

# An Introduction to Algorithms

Strategies Matter



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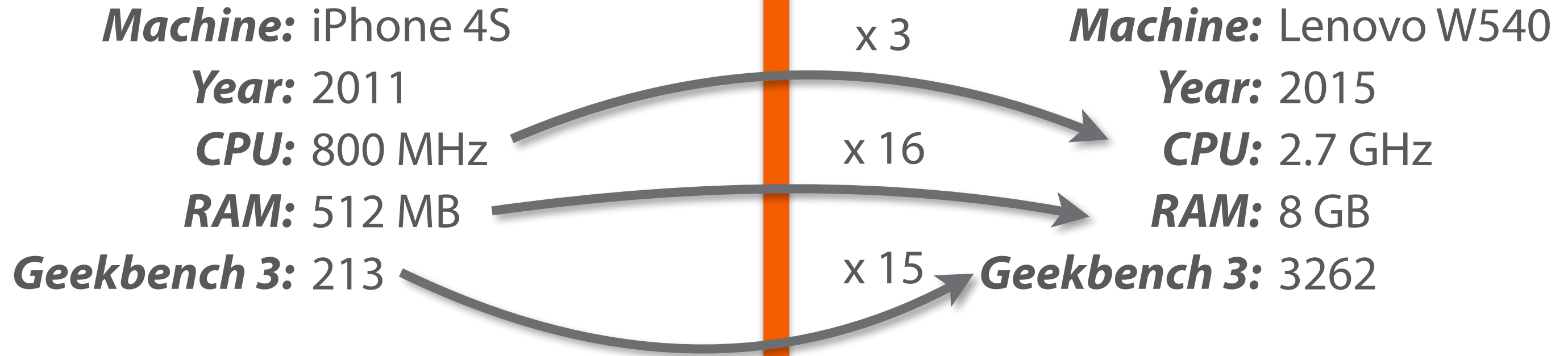
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# Diving Right In

Counting unique web-site visitors

2 approaches...





# Swift

```
func readAllLogs() -> Int
{
    var reader = LogReader();
    var linesSeen = 0;
    for logLine in reader.GetLogLines()
    {
        logLine.getIP();
        linesSeen++;
    }
    return linesSeen;
}
```

1. Read all input (to measure)

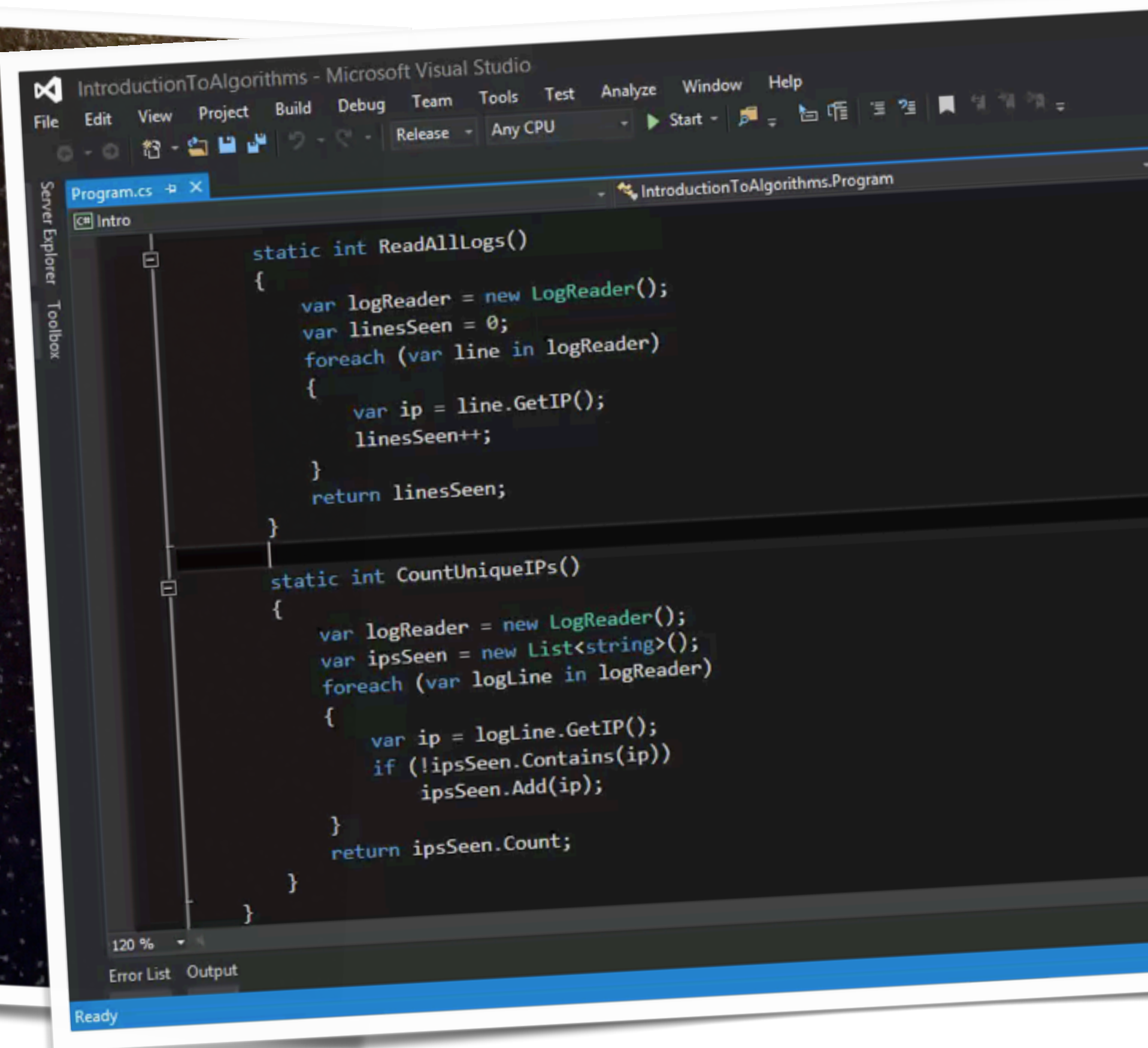
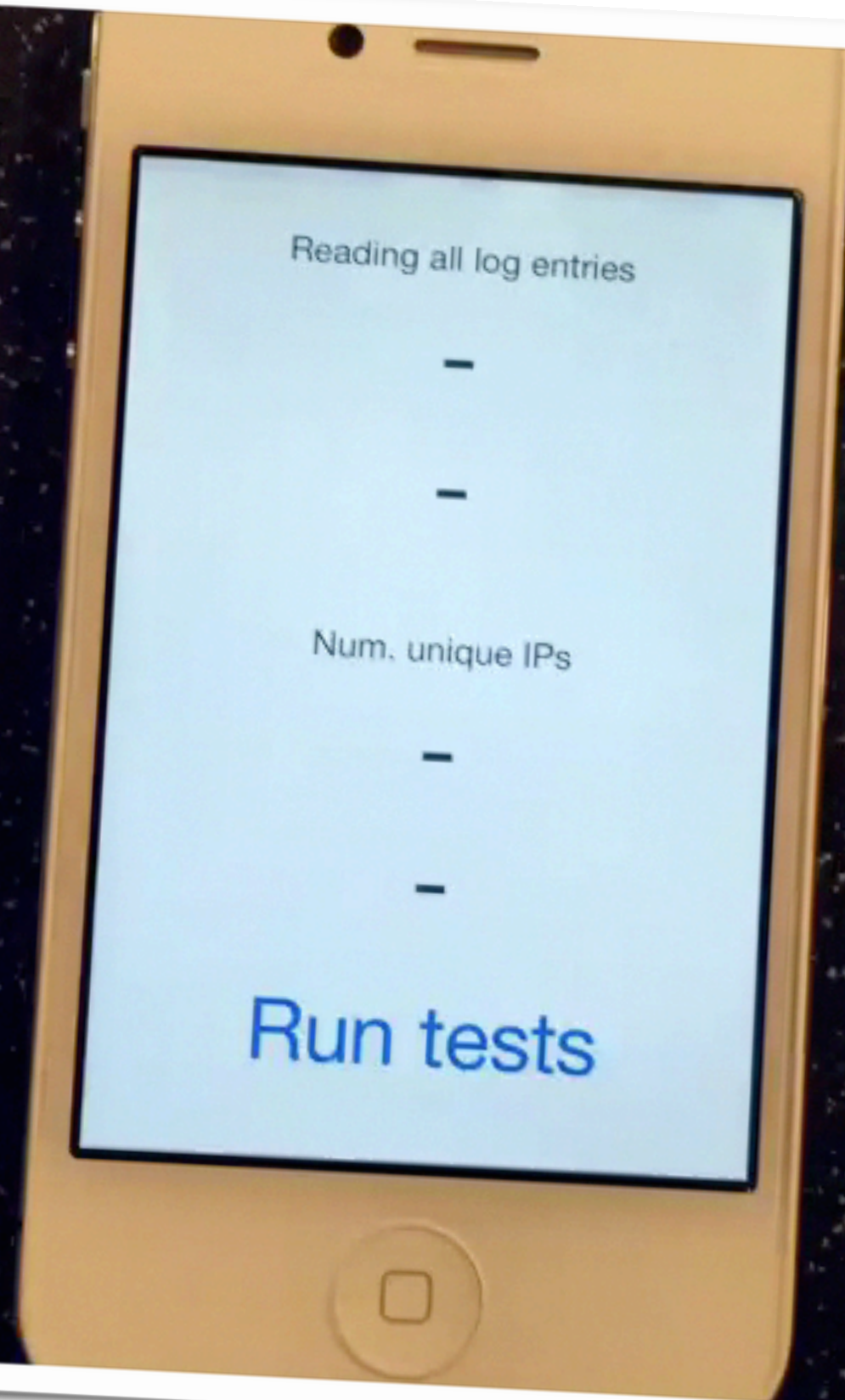
```
func countUniqueIPs() -> Int {
    var reader = LogReader();
    var ipsSeen = NSMutableSet();
    for logLine in reader.GetLogLines() {
        var ip = logLine.getIP();
        if(!ipsSeen.containsObject(ip)) {
            ipsSeen.addObject(ip);
        }
    }
    return ipsSeen.count;
}
```

# C#

```
static int ReadAllLogs()
{
    var logReader = new LogReader();
    var linesSeen = 0;
    foreach (var line in logReader)
    {
        var ip = line.GetIP();
        linesSeen++;
    }
    return linesSeen;
}
```

```
static int CountUniqueIPs()
{
    var logReader = new LogReader();
    var ipsSeen = new List<string>();
    foreach (var logLine in logReader)
    {
        var ip = logLine.GetIP();
        if (!ipsSeen.Contains(ip))
            ipsSeen.Add(ip);
    }
    return ipsSeen.Count;
}
```





**Machine:** iPhone 4S

**Year:** 2011

**Model:** W540

Choice of data  
structures matters

Geek

NSMutableDictionary

Winner!

HashSet

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# Course Outline

