

## Brute Force String Match and KMP Algorithm for String Matching:

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//KMP Algo
//Calculate the indices of the occurrences of strings s in it

let string = "abcabcd";
let substring = "abcd";
let string2 = "abcabcdfgh";
let substring21 = "fgh";
let substring22 = "cfggh";

const bruteForceMatch = (string, substring) => {
  //O(n*m)
  if (substring === "") return 0;
  for (let i = 0; i <= string.length - substring.length; i++) {
    let j = 0;
    for (; j < substring.length; j++) {
      if (substring[j] !== string[i + j]) break;
    }
    if (j === substring.length) return i;
  }
  return -1;
};

console.log(bruteForceMatch(string, substring))
let substring2 = "abca";
let substring3 = "abda";
function buildPrefixTable(s) {
  let table = [0];
  let i = 1;
  let j = 0;
  while (i < s.length) {
    if (s[i] === s[j]) {
      j++;
      table[i] = j;
      i++;
    } else if (j > 0) {
      //do not match
      j = table[j - 1];
    } else {
      //do not match j === 0
      table[i] = 0;
      i++;
    }
  }
  return table;
}

function checkCommon(string, substring) {
  let s1 = string.split("");
  let table = buildPrefixTable(substring);
  let sb = substring.split("");
```

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let i = 0,
    j = 0,
    x = 0;
let flag = false;
while (i < s1.length) {
    if (s1[i] === sb[j]) {
        if (j === sb.length - 1 && s1[i] === sb[j]) {
            flag = true;
            break;
        }

        i++;
        j++;
    } else if (j === 0) {
        i++;
    } else {
        j = table[j];
    }
}
return flag;
}

```

```

console.log(checkCommon(string, substring));
console.log(checkCommon(string, substring2));
console.log(checkCommon(string, substring3));
console.log(checkCommon(string2, substring21));
console.log(checkCommon(string2, substring22));

```