for in, methods in objects and arrays.

1. **Solve using for in loop.**

   i/p: var car={brand:'Toyota',model:'corolla',year:2020}

   o/p: brand:Toyota

   model:corolla

   year:2020

   solution:

   ```
   var car={brand:'Toyota',model:'corolla',year:2020}
   for(i in car)
   console.log(`${i}:${car[i]}`)
   ```

   Explanation: Here initially,we taken an obeject it contain key value pairs. By using for in loop we want to print both keys and values so that's why here we used (`${i}:${car[i]}`) at first iteration i will start with 0 so the first iteration is ${0} is brand and ${car[0]} is Toyota. In the second iteration i will update to 1 then ${1} is model and $car[1] is corolla and in the last iteration I will be updated to 2 then ${2} is year and $car[2] is 2020.

2. **Solve using for in loop.**

   i/p: var num=[1,2,3,4,5];

   o/p:

   1-HI

   2-HI

   3-HI

   4-HI

   5-HI

   solution:

   ```
   var num=[1,2,3,4,5];
   for(j in num){
      console.log(`${num[j]}-HI`)
   }
   ```

   Explanation: Initially here we taken an array i.e var num=[1,2,3,4,5]. By using for in loop for(j in num) we want to print each value with -HI so that's why we

used (`${num[j]}-HI`). Here in the first iteration j will be 0 so ${num[0]} is 1 and added with -HI so the output for first iteration is 1-HI like this iteration goes on upto the array length-1 i.e num.length-1.

3. **Solve using for in loop.**

i/p: var fruits=["apple","banana","cherry","date"]

o/p:

0-apple

1-banana

2-cherry

3-date

solution:

```
var fruits=["apple","banana","cherry","date"]
for(k in fruits){
   console.log(`${k}-${fruits[k]}`)
}
```

Explanation: Initially, we taken an array. By using for in loop for(k in fruits) we want to print each value with index so that's why we used (`${k}-${fruits[k]}`) at first iteration k is 0 so ${0} is 0 and ${fruits[0]} is apple so the final output for first iteration is 0-apple. In the next iteration k is 1 so ${1} is 1 and ${fruits[1]} is banana so the final output for this iteration is 1-banana like this iteration goes on.

4. **Update the city property here**

i/p:

```
var obj={ name1:'john',age:30,address:{
city:'los angeles',state:'ca'
}
}
```

o/p:

```
{
name1: 'john',
```

age: 30,

address: { city: 'san francisco', state: 'ca' }

}

solution:

```
var obj={ name1:'john',age:30,address:{
city:'los angeles',state:'ca'
}
}
obj.address.city="san francisco";
console.log(obj);
```

Explanation: Here initially we created an object obj with one nested object address and then we want to update the value of key city in nested object so we used obj.address.city=”san francisco” so the value of city is updated from “los angeles” to “san francisco”.

5. **Update the model and year here.**

i/p: var car1={brand:'Toyota',model:'corolla',year:2020}

o/p: { brand: 'Toyota', model: 'camry', year: 2022 }

solution:

```
var car1={brand:'Toyota',model:'corolla',year:2020}
car1.model="camry";
car1.year=2022;
console.log(car1);
```

Explanation: Here, object car1 have key value pairs then we want to update values of model and year keys. so we used car1.model=”camry” car1.year=2022.After that if u print a statement obj using console.log i.e console.log(obj) it will print object with upadated values.

6. **Add an ingredient here.**

i/p: var recipe={name:'pasta',servings:2,ingredients:['noodles','sauce']};

o/p: {

name: 'pasta',

servings: 2,

ingredients: ['noodles', 'sauce', 'cheese']

}

solution:

```
var recipe={name:'pasta',servings:2,ingredients:['noodles','sauce']};
recipe.ingredients.push('cheese');
console.log(recipe);
```

Explanation: Here at first we created one object inside that object we added some properties among them one property ingredients is array now we want to add one more value to the ingredients at the end of array so we used push method i.e: recipe.ingredients.push('cheese').