

# TypeScript Loops and Arrays



# For Loops

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File: loops.ts

```
for (let i=0; i < 5; i++) {
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```
for (let i=0; i < 5; i++) {  
    console.log(i);  
}
```

# For Loops

Compile code using: tsc

File: loops.ts

```
for (let i=0; i < 5; i++) {  
    console.log(i);  
}
```

```
C:\> tsc loops.ts
```

# For Loops

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```
for (let i=0; i < 5; i++) {  
    console.log(i);  
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C:\> tsc loops.ts

C:\> node loops.js

Run code using: node

# For Loops

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for (let i=0; i < 5; i++) {  
    console.log(i);  
}
```

```
C:\> tsc loops.ts
```

```
C:\> node loops.js
```

```
0  
1  
2  
3  
4
```

# For Loop - Array of numbers

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File: reviews.ts

```
let reviews: number[] = [5, 5, 4.5, 1, 3];
```

# For Loop - Array of numbers

Declare an array

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Index into the array

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Index into the array

C:\> tsc reviews.ts

C:\> node reviews.js

5  
5  
4.5  
1  
3

# For Loops - Compute Average

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let total: number = 0;
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File: reviews.ts

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let reviews: number[] = [5, 5, 4.5, 1, 3];

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# For Loops - Compute Average

File: reviews.ts

```
let reviews: number[] = [5, 5, 4.5, 1, 3];

let total: number = 0;

for (let i=0; i < reviews.length; i++) {
    console.log(reviews[i]);
    total += reviews[i];
}
```

# For Loops - Compute Average

File: reviews.ts

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let reviews: number[] = [5, 5, 4.5, 1, 3];

let total: number = 0;

for (let i=0; i < reviews.length; i++) {
    console.log(reviews[i]);
    total += reviews[i];
}
```

Same as: total = total + reviews[i];

# For Loops - Compute Average

File: reviews.ts

```
let reviews: number[] = [5, 5, 4.5, 1, 3];

let total: number = 0;

for (let i=0; i < reviews.length; i++) {
    console.log(reviews[i]);
    total += reviews[i];
}

let average: number = total / reviews.length;
```

# For Loops - Compute Average

File: reviews.ts

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let reviews: number[] = [5, 5, 4.5, 1, 3];

let total: number = 0;

for (let i=0; i < reviews.length; i++) {
    console.log(reviews[i]);
    total += reviews[i];
}

let average: number = total / reviews.length;

console.log("Review average = " + average);
```

# For Loops - Compute Average

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let reviews: number[] = [5, 5, 4.5, 1, 3];

let total: number = 0;

for (let i=0; i < reviews.length; i++) {
    console.log(reviews[i]);
    total += reviews[i];
}

let average: number = total / reviews.length;

console.log("Review average = " + average);
```

```
C:\> tsc reviews.ts
C:\> node reviews.js
5
5
4.5
1
3
Review average = 3.7
```

# Arrays

# Arrays

File: sports.ts

```
let sportsOne: string[] = ["Golf", "Cricket", "Tennis", "Swimming"];
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let sportsOne: string[] = ["Golf", "Cricket", "Tennis", "Swimming";  
  for (let i = 0; i < sportsOne.length; i++) {  
    console.log(sportsOne[i]);  
  }
```

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let sportsOne: string[] = ["Golf", "Cricket", "Tennis", "Swimming";  
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Index into the array

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let sportsOne: string[] = ["Golf", "Cricket", "Tennis", "Swimming"];

for (let i = 0; i < sportsOne.length; i++) {

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Index into the array

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Golf

Cricket

Tennis

Swimming

# Simplified For Loop

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let sportsOne: string[] = ["Golf", "Cricket", "Tennis", "Swimming"];
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File: sports.ts

```
let sportsOne: string[] = ["Golf", "Cricket", "Tennis", "Swimming";  
for (let tempSport of sportsOne) {
```

# Simplified For Loop

File: sports.ts

```
let sportsOne: string[] = ["Golf", "Cricket", "Tennis", "Swimming";  
  for (let tempSport of sportsOne) {  
    console.log(tempSport);  
  }
```

# Simplified For Loop

File: sports.ts

```
let sportsOne: string[] = ["Golf", "Cricket", "Tennis", "Swimming";  
  
for (let tempSport of sportsOne) {  
  
    console.log(tempSport);  
}
```

Current array element

# Simplified For Loop

File: sports.ts

```
let sportsOne: string[] = ["Golf", "Cricket", "Tennis", "Swimming"];

for (let tempSport of sportsOne) {

    console.log(tempSport);
}
```

Current array element

C:\> tsc sports.ts

C:\> node sports.js  
Golf  
Cricket  
Tennis  
Swimming

# Conditionals

# Conditionals

File: sports.ts

```
let sportsOne: string[] = ["Golf", "Cricket", "Tennis", "Swimming"];

for (let tempSport of sportsOne) {

    if (tempSport == "Cricket") {
        console.log(tempSport + " << My Favorite!");
    }
    else {
        console.log(tempSport);
    }
}
```

# Conditionals

File: sports.ts

```
let sportsOne: string[] = ["Golf", "Cricket", "Tenni  
for (let tempSport of sportsOne) {  
    if (tempSport == "Cricket") {  
        console.log(tempSport + " << My Favorite!");  
    }  
    else {  
        console.log(tempSport);  
    }  
}
```

Conditional

# Conditionals

File: sports.ts

```
let sportsOne: string[] = ["Golf", "Cricket", "Tennis", "Swimming"];

for (let tempSport of sportsOne) {

    if (tempSport == "Cricket") {
        console.log(tempSport + " << My Favorite!");
    }
    else {
        console.log(tempSport);
    }
}
```

C:\> tsc sports.ts

C:\> node sports.js

Golf

Cricket << My Favorite!

Tennis

Swimming

# Growable Arrays

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Arrays in TypeScript are always  
growable / dynamic

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growable / dynamic

File: `growable-arrays.ts`

```
let sportsTwo: string[] = ["Golf", "Cricket", "Tennis"];
```

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Arrays in TypeScript are always  
growable / dynamic

File: `growable-arrays.ts`

```
let sportsTwo: string[] = ["Golf", "Cricket", "Tennis";  
  
sportsTwo.push("Baseball");
```

# Growable Arrays

Arrays in TypeScript are always  
growable / dynamic

File: `growable-arrays.ts`

```
let sportsTwo: string[] = ["Golf", "Cricket", "Tennis";  
    sportsTwo.push("Baseball");
```

Add elements

# Growable Arrays

Arrays in TypeScript are always  
growable / dynamic

File: growable-arrays.ts

```
let sportsTwo: string[] = ["Golf", "Cricket", "Tennis"];
```

```
sportsTwo.push("Baseball");
```

```
sportsTwo.push("Futbol");
```

```
for (let tempSport of sportsTwo) {  
    console.log(tempSport);
```

Add elements

# Growable Arrays

Arrays in TypeScript are always  
growable / dynamic

File: growable-arrays.ts

```
let sportsTwo: string[] = ["Golf", "Cricket", "Tennis";  
  
sportsTwo.push("Baseball");  
sportsTwo.push("Futbol");  
  
for (let tempSport of sportsTwo) {  
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```

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Arrays in TypeScript are always  
growable / dynamic

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let sportsTwo: string[] = ["Golf", "Cricket", "Tennis";  
  
sportsTwo.push("Baseball");  
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for (let tempSport of sportsTwo) {  
    console.log(tempSport);  
}
```

C:\> tsc growable-arrays.ts

C:\> node growable-arrays.js  
Golf  
Cricket  
Tennis  
Baseball  
Futbol