

# foreach

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## 1 Practicing foreach Loop

### 1.1 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?

## 1.2 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]);
}
```

### 1.3 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);
}
```

### 1.4 Problem 5

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