Spring2024-2025
CMPE124/ISYE223
Algorithms and Programming
LAB WORK #5A

Time and Space Complexity Examples

Question 1

What is the time complexity of the function `test` ? What is its space complexity?

```
1  function test(n) {
2    for (let i = 0; i < n; i++) {
3      console.log("Hello!");
4    }
5  }
```

Copy Code

Question 2

What is the time complexity of the function `test` ? What is its space complexity?

```
1  function test(n) {
2    for (let i = 0; i < n; i++) {
3      for (let j = i; j < n; j++) {
4        console.log("Hello!");
5      }
6    }
7  }
8
```

Copy Code

Question 3

What is the time complexity of the function `test` ? What is its space complexity?

```
1  function test(n) {
2    let result = [];
3    for (let i = 0; i < n; i++) {
4      result.push(i);
5    }
6    return result;
7  }
```

Question 4

What is the time complexity of the function `test`? What is its space complexity?

```
function test(n) {
  let sum = 0;
  for (let i = 1; i <= n; i++) {
    for (let j = 1; j <= i; j++) {
      sum += 1;
    }
  }
  return sum;
}
```

Question 5

What is the time complexity of the function `test`? What is its space complexity?

```
function test(n) {
  let result = [];
  for (let i = 0; i < n; i++) {
    result.push(i);
    for (let j = 0; j < n; j++) {
      result[i] += j;
    }
  }
  return result;
}
```

Question 6

What is the time complexity of the function `test`? What is its space complexity?

```
function test(n) {
  for (let i = 0; i < n; i++) {
    for (let j = 0; j < n; j++) {
      for (let k = 0; k < n; k++) {
        console.log("Hello!");
      }
    }
  }
}
```