

# 4 Loop

Jin Wang,

MSIS, Rutgers

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## **1. Updating variables.**

## Reassignment

```
x = 1  
x = 2  
print(x)
```

## Updating variables

```
x = 1  
y = x  
x = 2  
print(y)
```

**increment**

```
i+=1
```

**decrement**

```
i-=1
```

## 2. Repetitions and Loops

```
print("Hello")  
print("Hello")  
print("Hello")
```

### 3. **while** loops

```
while <condition>:  
    <block>
```



## 4. List basics

## List

```
names = ["Jin", "Mark", "Neil"]  
numbers = [3, 8, 8]  
  
print(names)  
print(numbers)
```

## Getting access to the elements

```
names = ["Jin", "Mark", "Neil"]  
numbers = [3, 8, 8]
```

```
print(names[0])  
print(names[1])  
print(names[2])
```

```
print(numbers[0])  
print(numbers[1])  
print(numbers[2])
```

## Updating the elements

```
numbers = [3, 8, 8]  
numbers[2] = 5  
  
print(numbers)
```

## `range()` function

```
numbers_range = range(3)
numbers_list = list(numbers_range)

print(numbers_list)
```

## len() function to obtain length

```
numbers = [3, 8, 8]  
l = len(numbers)  
print(l)
```

## 5. **for** loops

```
for i in range(3):  
    print("Hello")
```

## 6. `continue`, `break`



## 7. Practice Questions

1. Create a function named `get_maximum` taking a list of numbers, which can return the maximum number in the list.

2. Calculate the sum of 1 to  $n$ .

- i. Create a function named `get_number` which returns a positive number. In the function you use `input` function to let user input a positive integer. If user inputs a negative number, reprompt the user with "Please input a positive number: " .
- ii. Create a function named `get_sum` taking a number  $n$  and returning the sum of 1 to  $n$ .
- iii. Create a `main` function which calls the two functions above to calculate the sum of 1 to  $n$ .

1. Create a function taking a list, which can print out the 2nd value, 4th value, 6th value, .... For example, given a list `x = ['a', 'b', 'c', 'd']`, the output should print 'b' and 'd'. (try to use `continue` in the loop)

1. Given a list of numbers, try to print the numbers starting with the first one and stop when the sum of the numbers collected is larger than 100.