C++ (ENGLISH)

6. forduló

A kategória támogatója: Google

Ismertető a feladatlaphoz

> Kezdj neki minél hamarabb, mert a feladatot a forduló záró időpontjáig lehet beküldeni, nem addig lehet elkezdeni!

Sok sikert!

This round is made up of C++ language riddles that can have one or more correct answers, or that require a short answer. You cannot copy the code snippets for these problems.

1. feladat 10 pont

42 vs. 69

What is the output of the program?

```
#include <iostream>
struct First {
    First(int n) { std::cout << n; }
};
```

```
int First(int x)
{
    std::cout << "6";
    return 0;
}

namespace mylib
{
    void Second(int n, int x = 0) { std::cout << n; }
}

void Second(int n)
{
    std::cout << "2";
}

int main()
{
    auto n = First(4);
    mylib:Second(9);
    return 0;
}
```

Válasz

- 42
- 62
- 49
- 69
- Nothing, it doesn't compile, returns 0

2. feladat 10 pont

Copy Count

Please inspect the following code with the C++ standard and common practices of the most common compilers (g++, MSVC, clang) in mind.

```C/C++
#include <iostream>

struct Data
{
    Data(int n) : value(n) {}
    Data(const Data &other) : value(other.value + 1) {}
    int value = 0;
};

Data function(Data data)
{
    auto ret = data;
    return ret;
}

int main()
{
    Data d = function(Data(0));
    std::cout << d.value << std::endl;

    return 0;
}
```

What is the number output by the program if compiled in release mode?

Válasz

3. feladat 10 pont

Virtual

Please inspect the following scenario with the C++ standard and common practices of the most common compilers (g++, MSVC, clang) in mind.

Imagine a ***Base*** and a ***Derived*** class, where ***Derived*** inherits publicly from ***Base***. There is a virtual public ***f*** function defined in ***Base*** and overridden in ***Derived***. This ***f*** has an ***int*** typed ***x*** parameter with a default value of 10 in ***Base*** and 20 in ***Derived***.

Imagine having a ***Base*** * pointer to an instance of ***Derived***, named ***p***. Which function will be called with what argument value when we invoke ***p->f()***?

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- ***Base::f*** with ***10*** as the value of ***x***
- ***Base::f*** with ***20*** as the value of ***x***
- ***Derived::f*** with ***10*** as the value of ***x***
- ***Derived::f*** with ***20*** as the value of ***x***
- Will not compile

- ◯ Will not link

4. feladat 3 pont

Sort

Common constraints for questions 4, 5, 6 and 7:

> *Please inspect the questions with the C++ standard and common practices of the most common compilers (g++, MSVC, clang) in mind.*
>
> Imagine an ***std::vector<A>*** named ***v*** with an element count ***n*** (≥ 1000). Imagine also having the complete set of comparison operators in the correct scope defined for ***A***.

Which one of the following sorts may have ***O(n!)*** steps on average?

Válasz

- ◯ Bubble sorting v
- ◯ Bogo sorting v
- ◯ Sorting v with ***std::sort***
- ◯ Stable sorting v with ***std::stable_sort***
- ◯ Insertion sorting v

5. feladat 3 pont

Which one of the following sorts may have ***O(n²)*** steps on average? Select all that apply.

Válaszok

- ☐ Bubble sorting v
- ☐ Bogo sorting v
- ☐ Sorting v with ***std::sort***
- ☐ Stable sorting v with ***std::stable_sort***
- ☐ Insertion sorting v

6. feladat 3 pont

Which one of the following sorts may have ***O(n*log²(n))*** steps on average?

Válasz

- ( ) Bubble sorting v
- ( ) Bogo sorting v
- ( ) Sorting v with ***std::sort***
- ( ) Stable sorting v with ***std::stable_sort***
- ( ) Insertion sorting v

7. feladat 3 pont

Which one of the following sorts may have ***O(n*log(n))*** steps on average? Select all that apply.

Válaszok

- [ ] Bubble sorting v
- [ ] Bogo sorting v
- [ ] Sorting v with ***std::sort***
- [ ] Stable sorting v with ***std::stable_sort***
- [ ] Insertion sorting v

Megoldások beküldése