>	<b>Marks</b>	<b>P_code</b>
1	CS11	50	CS
1	CS12	60	CS
2	EC101	66	EC
2	EC102	70	EC
3	EC101	45	EC
3	EC102	50	EC

2. Create table given below

<b>First Name</b>	<b>Last Name</b>	<b>Address</b>	<b>City</b>	<b>Age</b>
Mickey	Mouse	123 Fantasy Way	Anaheim	73
Bat	Man	321 Cavern Ave	Gotham	54
Wonder	Woman	987 Truth Way	Paradise	39
Donald	Duck	555 Quack Street	Mallard	65
Bugs	Bunny	567 Carrot Street	Rascal	58
Wiley	Coyote	999 Acme Way	Canyon	61
Cat	Woman	234 Purrfect Street	Hairball	32
Tweety	Bird	543	ItotItaw	28

3. Create table given below: Employee and Incentive

Table Name: Employee

Employee_id	First_name	Last_name	Salary	Joining_date	Department
1	John	Abraham	1000000	01-JAN-13 12.00.00 AM	Banking
2	Michael	Clarke	800000	01-JAN-13 12.00.00 AM	Insurance
3	Roy	Thomas	700000	01-FEB-13 12.00.00 AM	Banking
4	Tom	Jose	600000	01-FEB-13 12.00.00 AM	Insurance
5	Jerry	Pinto	650000	01-FEB-13 12.00.00 AM	Insurance
6	Philip	Mathew	750000	01-JAN-13 12.00.00 AM	Services
7	TestName1	123	650000	01-JAN-13 12.00.00 AM	Services
8	TestName2	Lname%	600000	01-FEB-13 12.00.00 AM	Insurance

Table Name: Incentive

Employee_ref_id	Incentive_date	Incentive_amount
1	01-FEB-13	5000
2	01-FEB-13	3000
3	01-FEB-13	4000
1	01-JAN-13	4500
2	01-JAN-13	3500

- a) Get First\_Name from employee table using Tom name “Employee Name”.
- b) Get FIRST\_NAME, Joining Date, and Salary from employee table.

- c) Get all employee details from the employee table order by First\_Name Ascending and Salary descending?
- d) Get employee details from employee table whose first name contains ‘J’.
- e) Get department wise maximum salary from employee table order by salary ascending?
- f) Select first\_name, incentive amount from employee and incentives table for those employees who have incentives and incentive amount greater than 3000
- g) Create After Insert trigger on Employee table which insert records in view table

4. Create table given below: Salesperson and Customer

TABLE-1

TABLE NAME- SALSEPERSON

(PK)SNo	SNAME	CITY	COMM
1001	Peel	London	.12
1002	Serres	San Jose	.13
1004	Motika	London	.11
1007	Rafkin	Barcelona	.15
1003	Axelrod	New York	.1

TABLE-2

TABLE NAME- CUSTOMER

(PK)CNM.	CNAME	CITY	RATING	(FK)SNo
201	Hoffman	London	100	1001
202	Giovanne	Roe	200	1003
203	Liu	San Jose	300	1002
204	Grass	Barcelona	100	1002
206	Clemens	London	300	1007
207	Pereira	Roe	100	1004

Retrieve the below data from above table

- a) All orders for more than \$1000.
- b) Names and cities of all salespeople in London with commission above 0.12
- c) All salespeople either in Barcelona or in London

- d) All salespeople with commission between 0.10 and 0.12. (Boundary values should be excluded).
- e) All customers excluding those with rating  $\leq 100$  unless they are located in Rome

# Web Designing Assignment

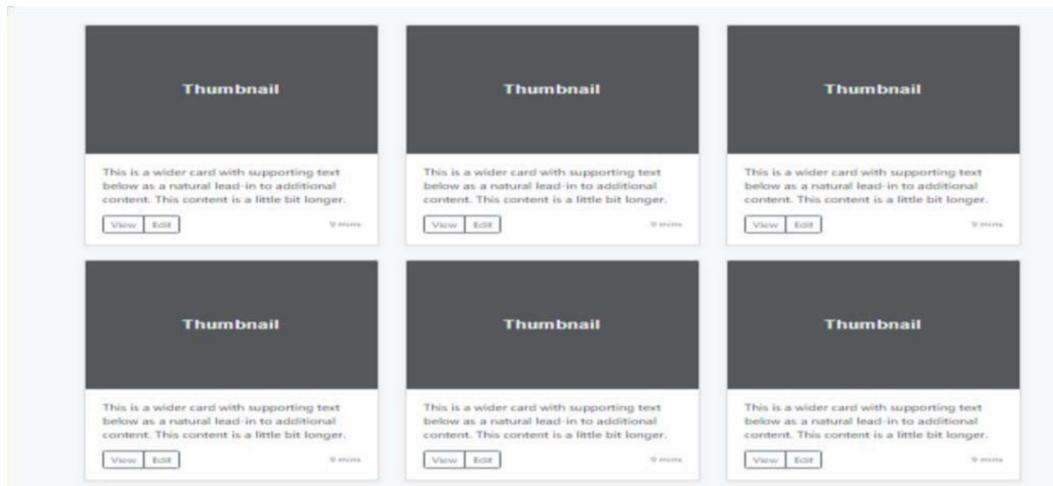
## Term-1

### Module (HTML) -1

- Are the HTML tags and elements the same thing?
- What are tags and attributes in HTML?
- What are void elements in HTML?
- What are HTML Entities?
- What are different types of lists in HTML?
- What is the ‘class’ attribute in HTML?
- What is the difference between the ‘id’ attribute and the ‘class’ attribute of HTML elements?
- What are the various formatting tags in HTML?
- How is Cell Padding different from Cell Spacing?
- How can we club two or more rows or columns into a single row or column in an HTML table?
- What is the difference between a block-level element and an inline element?
- How to create a Hyperlink in HTML?
- What is the use of an iframe tag?
- What is the use of a span tag? Explain with example?
- How to insert a picture into a background image of a web page?
- How are active links different from normal links?
- What are the different tags to separate sections of text?
- What is SVG?
- What is difference between HTML and XHTML?
- What are logical and physical tags in HTML?

## **Module (CSS and CSS 3) -2**

- What are the benefits of using CSS?
- What are the disadvantages of CSS?
- What is the difference between CSS2 and CSS3?
- Name a few CSS style components
- What do you understand by CSS opacity?
- How can the background color of an element be changed?
- How can image repetition of the backup be controlled?
- What is the use of the background-position property?
- Which property controls the image scroll in the background?
- Why should background and color be used as separate properties?
- How to center block elements using CSS1?
- How to maintain the CSS specifications?
- What are the ways to integrate CSS as a web page?
- What is embedded style sheets?
- What are the external style sheets?
- What are the advantages and disadvantages of using external style sheets?
- What is the meaning of the CSS selector?
- What are the media types allowed by CSS?
- What is the rule set?
- Create Layouts



## **Module (HTML5) – 3**

- What are the new tags added in HTML5?
- How to embed audio and video in a webpage?
- Semantic element in HTML5?
- Canvas and SVG tags

## **Module (JQuery Basic, Effects & Advanced) – 5**

- What is jQuery?
- How to Apply CSS Using JQuery, How to Add Class and Remove Class in Jquery , JQuery Animation?
- How to create slider with animation?

## **Module (Bootstrap Basic & Advanced) – 6**

- What are the advantages of Bootstrap?
- What is a Bootstrap Container, and how does it work?

- What are the default Bootstrap text settings?
- What do you know about the Bootstrap Grid System?
- What is the difference between Bootstrap 4 and Bootstrap 5
- What is a Button Group, and what is the class for a basic Button Group?
- How can you use Bootstrap to make thumbnails?
- In Bootstrap 4, what is flexbox?
- How can one create an alert in Bootstrap?
- What is a bootstrap card and how would you create one?



## Advance JavaScript

### **MODULE: 1 (Introduction and Code Quality)**

- Write a program to Show an alert
- What will be the result for these expressions?

1.  $5 > 4$
2. "apple" > "pineapple"
3. "2" > "12"
4. undefined == null
5. undefined === null
6. null == "\n0\n"
7. null === +"\\n0\\n"

- Will alert be shown?

```
if ("0") { alert( 'Hello'); }
```

- What is the code below going to output? `alert( null || 2 || undefined );`
- The following function returns true if the parameter age is greater than 18. Otherwise it asks for a confirmation and returns its result:

```
function  
checkAge(age)  
{  
    if (age> 18) { return true; }  
  
    else {  
        // ...return confirm ('did parents allow you?');  
    }  
}
```

- Replace Function Expressions with arrow functions in the code below:  
Function

```
ask(question, yes, no)
```

```

{ if(confirm(question))yes();
  else
    no();
}
ask("Do you agree?", function()
  { alert("You agreed."); },
function() {
  alert("You canceled the execution.");
}
    
```

## MODULE: 2 (Data Types and Objects)

- Write the code, one line for each action:

- Create an empty object user.
- Add the property name with the value John.
- Add the property surname with the value Smith.
- Change the value of the name to Pete.
- Remove the property name from the object.

- Is array copied?

```

let fruits = ["Apples", "Pear", "Orange"]; // push a new value into the "copy"
let shoppingCart = fruits; shoppingCart.push("Banana"); // what's in fruits?

alert( fruits.length ); // ?
    
```

- Map to names

```

let john = { name: "John", age: 25 }; let pete = { name: "Pete", age: 30 }; let mary =
{ name: "Mary", age: 28 }; let users = [ john, pete, mary ]; let names = /* ... your
code */ alert( names ); // John, Pete, Mary
    
```

- Map to objects

```

let john = { name: "John", surname: "Smith", id: 1 }; let pete = { name: "Pete",
surname: "Hunt", id: 2 }; let mary = { name: "Mary", surname: "Key", id: 3 }; let
users = [ john, pete, mary ]; let usersMapped = /* ... your code ... */
    
```

```
/*
usersMapped = [
    { fullName: "John Smith", id: 1 },
    { fullName: "Pete Hunt", id: 2 },
    { fullName: "Mary Key", id: 3 }
]
*/ alert( usersMapped[0].id ) // 1 alert( usersMapped[0].fullName ) // John Smith
```

- Sum the properties There is a salaries object with arbitrary number of salaries. Write the function sumSalaries(salaries) that returns the sum of all salaries using Object.values and the for..of loop. If salaries is empty, then the result must be 0.

```
let salaries = {
    "John": 100,
    "Pete": 300,
    "Mary": 250
};
```

```
alert( sumSalaries(salaries) ); // 650
```

- Destructuring assignment We have an object: Write the Destructuring assignment that reads:

- Name property into the variable name.
- Year's property into the variable age.
- isAdmin property into the variable isAdmin (false, if no such property)
- let user = { name: "John", years: 30};

- Turn the object into JSON and back Turn the user into JSON and then read it back into another variable.

```
user = { name: "John Smith", age: 35};
```

## **MODULE: 3 (Document, Event and Controls)**

- Create a program to hide/show the password
- Create a program that will select all the classes and loop over and whenever i click the button the alert should show
- Create a responsive header using proper JavaScript
- Create a form and validate using JavaScript
- Create a modal box using css and Js with three buttons
- Use external js library to show slider
- Prevent the browser when i click the form submit button

## **MODULE: 4 (New Request)**

- What is JSON
- What is promises
- Write a program of promises and handle that promises also
- Use fetch method for calling an api <https://fakestoreapi.com/products>
- Display all the product from the api in your HTML page

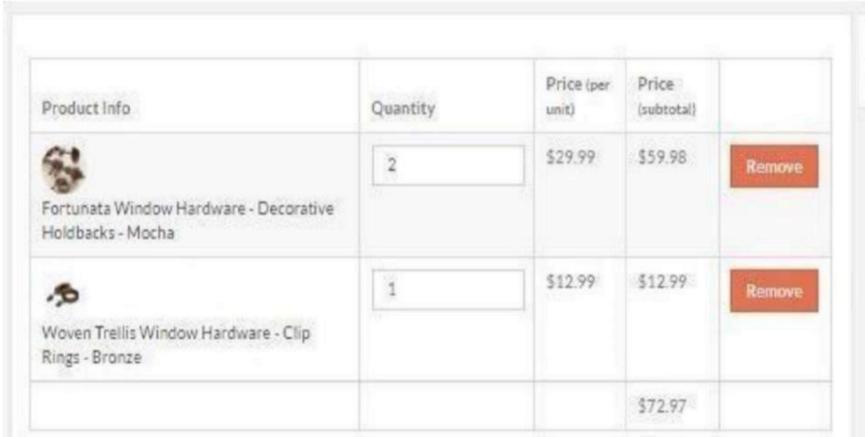
## React Js

### **MODULE: 1**

- HTML-CSS Login Registration page

### **MODULE: 2 (JavaScript Essentials)**

- Calculate subtotal price of quantity in JavaScript?



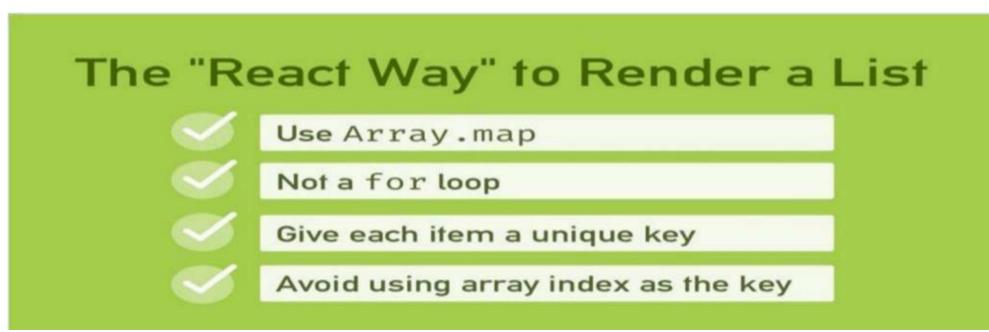
Product Info	Quantity	Price (per unit)	Price (subtotal)	
 Fortunata Window Hardware - Decorative Holdbacks - Mocha	2	\$29.99	\$59.98	<b>Remove</b>
 Woven Trellis Window Hardware - Clip Rings - Bronze	1	\$12.99	\$12.99	<b>Remove</b>
Subtotal:			\$72.97	

- What is JavaScript Output method?
- How to used JavaScript Output method?
- How to used JavaScript Events to do all examples?

### **MODULE: 3 (JavaScript Essentials)**

- What is React Js?
- What is NPM in React Js?
- What is Role of Node Js in react Js?
- What is CLI command In React Js?

- What is Components in React Js?
- What is Header and Content Components in React Js?
- How to install React Js on Windows, Linux Operating System? How to install NPM and How to check version of NPM?
- How to check version of React Js?
- How to change in components of React Js?
- How to Create a List View in React Js?



- Create Increment decrement state change by button click?

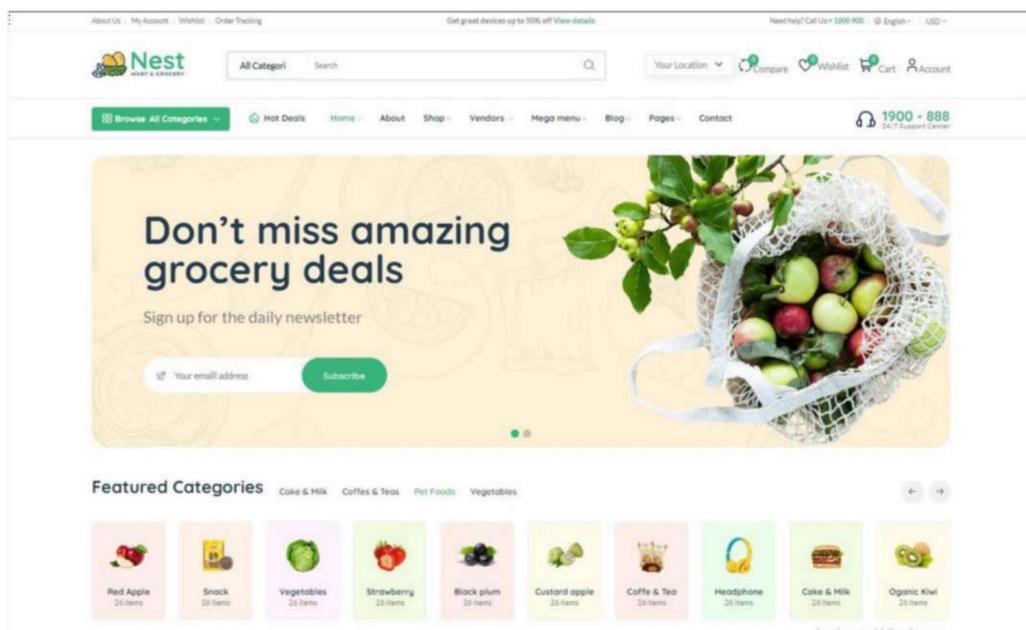


## MODULE: 4 (List and Hooks)

- Explain Life cycle in Class Component and functional component with Hooks

## MODULE: 5 (Styling & Advance React)

- Create Shopping site home page with Styled- component

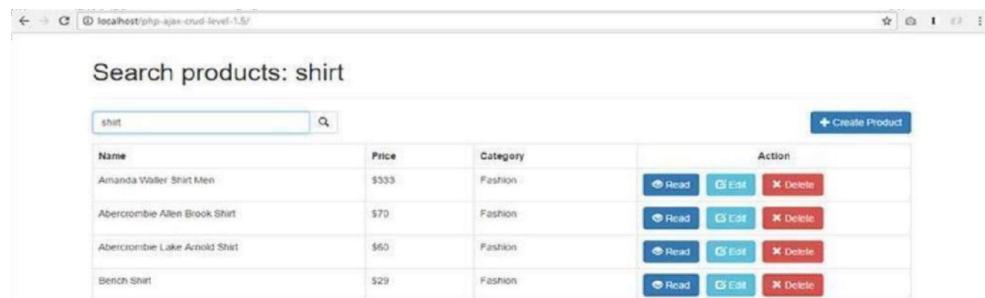


## MODULE: 6 (React Router)

- Create React app with modules and lazy loading (Admin-user module with child Router and outlet)

## MODULE: 7 (React – Applying Redux)

- What is Redux?
- What is Redux Thunk used for?
- What is Pure Component? When to use Pure Component over Component?
- What is the second argument that can optionally be passed to setState and what is its purpose?
- Create a Table and Search data from table using React Js?



Name	Price	Category	Action
Amanda Waller Shirt Men	\$333	Fashion	<button>Read</button> <button>Edit</button> <button>Delete</button>
Abercrombie Allen Brook Shirt	\$79	Fashion	<button>Read</button> <button>Edit</button> <button>Delete</button>
Abercrombie Lake Arnold Shirt	\$60	Fashion	<button>Read</button> <button>Edit</button> <button>Delete</button>
Bench Shirt	\$29	Fashion	<button>Read</button> <button>Edit</button> <button>Delete</button>

- Create Login registration with CRUD Application using API (Redux)

## Node JS Assignments

### Module – 2: Node - Web Development with Node

#### **Q1. What is Express.js?**

Q2 .Create localhost server using express.

Q3 . Create basic “Hello world” app using node and express.

Q4. Create weather app.

- i. Use Hbs.
- ii. Get country, state, city using api
- iii. Get weather data by city

Q5. Create world clock app.

## **Module – 3 : Node - Node with Mongodb**

- Q1. What is MongoDB.
- Q2. What is difference between mongo DB and SQL
- Q3. Create database for online shopping app.
- Q4. Create Require collections for online shopping app and documents.
- i. User
  - ii. Product category
  - iii. Product
  - iv. Order
  - v. Review

Q5. Write command to show all data from product collections and sort in ascending order.

Q6. Update product price for particular product.

Q7. Write command to delete particular document and collection.

## **Module – 4: Structuring REST API**

- Q1. Create Rest API (get, post, delete, put, patch) for Task management.
- Q2. Create Rest API (get, post, delete, put, patch) for online shopping application.

## **Module – 5: Node - [API Authentication & Security]**

- Q1. What is Middleware in Express.js?
- Q2. What is json web tokens?
- Q3. What is different between encryption and hashing.
- Q4. Create CRUD Application.
- i. Create session management (login & logout)
  - ii. Generate token while registration and login
  - iii. Create logout from one device.
  - iv. Create logout from all device.