



Introduction to Collections

Programming Job

- Write a program to set a user's password
- Don't allow repeating the last password
- Don't allow repeating the last three passwords
- Don't allow repeating the last ten passwords







Collections:

A group of values for a single variable






- Array declaration syntax:
 - `<type> [] <identifier> = new <type> [<size>] ;`
- Array usage syntax:
 - `<identifier> [<index>]`



My Cars

My Cars				
1st Car	2nd Car	3rd Car	4th Car	5th Car
 A red toy car with a smiling face, eyes, and a steering wheel. The name "Lightning McQueen" is written on the front. It is a character from the Disney Pixar movie "Cars".	 A red Ferrari sports car, viewed from the front. It has a sleek, aerodynamic design with a prominent front grille and headlights.	 A black Batmobile toy car, viewed from the front. It has a highly detailed, armored appearance with large, treaded tires and a complex mechanical structure.	 A bright green classic car, viewed from the front. It has a simple, boxy design with a prominent front grille and headlights.	 A black classic car, viewed from the front. It has a boxy, vintage design with a prominent front grille and headlights. The license plate area has the text "BLON MIST".

My Cars - In C#

<code>Car[] myCars = new Car[5];</code>				
<code>myCars[0]</code>	<code>myCars[1]</code>	<code>myCars[2]</code>	<code>myCars[3]</code>	<code>myCars[4]</code>
				

WARNING! Technical details:
myCars is a memory address of the 1st slot -
myCars[0] means myCars at offset 0

Crashes

```
Car[] myCars = new Car[5];
```

- myCars[5]
- myCars[-1]



Arrays: How It Works

```
string password1;  
string password2;  
string password3;  
string password4;  
string password5;
```

```
password1 = "one";  
password2 = "two";  
password3 = "three";  
password4 = "four";  
password5 = "five";
```

password1

one

password2

two

password3

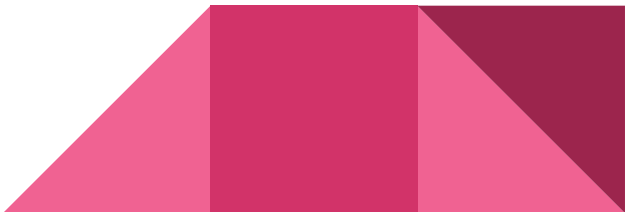
three

password4

four

password5

five



Arrays: How It Works

```
string[] passwords;  
passwords = new string[5];
```

```
passwords[0] = "one";  
passwords[1] = "two";  
passwords[2] = "three";  
passwords[3] = "four";  
passwords[4] = "five";
```


passwords

0	one
1	two
2	three
3	four
4	five

Arrays: Example Code

```
int[ ] values = new int[5];  
  
for (int i = 0 ; i < 5 ; i++)  
{  
    values[i] = i + 1;  
}
```

```
int answer = 0;  
  
for (int i = 0 ; i < 5 ; i++)  
{  
    answer += values[i];  
}
```



Assignment: Card Game

