

# Kaip patobulinti savo fighterj?

Kaip galiu panaudoti tai, ką moku?

Kaip veikia Boxeris ir Kickboxeris?

# SimpleBot

```
public Move MakeNextMove(Move opponentLastMove, int myLastScore, int oppLastScore)
{
    var move = new Move()
        .AddAttack(Area.Nose)
        .AddAttack(Area.Nose)
        .AddDefence(Area.Nose);
    return move;
}
```

I

# MyFighter

```
public Move MakeNextMove(Move opponentLastMove, int myLastScore, int oppLastScore)
{
    var move = new Move()
        .AddAttack(Area.Jaw)
        .AddAttack(Area.Jaw)
        .AddDefence(Area.Nose);

    return move;
}
```

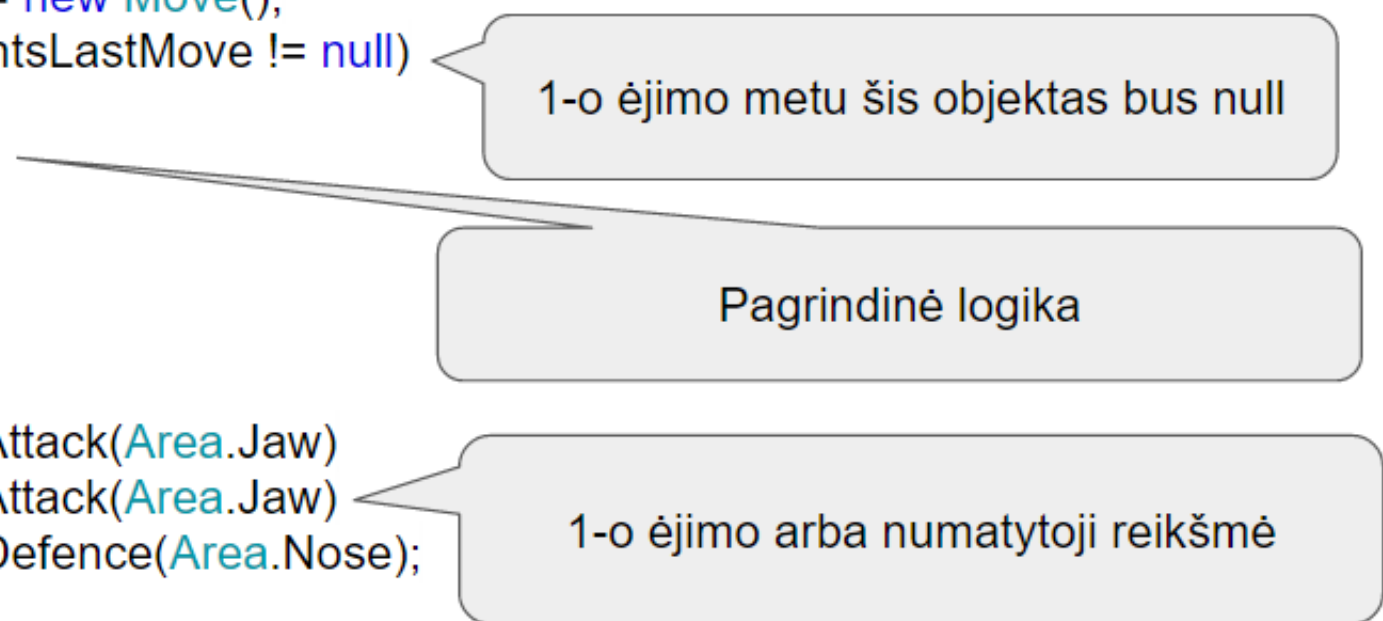
Strategija laimi prieš vieną botą, bet neturi visiškai jokių šansų prieš kitus botus

# Ko mums reikia, norint laimėti prieš kitus robotus?

- Fantazijos
- Sėkmės
- Geros strategijos
- „Kvailų“ priešininkų
- Išbandyti idėjas
- Adaptuotis
- ???

# Roboto „griaučiai“

```
public Move MakeNextMove(Move opponentsLastMove, int myLastScore, int opponentsLastScore)
{
    var move = new Move();
    if (opponentsLastMove != null)
    {
        // ???
    }
    else
    {
        move
            .AddAttack(Area.Jaw)
            .AddAttack(Area.Jaw)
            .AddDefence(Area.Nose);
    }
    return move;
}
```



1-o ėjimo metu šis objektas bus null

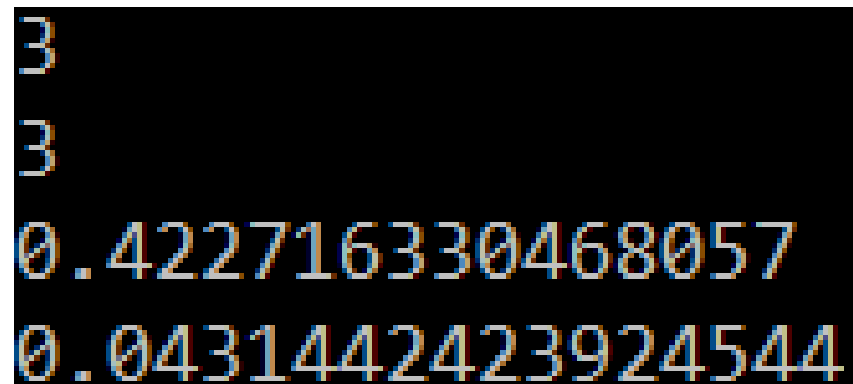
Pagrindinė logika

1-o ėjimo arba numatytoji reikšmė

# Random skaičiai

1 reference

```
public static void GenerateRandomNumber()  
{  
    Random r = new Random();  
  
    //grąžina skaičių iš intervalo [1, 5] imtinai  
    Console.WriteLine(r.Next(1, 5));  
    Console.WriteLine(r.Next(1, 5));  
  
    //grąžina skaičių iš intervalo [0.0, 1.0] imtinai  
    Console.WriteLine(r.NextDouble());  
    Console.WriteLine(r.NextDouble());  
}
```



```
3  
3  
0.422716330468057  
0.0431442423924544
```

Daugiau:

<https://www.dotnetperls.com/random>

# Kaip naudoja sample botai?

## Boxer.cs

1 reference

```
private Area createRandomAttack()  
{  
    return new Random().NextDouble() > 0.5d ? Area.Belly : Area.Jaw;  
}
```

Daugiau:

<https://www.dotnetperls.com/ternary>

## Kickboxer.cs

2 references

```
private Area CreateRandomArea()
{
    double random = new Random().NextDouble();
    if (random < 0.3)
        return Area.Nose;

    if (random < 0.7)
        return Area.Jaw;

    if (random < 0.9)
        return Area.Groin; // oh yeah

    return Area.Belly;
}
```



# Kintamųjų galiojimo sritis (variable scope)

1 reference

```
class Boxer: IFighter
```

```
{
```

```
    private int myScoreTotal = 0;
```

```
    private int opponentScoreTotal = 0;
```

7 references

```
    public Move MakeNextMove(Move opponentLastMove, int myLastScore, int oppLastScore)
```

```
{
```

```
        myScoreTotal += myLastScore;
```

```
        opponentScoreTotal += oppLastScore;
```

7 references

```
public Move MakeNextMove(Move opponentLastMove, int myLastScore, int oppLastScore)
```

```
{
```

```
    int myScoreTotal = 0;
```

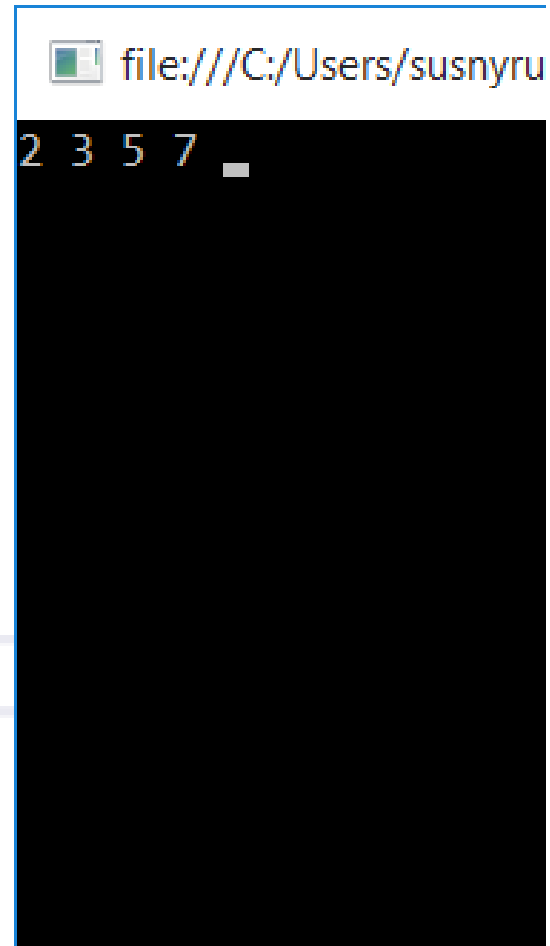
```
    int opponentScoreTotal = 0;
```

```
    myScoreTotal += myLastScore;
```

```
    opponentScoreTotal += oppLastScore;
```

# List<kažkos> kintamojo tipas

```
List<int> list = new List<int>();  
list.Add(2);  
list.Add(3);  
list.Add(5);  
list.Add(7);  
  
for (int i = 0; i < list.Count; i++)  
{  
    Console.Write(list[i] + " ");  
}  
  
Console.ReadLine();
```



file:///C:/Users/susnyru

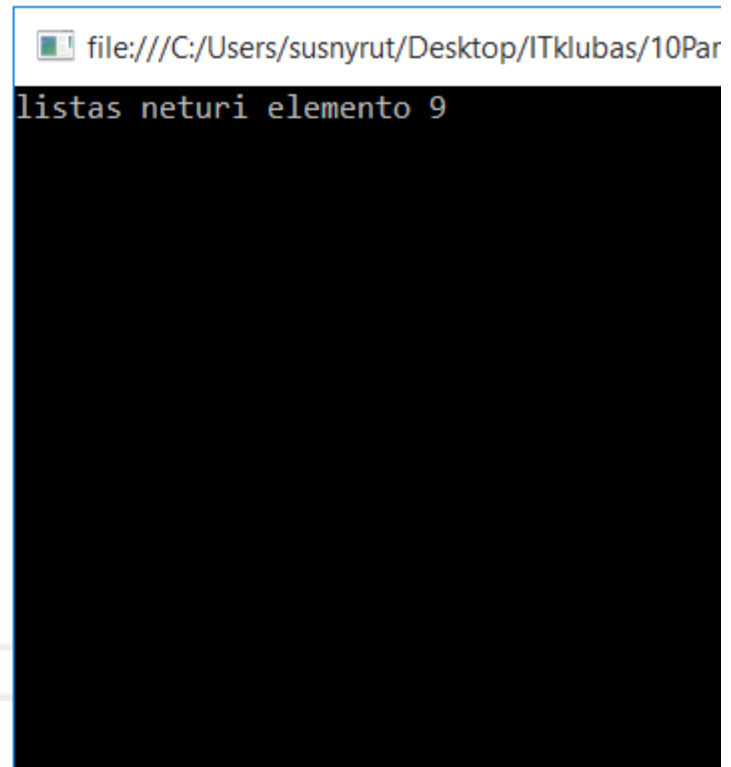
2 3 5 7

The screenshot shows a console window with the file path 'file:///C:/Users/susnyru' at the top. The main area of the window is black, and the output '2 3 5 7' is displayed in white text on the first line. A small white cursor is visible at the end of the output.

# Kaip patikrinti, ar List'as turi mano elementą?

Daugiau: <https://www.dotnetperls.com/list>

```
List<int> list = new List<int>();  
list.Add(2);  
list.Add(3);  
list.Add(5);  
list.Add(7);  
  
if (list.Contains(9))  
{  
    Console.WriteLine("listas turi elementą 9");  
}  
else  
{  
    Console.WriteLine("listas neturi elemento 9");  
}
```



The screenshot shows a console window with a title bar indicating the file path: file:///C:/Users/susnyrut/Desktop/ITklubas/10Par. The console output is "listas neturi elemento 9", which corresponds to the 'else' branch of the code shown on the left.

# Kaip kaupiti prieš juodesius?

7 references

```
public Move MakeNextMove(Move opponentsLastMove, int myLastScore, int opponentsLastScore)
{
    List<Move> opponentsMoves = new List<Move>();

    if (opponentsLastMove != null)
    {
        opponentsMoves.Add(opponentsLastMove);
    }
}
```

Ar veiks 😊 ?

Pataisytas pavyzdys – opponentsMoves negali būti metodo viduje, nes kas kartą kviečiant metodą būtų sukuriamas iš naujo.

```
List<Move> opponentsMoves = new List<Move>();
```

7 references

```
public Move MakeNextMove(Move opponentsLastMove, int myLastScore, int oppon  
{  
    if (opponentsLastMove != null)  
    {  
        opponentsMoves.Add(opponentsLastMove);  
    }  
}
```

# Kaip iteruoti per sukauptus priešininko judesius?

```
for(var i = 0; i < opponentsMoves.Count; i++)  
{  
    for(var j = 0; j < opponentsMoves[i].Attacks.Count; j++)  
    {  
        if (opponentsMoves[i].Attacks[j] == Area.Jaw)  
        {  
            // ...  
        }  
    }  
}
```

```
foreach(Move move in opponentsMoves)  
{  
    foreach(Area attackArea in move.Attacks)  
    {  
        if (attackArea == Area.Jaw)  
        {  
            // ...  
        }  
    }  
}
```

Ar veikia tokia taktika?

Jeigu priešas 5 kartus iš 10 man smūgiavo į kojas,  
tuomet aš turėčiau dengti kojas

??? Sugalvok pavyzdį, kada tokia taktika neveiks

Nose = 10,

Jaw = 8,

Belly = 6,

Groin = 4,

Legs = 3

Jeigu pirmus 5 kartus man priešininkas smūgiavo į kojas, o likusius 4 – į nosį ir aš dengsiu tik kojas, tai neprarasiu  $5 \cdot 3$  taškų už kojas, bet prarasiu  $4 \cdot 10$  taškų už nosį



# Kaip sekėsi mano fighteriui kovoti su Boxer?

Strategija:

1. Gink vieną labiausiai priešininko atakuotą per praėjusius roundus Area
2. Atakuok dvi mažiausiai priešininko gintas per praėjusius roundus Areas

```
Your bot attacked BELLY(+), JAW(+), scoring 14 while defending JAW,  
Boxer attacked NOSE(+), JAW(-), scoring 10 while defending NOSE,  
Your bot vs Boxer: 24 to -12
```

```
Boxer attacked NOSE(+), JAW(-), BELLY(+), scoring 16 and was NOT defending at all.  
Your bot vs Boxer: 2 to 16
```

```
Your bot attacked BELLY(+), JAW(+), scoring 14 while defending JAW,  
Boxer attacked NOSE(+), JAW(-), BELLY(+), scoring 16 and was NOT defending at all.  
Your bot vs Boxer: -14 to 2
```

# Kaip Boxer kaupia priešininko ir mano taškus?

```
private int myScoreTotal = 0;  
private int opponentScoreTotal = 0;
```

7 references

```
public Move MakeNextMove(Move opponentLastMove, int myLastScore, int oppLastScore)  
{  
    myScoreTotal += myLastScore;  
    opponentScoreTotal += oppLastScore;  
  
    Move move= new Move()  
                .AddAttack(attack1)  
                .AddAttack(attack2);  
  
    if (myScoreTotal >= opponentScoreTotal)  
        move.AddAttack(createRandomAttack()); // 3 attacks, 0 defence  
    else  
        move.AddDefence(defence);             // 2 attacks, 1 defence
```

# Užduotis

- Patobulinti savo botą
  - Naujas botas treniruotėms
    - Reikia atsinaujinti repozitoriją
- Užsiregistruoti į turnyrą

Pavadinimas: Visma IT klubo turnyras

Registracija iki : 12/19 20h

Kodas: itklubokaledos

Ką veikti namuose?

# https://www.codewars.com

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**i** The code does not execute properly. Try to figure out why.

```
public class CustomMath {  
    public static int multiply(int a, string b) {  
        return a * b;  
    }  
}
```

SUBMIT

<https://www.codehunt.com/>

LEVEL: 00.02 ▶ ATTEMPTS: 1 RATING:  SCORE: 0

CODE HUNT

SIGN IN WITH

Discover the arithmetic operation applied to 'x'.

CAPTURE CODE

RESET LEVEL

C#

```

1 using System;
2 public class Program {
3     public static int Puzzle(int x) {
4         return 0;
5     }
6 }

```

|   | X  | EXPECTED RESULT | YOUR RESULT | DESCRIPTION |
|---|--|-----------------|-------------|-------------|
| ✗ | 0  | 1               | 0           | Mismatch    |
| ✓ | -1   | 0               | 0           |             |
| @ | Well done so far. Look at numbers on line 4 to capture the code. |                 |             |             |

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Page Size: 10 · 25 · **50**

### Hangman Game


★★★★★



2 Mar 2010 by **Wonde Tadesse** license: CPOL


A Hangman game as a console application

General Programming » Game Development » Games

☐ C#2.0 ☐ C# ☐ Windows ☐ .NET ☐ Dev ☐ Intermediate 

### Bubble.NET Game


★★★★★



14 Jun 2004 by **BenoitM** license: CPOL

A Puzzle Bobble (aka Bust-A-Move) clone for Pocket PC using the .NET compact framework

Mobile Development » Windows Phone 7/8 » Windows Mobile

☐ VS.NET2003 ☐ C# ☐ Windows ☐ .NETCF ☐ .NET ☐ Visual-Studio 

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★★★★★

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|---------------|-----------|---------|-------------|-----------|-------------|--------------|-------------------|--------------|
| <b>String</b> | 2D        | Async   | Console     | DataTable | <b>.NET</b> | <b>Array</b> | <b>Dictionary</b> | <b>List</b>  |
| For           | Foreach   | Format  | IEnumerable | If        | Dates       | DateTime     | Enum              | File         |
| Parse         | Path      | Process | Property    | Random    | IndexOf     | Lambda       | LINQ              | Optimization |
| Static        | Substring | Switch  | Tuple       | While     | Regex       | Replace      | Sort              | Split        |

**C#**. Water travels down the rock. It settles below in a clear pool. This is the waterfall of knowledge. The pool beneath is clear and deep.


|                   |                |               |
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| <b>Ruby</b>       | <b>Scala</b>   | <b>Swift</b>  |
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C# Int.Parse, TryParse  
VB.NET Int.Parse  
Java Parse  
Golang Parse  
FAST  
KEYWORD  
TOOL



# <https://channel9.msdn.com/Series/C-Sharp-Fundamentals-Development-for-Absolute-Beginners>

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