



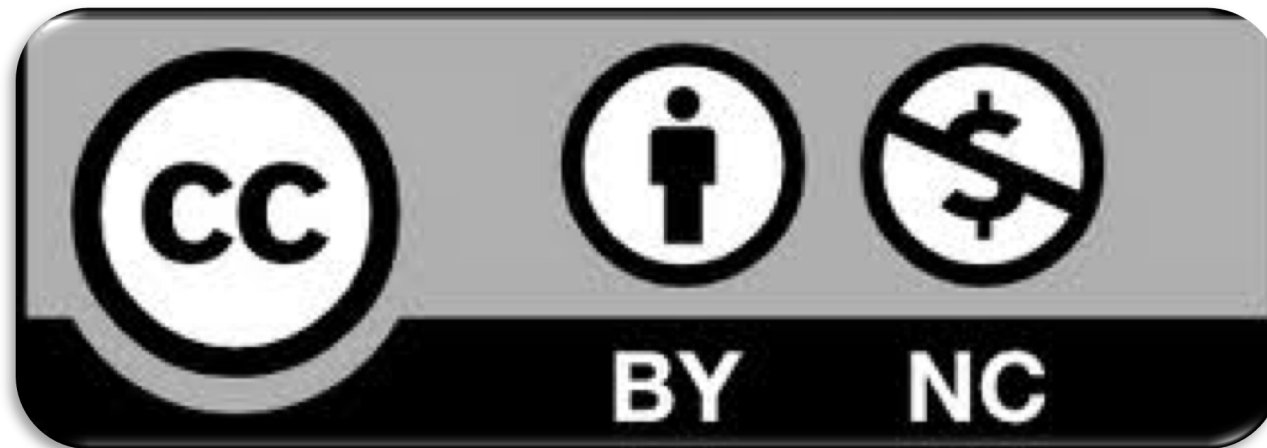
The String OOP Example



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Goal

- **The lecture aims at moving the OOP concepts into something real**

Prerequisites

- **Students have to be familiar with the basic concepts of C programming applied to STRINGS**

Further readings

- **G. Politano , A. Savino , F. Tomassetti:
Informatica: Esercizi guidati di Teoria e
Programmazione, CLUT, ISBN:
9788879923347**

Outline

- **C "Strings"**
- **C++ Strings?**

C “Strings”

Data

- How do you define it?
- What aggregated info do you need?

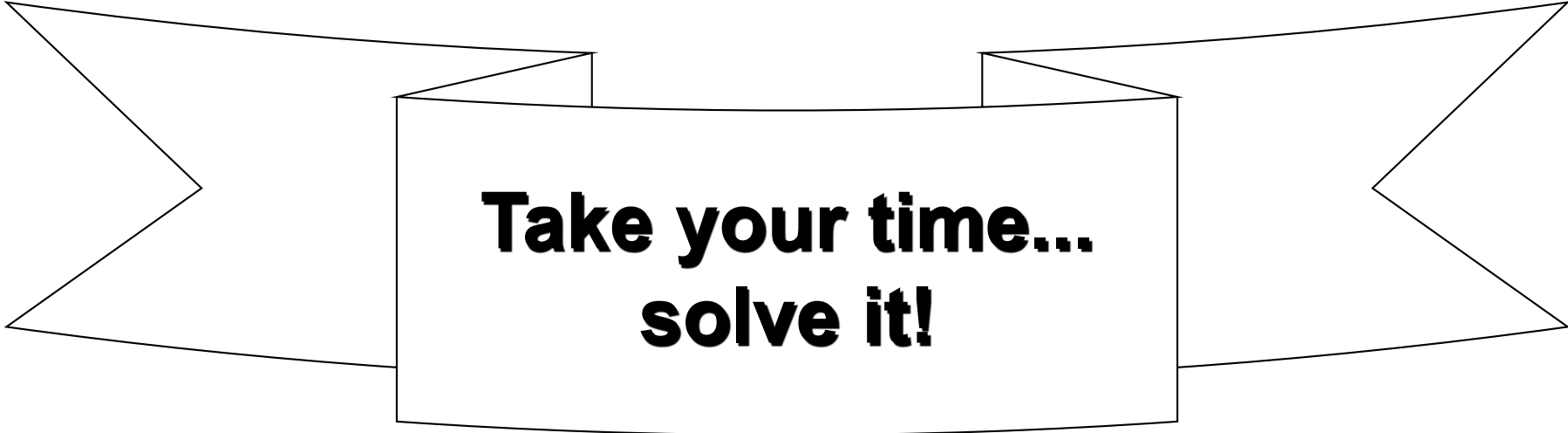
Methods

- How do you interact with?
- What set of basic operation will you need?
- Can you be generic about that?

C “Strings”

DATA?

METHODS?



**Take your time...
solve it!**

C “Strings”

DATA

- **char string[...]**
- **int size**
- **int max_size**
- **...?**

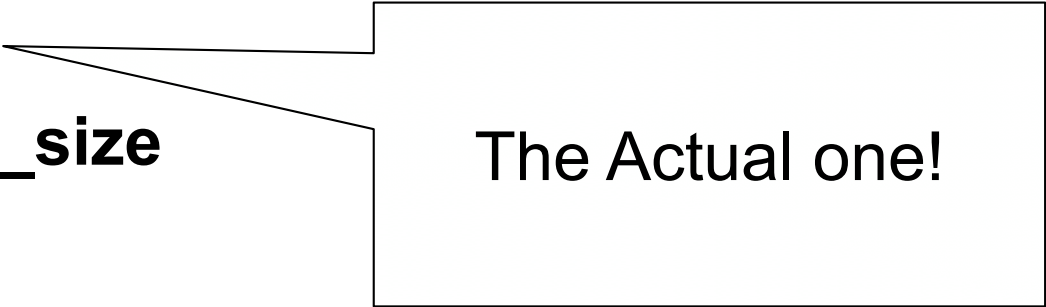
METHODS?

C “Strings”

DATA

- **char string[...]**
- **int size**
- **int max_size**
- **...?**

METHODS?



The Actual one!

C “Strings”

DATA

- **char string[...]**
- **int size**
- **int max_size**
- **...?**

METHODS?



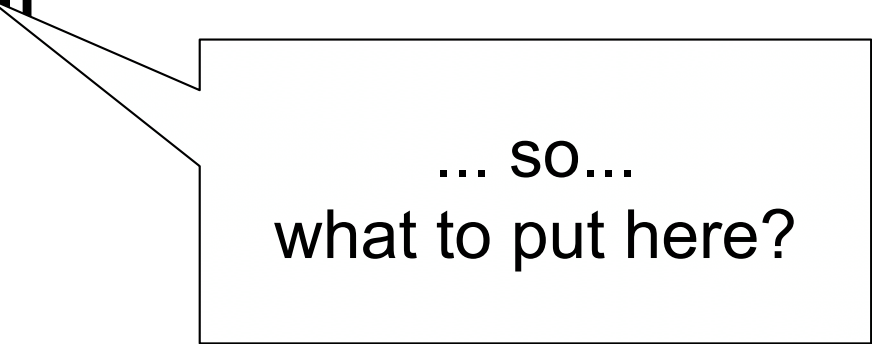
The Max one!

C “Strings”

DATA

- **char string[...]**
- **int size**
- **int max_size**
- **...?**

METHODS?

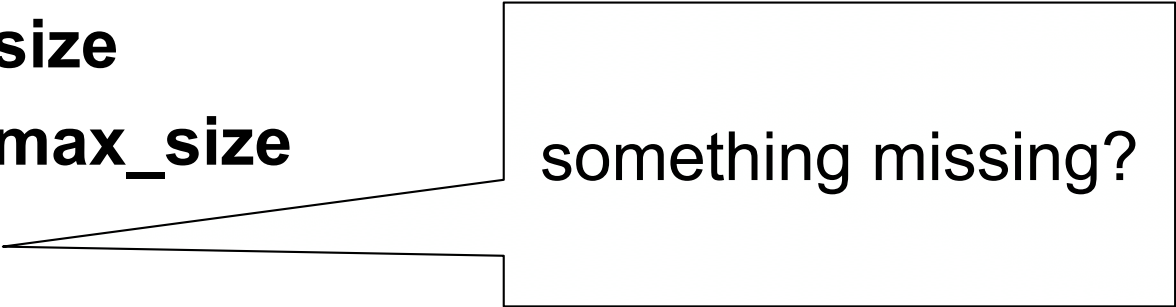


... so...
what to put here?

C “Strings”

DATA

- **char string[...]**
- **int size**
- **int max_size**
- **...?**



something missing?

METHODS?

C “Strings”

DATA

- **char string[...]**
- **int size**
- **int max_size**

METHODS

- **insert**
- **append**
- **clear**

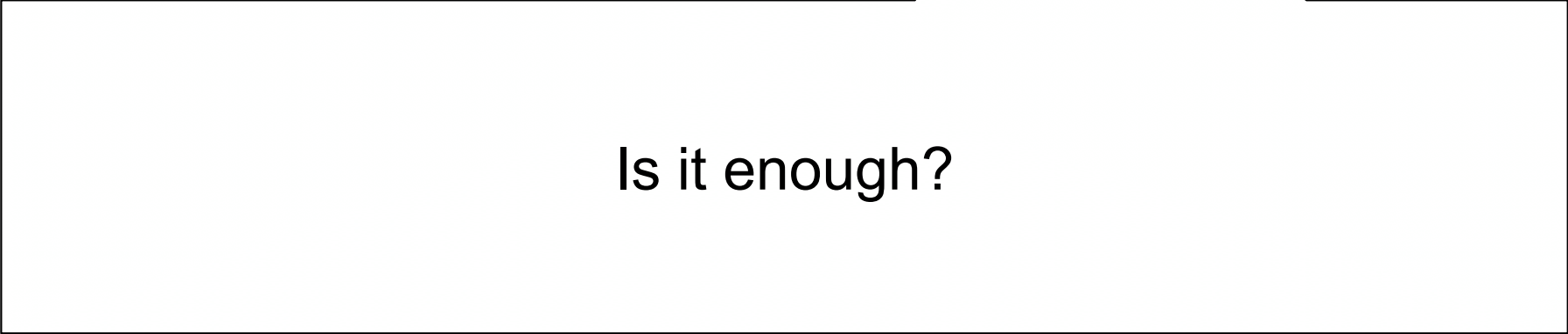
C “Strings”

DATA

- **char string[...]**
- **int size**
- **int max_size**

METHODS

- **insert**
- **append**
- **clear**



Is it enough?

C “Strings”

DATA

- **char string[...]**
- **int size**
- **int max_size**

METHODS

- **insert**
- **append**
- **clear**

What about very basic operation like:

1. what is the actual size?
2. All str<X> functions?

C “Strings”

DATA

- **char string[...]**
- **int size**
- **int max_size**

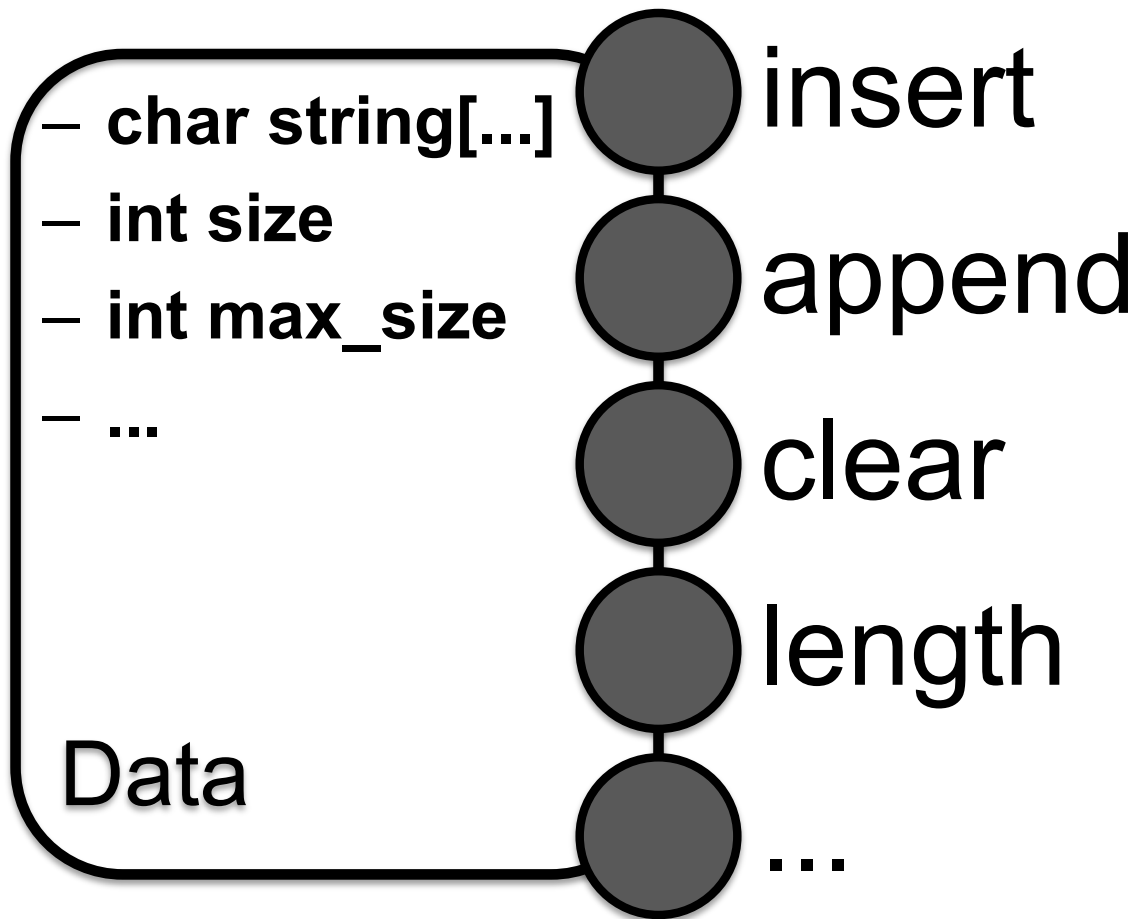
METHODS

- **insert**
- **append**
- **clear**
- ***all functions in string.h***
 - . ***strlen***
 - . ***strcpy***
 - . ***strcmp***
 - . ***...***

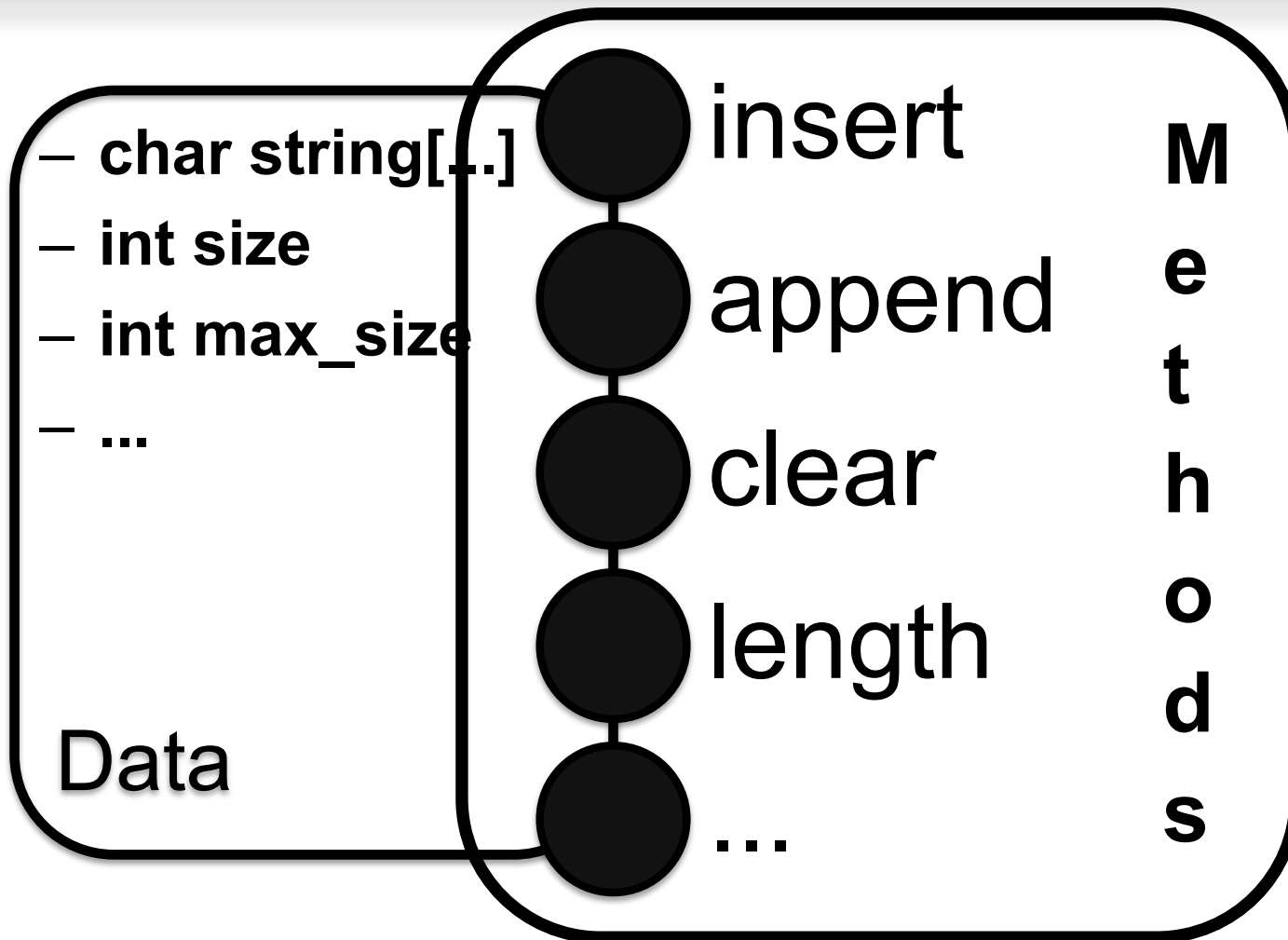
Outline

- **C "Strings"**
- **C++ Strings?**

C++ Strings



C++ Strings



C++ Strings

- `char string[...]`
- `int size`
- `int max_size`
- ...

Data

- `insert`
- `append`
- `clear`
- `length`
- ...

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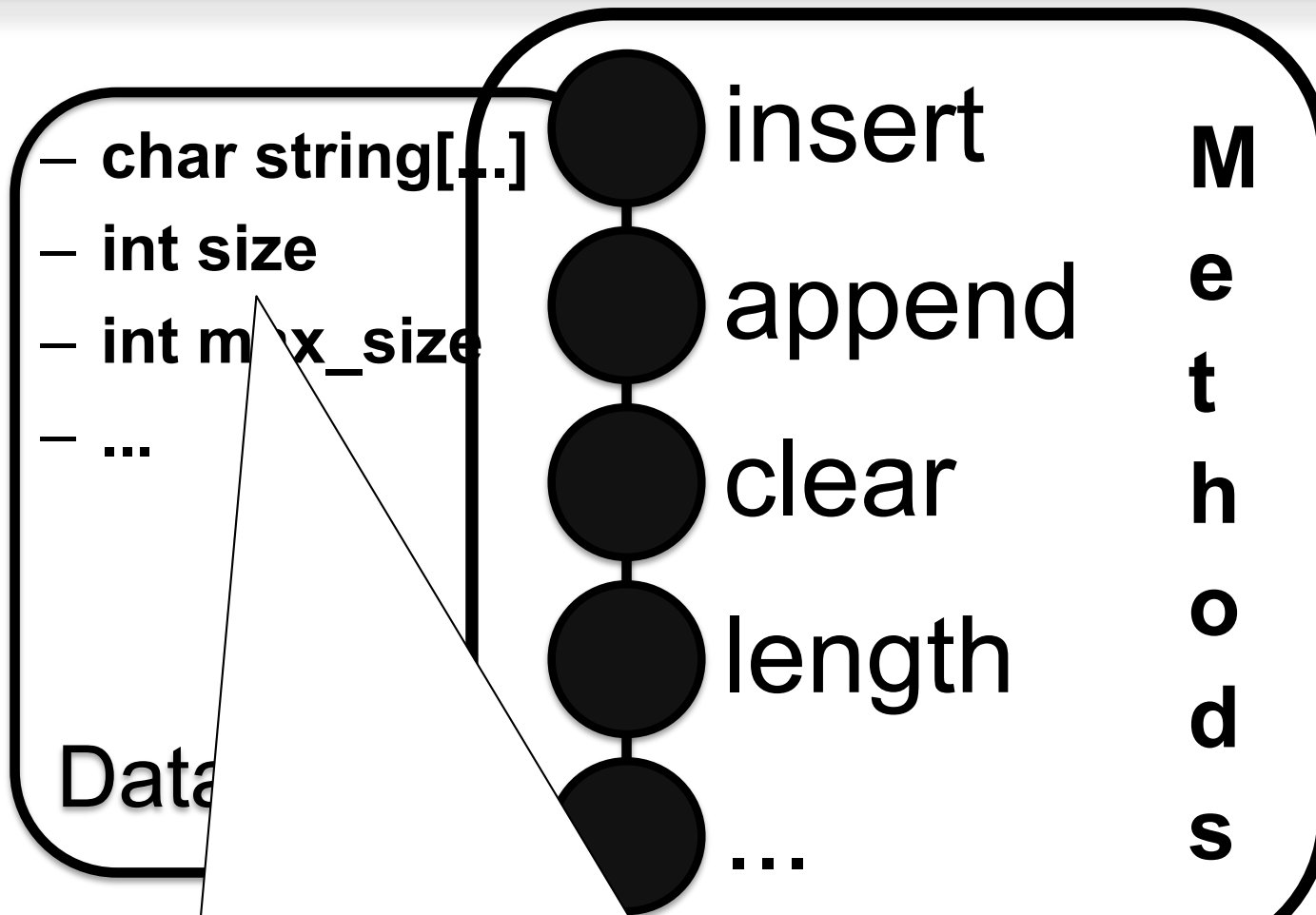
... equivalent to `strlen`...

C++ Strings

- char string[...]
- insert

How am I going to use
it?

C++ Strings



if I want to know the actual size of the string...

C++ Strings

- `char string[...]`
- `int size`
- `int max_size`
- ...

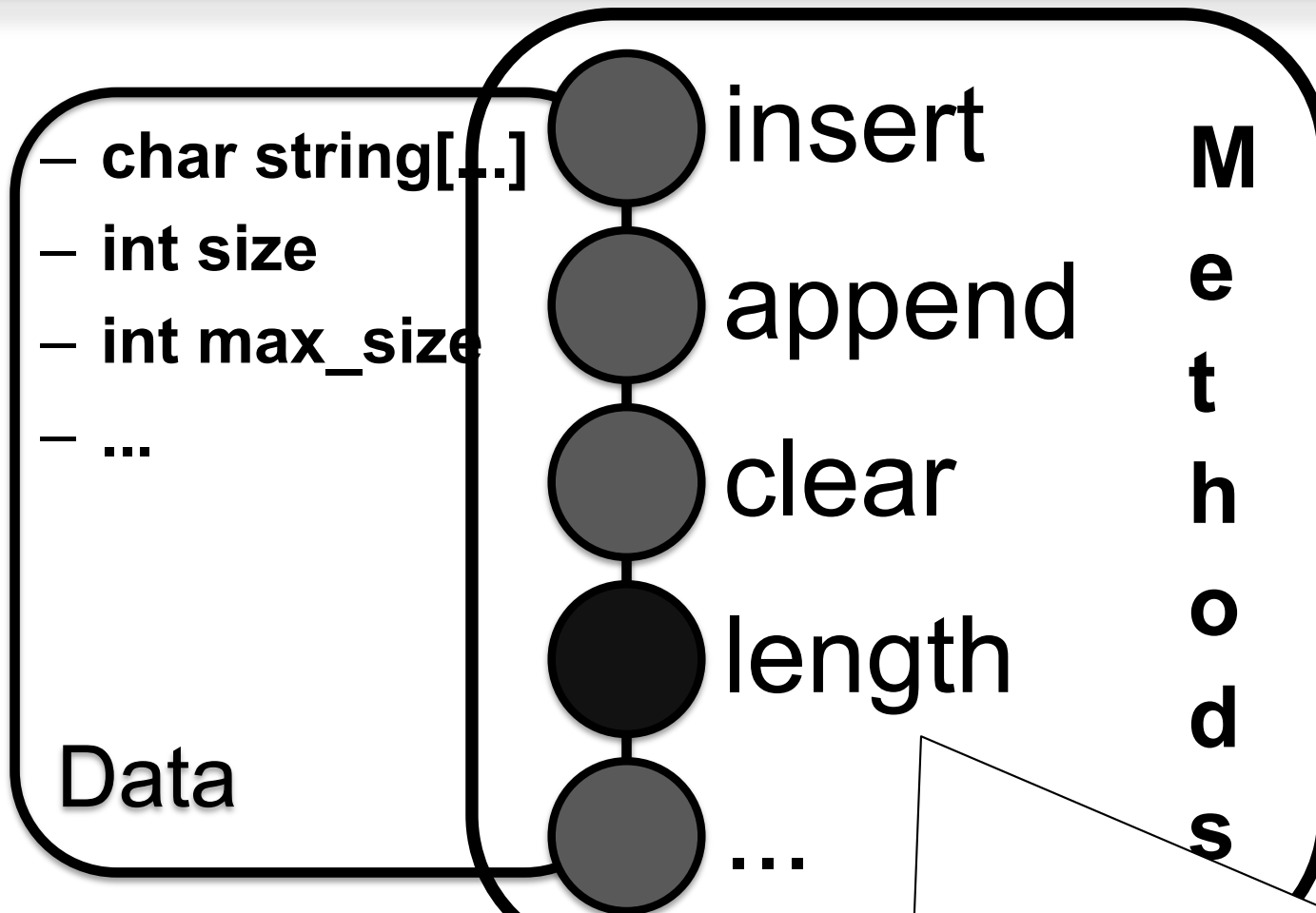
Data

- `insert`
- `append`
- `clear`
- `length`
- ...

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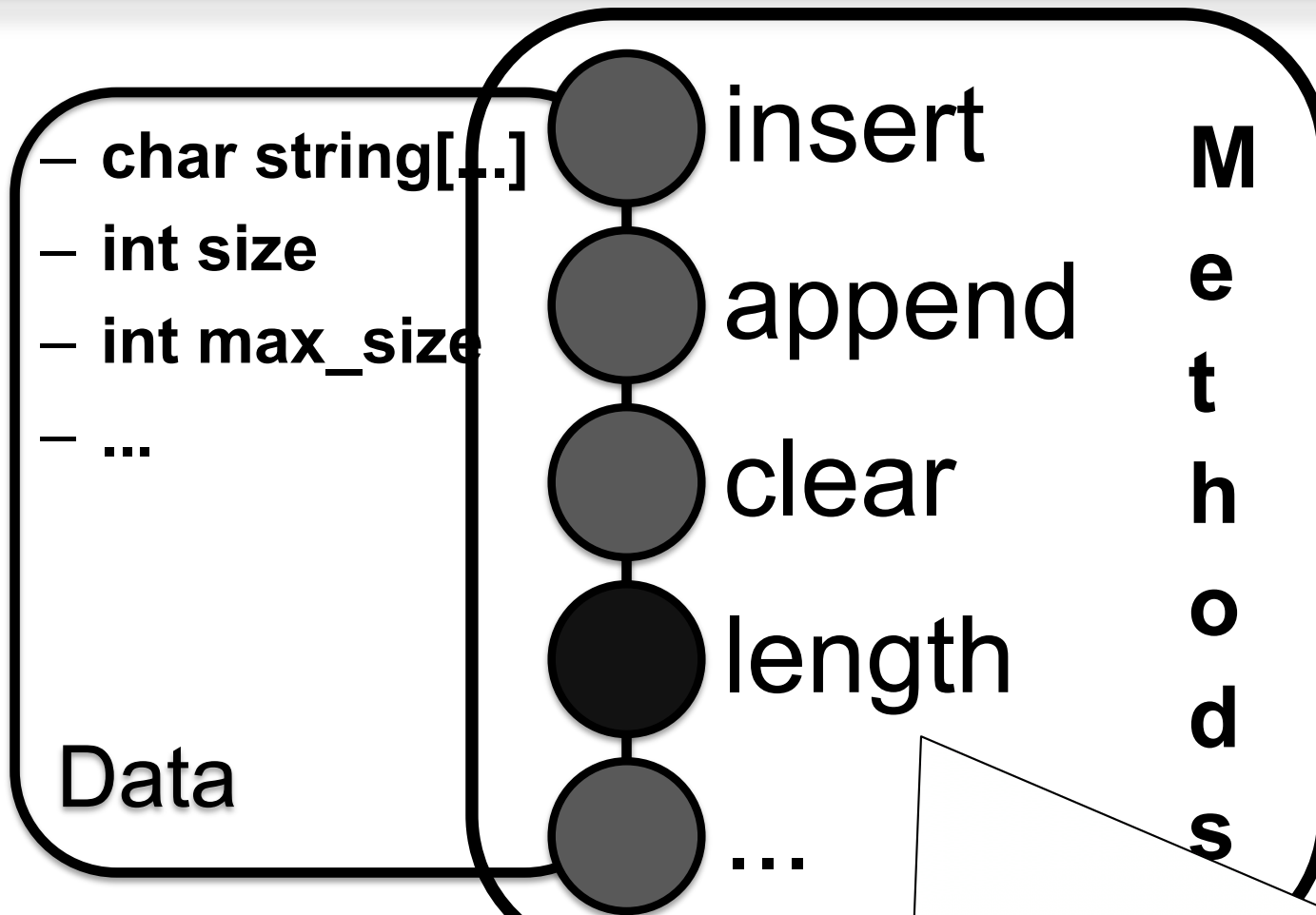
... I will need to use this...

C++ Strings



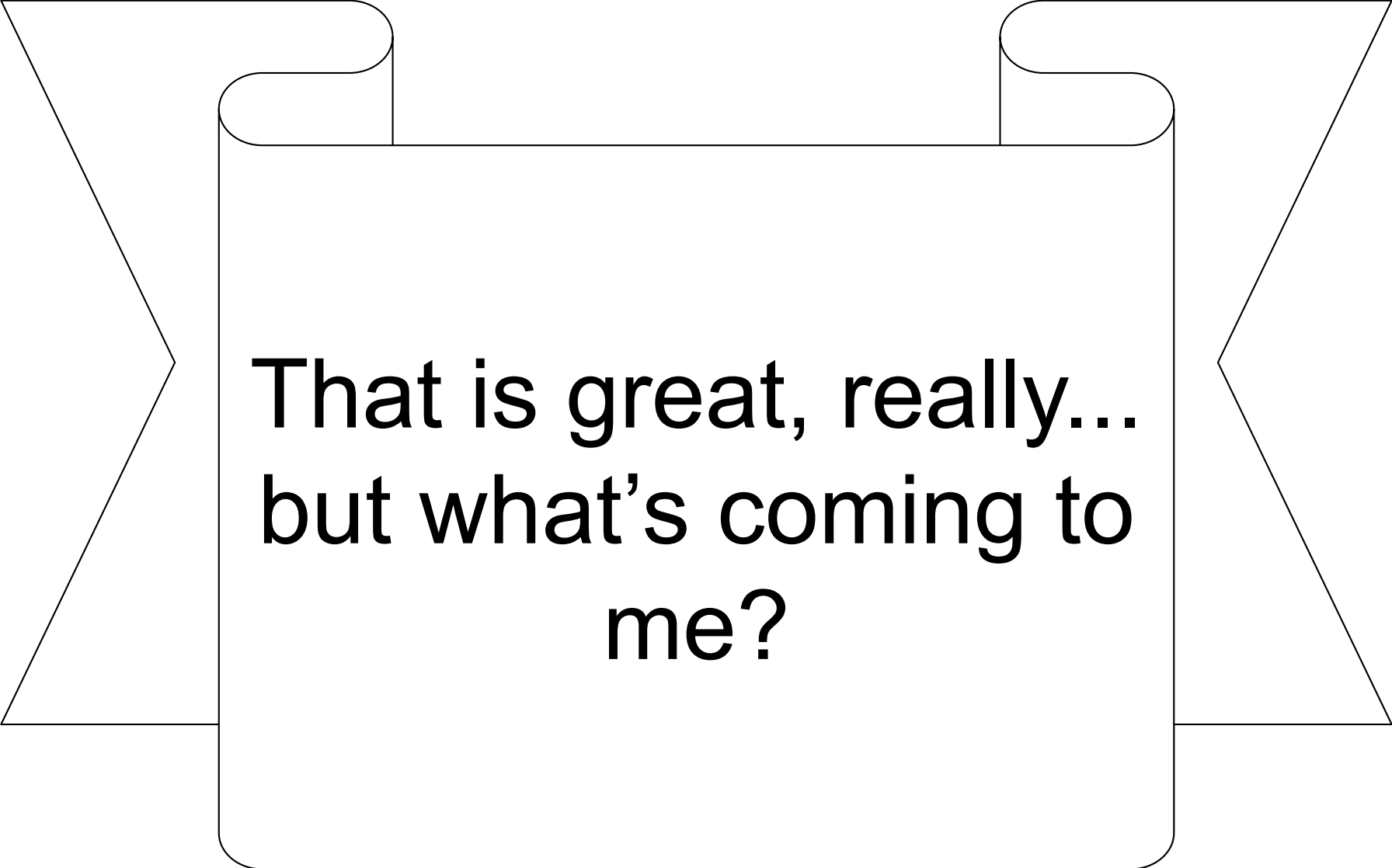
... that internally, as a C function will do, it reads the content of size...

C++ Strings



... and returns the value in it...

C++ String



**That is great, really...
but what's coming to
me?**

C++ String

C Version

```
#define N_MAX 2048
```

```
...
```

```
{
```

```
...
```

```
char my_str[N_MAX];
```

```
int string_size;
```

```
int max_size =  
N_MAX;
```

```
...
```

```
}
```

C++ Version

```
...
```

```
{
```

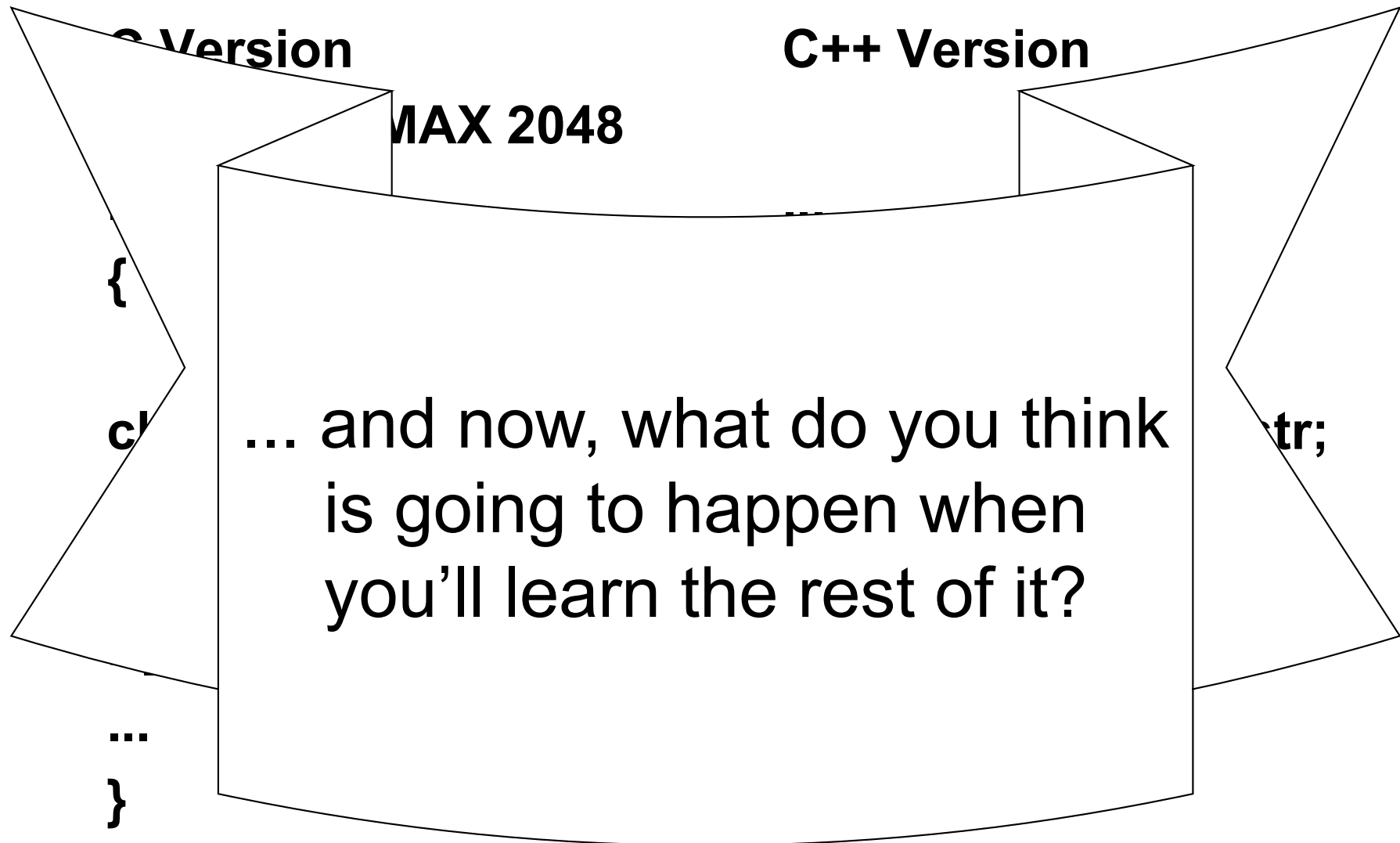
```
...
```

```
std::string my_str;
```

```
...
```

```
}
```


C++ String



Малые Автюхи, Калининский район, Республики Беларусь

