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Task 1	Watch the lesson video carefully twice (at least). Then answer the following a. Map questions solved in the video i. Array of squares of numbers ii. Array of absolute values iii. Enclose each string in and iv. First maxlen chars of string v. Array of JSON with product and value vi. Array of JSON with firstName and lastName b. Reduce questions solved in the video i. Sum of cubes of numbers in array ii. Largest number in array iii. Smallest string in array iv. Total sales value of products in array v. Product with maximum sales value in array c. Explain map. Explain its syntax and return values also. d. Explain reduce. Explain its syntax and return values also. e. What are the two parameters in the reduce function. Explain with an example. f. How should the initial value of accumulator be provided in the reduce function. g. What happens if the initial value of accumulator is not provided in the reduce function. Explain with an example.

Task 2	Given an array of numbers, create a new array whose numbers are twice the number of the input array. Use map.	
Test Cases	Input	Expected Output
	[4,8,12,20,6]	[8,16,24,40,12]
	[10,8,6,4,2,25]	[20,16,12,8,4,50]
	[8,7,9]	[16,14,18]
	[5,10,15,5,10,15]	[10,20,30,10,20,30]

Task 3	Given an array of numbers, create a new array whose numbers are the squares of the number of the input array. Use map.	
Test Cases	Input	Expected Output
	[4,8,12]	[16,64,144]
	[10,2,25,20,30]	[100,4,625,400,900]
	[8,7,9]	[64,49,81]
	[5,10, 5,10,5,10]	[25,100,25,100,25,100]

Task 4	Given an array of numbers, create a new array whose numbers the same if even and zero if odd. Use map.	
Test Cases	Input	Expected Output
	[4,8,12,3,5,7]	[4,8,12,0,0,0]
	[7,2,25,10]	[0,2,0,10]
	[8,7,9]	[8,0,0]
	[5,10, 5,10,5,10]	[0,10,0,10,0,10]
	[77]	[0]

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Task 5	Given an array of numbers, create a new array whose has the string Even if the number is even, and Odd if the number is Odd. Use map.	
Test Cases	Input	Expected Output
	[4,8,12,3,5]	["Even","Even","Even","Odd","Odd"]
	[7,2,25,10]	["Odd","Even","Odd","Even"]
	[8,7,9]	["Even","Odd","Odd"]
	[]	[]
	[111]	["Odd"]

Task 6	Given an array of string, create a new array whose strings are double the string in the array. Use map.	
Test Cases	Input	Expected Output
	["Hi","Hello","Bye"]	["HiHi","HelloHello","ByeBye"]
	["A","B","C","X","Y"]	["AA","BB","CC","XX","YY"]
	["AB","+#","EF"]	["ABAB","+#+#","EFEF"]

Task 7	Given an array of JSON, create a new array of strings as shown. Use map. So, if the JSON array is [{"name" : "Mark", "age" : 23}, {"name" : "Steve", "age" : 28}, {"name" : "Mary", "age" : 25}, {"name" : "Bill", "age" : 34}] the output array is ["Mark is 23 years old", "Steve is 28 years old", "Mary is 25 years old", "Bill is 34 years old"]

Task 8	Given an array of names, create a string using map and join as shown below. So, if the array was ["Mark","James","Martha"] the string should be - Mark - James - Martha

Task 9	Given an array of JSONs, create a string using map and join as shown below. So, if the array was [{"id" : 101, "name" : "Mark}, {"id" : 105, "name" : "Steve}, {"id" : 78, "name" : "James"}] the string should be <button onClick=clicked(101)>Mark</button> <button onClick=clicked(105)>Steve</button> <button onClick=clicked(78)>James</button>

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Task 10	Given an array of JSONs, create a string using map and join as shown below. So, if the array was [{"id" : 101, "name" : "Mark"}, {"id" : 105, "name" : "Steve"}, {"id" : 78, "name" : "James"}] the string should be Mark Steve James Google and read about how to use escape character and put a quote.

Task 11	Given an array of JSONs like [{"name":"Mary","marks":72}, {"name":"Anita","marks":75}, {"name":"Thomas", "marks":81}, {"name":"Bruce", "marks":64}] Use map and join to create a string as shown below. Study the output very carefully. <tr><td>Mary</td><td>72</td><td><button onClick = show('Mary')>Show More</button><tr> <td>Anita</td><td>75</td><td><button onClick = show('Anita')>Show More</button><tr> <td>Thomas</td><td>81</td><td><button onClick = show('Thomas')>Show More</button><tr> <td>Bruce</td><td>64</td><td><button onClick = show('Bruce')>Show More</button>

Task 12	Given an array of JSON, use map to create an array of cities. [{"fname":"Jack","lname":"Smith","city":"London"}, {"fname":"Mary","lname":"Markle","city":"Amsterdam"}, {"fname":"Ed","lname":"May","city":"Paris"}, {"fname":"Tim","lname":"Gates","city":"Rome"}] So, the new array should be ["London", "Amsterdam", "Paris", "Rome"]

Task 13	Given an array of JSON [{"fname":"Jack","lname":"Smith","city":"London"}, {"fname":"Mary","lname":"Markle","city":"Amsterdam"}, {"fname":"Ed","lname":"May","city":"Paris"}, {"fname":"Tim","lname":"Gates","city":"Rome"}] Create a new array of JSON which has an additional field fullname in it. For the first JSON the fullname is "Jack Smith".

Task 14	Given an array of numbers, use reduce to a) compute the sum of the numbers b) product of numbers c) max number d) min number e) count the numbers greater than 10

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Task 15	Given an array of string, use reduce to a) concatenate all the strings with :: between them b) compute the sum of the length of all the strings c) concatenate the first character of all the strings.

Task 16	Given an array of JSON, [{"name" : "Mark", "age" : 23}, {"name" : "Steve", "age" : 28}, {"name" : "Mary", "age" : 25}, {"name" : "Bill", "age" : 34}] a) compute the sum of ages b) Count the number of persons who are more than 27 years of age c) Compute the youngest person d) Compute the oldest person e) Count the number of people whose name starts with 'M'

	Given an array of courses, ["Hello", "React", "Java", "Python", "Hibernate", "JavaScript"]
Task 17.1	Use reduce to concatenate all the strings with a # between them. The output should be "Hello#React#Java#Python#Hibernate#JavaScript"
Task 17.2	Use reduce to count the number of times the character "a" appears in the array.
Task 17.3	Use reduce to compute the longest string in the array
Task 17.4	Use reduce to compute the number of strings that start with a specified character ch provided as a parameter. So, if ch="A", the output should be 0. So, if ch="J", the output should be 2. So, if ch="R", the output should be 1.

	Given an array of JSON representing students, [{"name":"Jack","maths":55,"english":60,"science":62} {"name":"Anita","maths":62,"english":65,"science":56} {"name":"Thomas","maths":68,"english":72,"science":75} {"name":"Steve","maths":51,"english":56,"science":68} {"name":"Julia","maths":47,"english":77,"science":72} {"name":"Mary","maths":72,"english":55,"science":81}]
Task 18.1	Use reduce to calculate the total marks received in maths by all the students.
Task 18.2	Use reduce to calculate the number of students who scored more than 60 in science.
Task 18.3	Use reduce to calculate the student who scored the highest marks in english.
Task 18.4	Use reduce to create an array of students who scored more than 60 in maths.
Task 18.5	Use reduce to create an array of students whose total marks is less than 200.

	Given an array of JSON [{"fname":"Jack","lname":"Smith","city":"London"}, {"fname":"Mary","lname":"Markle","city":"London"}, {"fname":"Ed","lname":"May","city":"Paris"},

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	{"fname":"Tim","lname":"Gates","city":"Rome"}]
Task 19.1	Use reduce to count the number of people whose city is London.
Task 19.2	Define a function that takes an array of JSON and a city as parameter and returns the count of people in that city.
Task 19.3	Define a function that takes an array of JSON and a firstName as parameter and returns the city that person is in. Note : use find

Task 20	Given an array of JSONs providing [{model: "Swift Dzire VXi", make: "Maruti", fuel: "Diesel", colors: ["White", "Silver", "Blue", "Red"]}, {model: "Etios SMi", make: "Toyota", fuel: "Diesel", colors: ["White", "Grey", "Black"]}, {model: "City AXi", make: "Honda", fuel: "Petrol", colors: ["Grey", "Blue", "Black"]}, {model: "Swift DXi", make: "Maruti", fuel: "Diesel", colors: ["White", "Red", "Black"]}, {model: "Etios VXi", make: "Toyota", fuel: "Diesel", colors: ["White", "Silver", "Black", "Yellow"]}, {model: "City ZXi", make: "Honda", fuel: "Petrol", colors: ["Silver", "Blue", "Red"]}, {model: "Alto SXi", make: "Maruti", fuel: "Petrol", colors: ["White", "Red","Blue", "Yellow"]}, {model: "Alto VXi", make: "Maruti", fuel: "Petrol", colors: ["White", "Silver", "Yellow", "Black"]}] Given a color, find out all the car models that have a car of the same color. Use filter and in the filter function use find.

	Given an array of JSON [{"name":"Mary","marks":[72,65,55,71]}, {"name":"Anita","marks":[66,70,75,53]}, {"name":"Edward","marks":[44,54,64,58]}, {"name":"Thomas","marks":[62,55,65,81]}, {"name":"Robin","marks":[41,44,47,49]}, {"name":"Sophia","marks":[71,73,67,77]}, {"name":"Bruce","marks":[52,57,61,64]}]
Task 21.1	Sort the array by total marks in ascending order. Use sort and in the sort function use reduce to calculate the total marks.
Task 21.2	Find out the number of students who scored more than 70 at least once. Use filter and in the filter function use reduce to calculate the max marks for each student.
Task 21.3	Find out the name of the student who scored the highest total marks. Use reduce and in the reduce function use reduce again to calculate the total marks for each student.
Task 21.4	Create an array of JSON where each JSON has 2 fields : name and totalMarks which is the sum of all the values in the array marks. Use map and in the map function use reduce to create the required JSON.

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Task 21.5	Create a new array of JSON which has the name and maxmarks in it. maxmarks in the maximum value in the marks array. So, the new array is [{"name":"Mary","maxmarks":72}, {"name":"Anita","maxmarks":75}, {"name":"Edward"," maxmarks ":64}, {"name":"Thomas"," maxmarks ":81}, {"name":"Robin"," maxmarks ":49}, {"name":"Sophia"," maxmarks ":77}, {"name":"Bruce"," maxmarks ":64}] Use map and in the map function use reduce to calculate maxmarks.