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Ex 3: Javascript functions

1. JS function to find simple interest

```
function si(p,r,t) {
var interest=(p*r*t)/100;
return interest;
}


var p = 1000;
var r = 5;
var t = 2;

const Amount = si(p,r, t);
console.log(`Simple Interest is: $${Amount.toFixed(3)}`);

```

```
node /tmp/MteB1Iq4lj.js
Simple Interest is: $100.000
```

2. JS function to if the given number is Armstrong

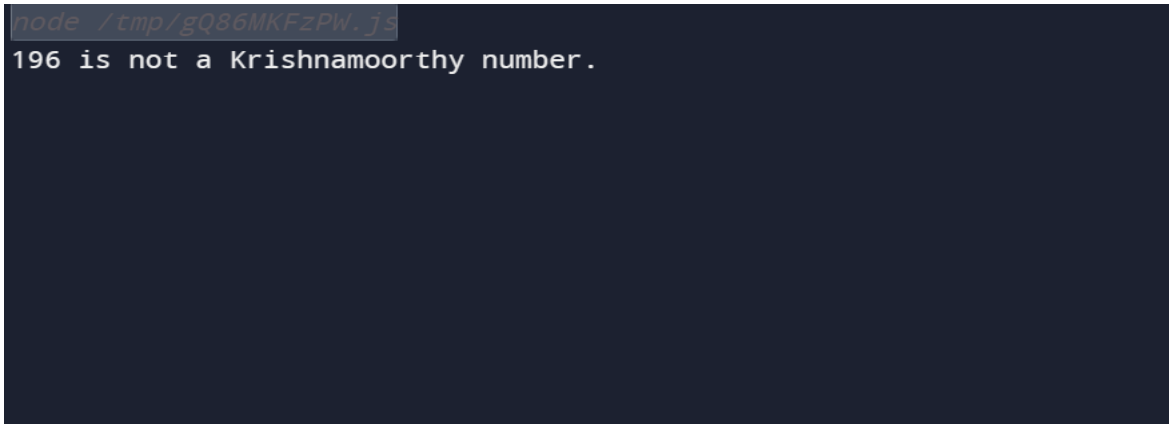
```
function isArmstrongNo(number) {
    var numStr = number.toString();
    var nd = numStr.length;

    let sum = 0;

    for (let i = 0; i < nd; i++) {
        var d = parseInt(numStr[i]);
        sum += Math.pow(d, nd);
    }

    return sum === number;
}
const num = 153;
if (isArmstrongNo(num)) {
    console.log(`${num} is an Armstrong number.`);
} else {
    console.log(`${num} is not an Armstrong number.`);
}

```

```
node /tmp/3oAhLQoQEQ.js
153 is an Armstrong number.
```

3. JS function to find if the given number is Krishnamoorthy no

```
function factorial(number) {
 if (number === 0 || number === 1) {
```

```
    return 1;
  } else {
    return number * factorial(number - 1);
  }
}

function isKrishnamoorthyNumber(number) {
  const numString = number.toString();
  let sum = 0;

  for (let i = 0; i < numString.length; i++) {
    const digit = parseInt(numString[i]);
    sum += factorial(digit);
  }

  return sum === number;
}

const inputNumber = 196;

if (isKrishnamoorthyNumber(inputNumber)) {
  console.log(`${inputNumber} is a Krishnamoorthy number.`);
} else {
  console.log(`${inputNumber} is not a Krishnamoorthy number.`);
}
```



4. JS program to guess the given number

```
function playNumberGuessingGame() {
  const targetNumber = Math.floor(Math.random() * 100) + 1;
  let numberOfAttempts = 0;

  while (true) {
    const userGuess = parseInt(
      prompt("Guess a number between 1 and 100:")
    );

    if (isNaN(userGuess)) {
      alert("Please enter a valid number.");
    } else {
      numberOfAttempts++;

      if (userGuess < targetNumber) {
        alert("Too low! Try again.");
      } else if (userGuess > targetNumber) {
        alert("Too high! Try again.");
      } else {
        alert(
          `Congratulations! You guessed the number ${targetNumber} in
${numberOfAttempts} attempts.`
        );
        break;
      }
    }
  }

playNumberGuessingGame();
```

```
node /tmp/gQ86MKFzPW.js
Guess a number between 1 and 100:99
Too high! Try again.
Guess a number between 1 and 100:6
Too low! Try again.
Guess a number between 1 and 100:50
Too low! Try again.
Guess a number between 1 and 100:41
Too low! Try again.
Guess a number between 1 and 100:51
Too low! Try again.
Guess a number between 1 and 100:66
Too low! Try again.
Guess a number between 1 and 100:22
Too low! Try again.
Guess a number between 1 and 100:88
Too high! Try again.
Guess a number between 1 and 100:65
```

5. JS function to perform binary search

```
function binarySearch(arr, p) {
 let left = 0;
 let right = arr.length - 1;

 while (left <= right) {
  var mid = Math.floor((left + right) / 2);

  if (arr[mid] === p) {
   return mid;
  } else if (arr[mid] < p) {
   left = mid + 1;
  } else {
   right = mid - 1;
  }
 }

 return -1;
}
```

```
var arr1 = [2, 5, 8, 12, 16, 23, 38, 45, 56, 72, 91];
var p = 56;
var result = binarySearch(arr1, p);

if (result !== -1) {
  console.log(`Element ${p} found at index ${result}`);
} else {
  console.log(`Element ${p} not found in the array`);
}
```