foreach

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Table of Contents

# Practicing foreach Loop

## Problem 1

* Create a new project, and replace the content of the *main* method with the following code:

int[] primes = {2, 3, 5, 7, 11, 13, 17, 19}  
for(int i = 0; i< primes.Length; i++)  
{  
 Console.WriteLine(primes[i]);  
}

* Execute the code. You should see the elements of the array *primes* (the prime numbers less than 20) in the console.
* Rewrite the code with **foreach** statement. Try to code yourself. Then check your answer with the following answer.

int[] primes = {2, 3, 5, 7, 11, 13, 17, 19}  
foreach(int n in primes)  
{  
 Console.WriteLine(n);  
}

* Explain two differences between the above codes.
* Which one is easier to understand?
* Which one needs fewer variables?

## Problem 2

* Create a new project and replace the content of the file *Program.cs* with the following code:

using System;  
  
namespace Practice  
{  
 class Book  
 {  
 public string Title;  
 public int Year;  
 public string Publisher;  
 }  
 class Program  
 {  
 static void Main(string[] args)  
 {  
 Book[] bookList = new Book[10];  
 for(int i =0; i< 10; i++)  
 {  
 Console.Write("Enter the book title:");  
 bookList[i].Title = Console.ReadLine();  
 Console.Write("Enter the publish year:");  
 bookList[i].Year = int.Parse(Console.ReadLine());  
 Console.Write("Enter the publisher:");  
 bookList[i].Publisher = Console.ReadLine();  
 }  
 }  
 }  
}

* As you notice, in the above code we define an array of 10 Book objects, and using a *for* loop, we accommodate the array.
* Replace the *for* statement with *foreach* statement and apply the required changes.
* Add a piece of code that, using a *foreach* statement, gets a year from the user and prints all the books published in the given year.
* Add a piece of code that, using a *for* statement, gets a year from the user and prints all the books published in the given year.
* *foreach* or *for*? Which one do you prefer to implement the above search? Explain your answer. ## Problem 3
* Can you rewrite the following code with foreach statement? Why?

double [] numbers = {1.2, 4.3, 5.7, 11, -3.13, 1.7}  
  
for(int i = 0; i< numbers.Length; i++)  
{  
 numbers[i] = numbers[i] \* 1.1;  
 Console.WriteLine(numbers[i]);  
}

## problem 4

* Can you rewrite the following code with foreach statement? Why?

double [] numbers = {1.2, 4.3, 5.7, 11, -3.13, 1.7}  
  
for(int i = 0; i< numbers.Length - 1; i++)  
{   
 Console.WriteLine((numbers[i] + numbers[i+1] )/2);  
}

## Problem 5

* Can you think of any loops that are implementable by *foreach* but not with *for*?