

Sohee Cho

Part 1:

1. What are **loops great for**? Give **two reasons** why they are great.

- a. It's great when you want to do the same task/run the same code over again, and each time with a different value
- b. It's also great when working with arrays

2. What is the **basic syntax for a for loop**? Give the **higher level (more complexly worded syntax)** and the more **basic syntax**.

- a. The basic syntax
  - i. `for(initialization; condition; final-expression) { statement }`
  - ii. `for (step 1; step 2; step 3) { // code block to be executed }`

3. What does the **for loop basically do**?

- a. The "for loop" provides a concise way of writing the loop structure. Unlike a while loop, a for statement consumes the initialization, condition and increment/decrement in one line thereby providing a shorter, easy to debug structure of looping.

4. Give an **example of a for loop**, and then **explain** what is going on with the code.

- a. Example: `for (i = 0; i < 5; i++) { text += "The number is " + i + "<br>"; }`
  - i. Statement 1 sets a variable before the loop starts (`var i = 0`)
  - ii. Statement 2 defines the condition for the loop to run (`i` must be less than 5)
  - iii. Statement 3 increases a value (`i++`) each time the code block in the loop had been executed

5. What **two characters (used in code)** represent the **for loop code block**?

- a. The two characters used to represent the for loop code block are curly brackets { }

6. After the **for loop code block** has been **executed**, which **step** does the **for loop program return** to?

- a. It returns to step 2, in which we define the condition for executing the code block.

7. Give an **example** of a **for loop** that **includes** an **if statement** and a **break statement within** the **if statement**. **Don't** give the **exact example** in the **loops-arrays slide deck**. I **will not give** you **credit** if **you do**. **Customize** it. **Make it** your **own**. I will **provide links** at the end of this document to **other places** where you can **get more ideas for examples**.

- a. Example:

```
number = 0
for number in range(10):
    if number == 5:
        break
    print('Number is ' + str(number))

print('Out of loop')
```

8. Give an **example** of a **for loop** that **includes** an **if statement** and a **continue statement within** the **if statement**. **Don't** give the **exact example** in the **loops-arrays slide deck**. I **will not give** you **credit** if **you do**. **Customize** it. **Style** it with the **help** of **CSS** in **JS** (refer to the **loops-arrays slide deck** to follow how I do it; you can also reach out to me for help!). **Make it** your **own**. I will **provide links** at the end of this document to **other places** where you can **get more ideas for examples**.

a. Example:

```
number = 0
for number in range(10):
    if number == 5:
        continue
    print('Number is ' + str(number))

print('Out of loop')
```

9. Give me an **example** of an **array**. You can use **whatever data type** you **want** inside. Use the **examples** in the **slide deck** as **guidelines**, but **make up your own**.

a. Example: let statesArray = [ "newyork", "pennsylvania",  
"california", "texas", "massachusettes"]

```
let states = [{
  type: "newyork"
  location: "east",
  capital: "newyorkcity",
  population: 9million,
}, {
  type: "pennsylvania",
  location: "east",
  capital: "philadelphia",
  population: 13million,
}]
```

10. Give me another **example** of an **array** using a DIFFERENT **data type** from **number 9**. You can use **more than one** if you like as well! Get **creative**. Use the **examples** in the **slide deck** as

**guidelines, but make up your own.**

- a. Example: `let cunyArray = [ "citytech", "baruch", "brooklyn", "graduatecenter", "hunter", "citycollege"]`

```
let cuny = [{  
  type: "citytech"  
  location: "brooklyn",  
  graduationrate: "20.8%",  
  enrollment: 16214,  
}, {  
  type: "baruch",  
  location: "newyorkcity",  
  graduationrate: "72%",  
  enrollment: 14903,  
}]
```

11. **Declare** and **initialize** and **array** (remember, **initializing** means **applying** a **value** to the **variable**, in this case the **value** of the **variable** would be an **array**). Then **create** a **for loop** which **iterates** over that **array**. Use the **loops-arrays slide deck** as a **guide** to how to do this, and you can also visit the [JavaScript For Loop page on W3Schools](#), The [JavaScript For Statement page on WsSchools](#), the [Loops and Iteration page on MDN](#), and **other links** provided in the **helpful reading section** at the **end** of this **document**.

declaration: `int num [ ] [ ] num = new int [5] [2];`

initialization: `int [ ] [ ] num={ {1,2}, {1,2}, {1,2}, {1,2}, {1,2} };`

12. **Give an example of a for in loop**. **Explain what is going on** with the **code**. Use the **loops-arrays slide deck** as an **inspiration** and/or **guide** to **creating your for-in loop**, the **related resources** I

have included at the **end** of the **slide deck** there, along with the **other links** I have **provided** in the **Helpful Reading** section at the end of this document. but make it your own! Get **creative**. Again, somehow involve **CSS in JS** in a **similar way** to the way you did it for **number 8**.

**HTML:**

```
<button onclick="myFunction()">Click Here</button>
```

**Javascript:**

```
function myFunction() {  
  var person = {fname:"Sohee", lname:"Cho", age:26};  
  var text = "";  
  var x;  
  
  for (x in person) {  
    text += person[x] + " ";  
  }  
  document.getElementById("demo").innerHTML = text;  
}
```

In this example, var is the variable which iterates over the properties of an object. The "(x in person)" is the object which is iterated.

13. Give an example of a for of loop. **Explain** what is **going on** with the **code**. Use the **loops-arrays slide deck** as an **inspiration** and/or **guide** to **creating** your **for-in loop**, the **related resources** I have included at the **end** of the **slide deck** there, along with the **other links** I have **provided** in the **Helpful Reading** section at the end of this document.

```
<html>  
<body>
```

```

<script>
var students = ['Sohee', 'Dasom', 'Abundio'];
var x;

for (x of students) {
  document.write(x + "<br >");
}
</script>

</body>
</html>

```

In this example, "(x of students)" is the variable. For every iteration the value of the next property is assigned to the variable and is declared by var in this case "var students"

**14. Tell me what is the (main) difference between a for in loop and a for of loop.**

- a. The main difference a for in loop and for of loop is that "for in" is a method for iterating over enumerable properties of an object, which is any property that you add to an object.

**15. Give me an example of a do while loop. Use the loops-arrays slide deck as an inspiration and/or guide to creating your for-in loop, the related resources I have included at the end of the slide deck there, along with the other links I have provided in the Helpful Reading section at the end of this document.**

```
<button onclick="myFunction()">Click Here</button>
```

```
<p id="demo"></p>
```

```
<script>
function myFunction() {
  var text = "Lucky numbers:"
  var i = 10;
  do {
    text += "<br>Your number is " + i;
    i++;
  }
  while (i < 20);
  document.getElementById("demo").innerHTML = text;
}
</script>

</body>
</html>
```

**16. Why does a **loop** (in general) **terminate**?**

- a. It terminates because a break statement is used, which stops the execution of a loop entirely