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# `std::span`

presentation for the course “C133 - OS Modern C++”

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[1] [1]

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Which types exist in C++20 to describe a contiguous sequence of objects?

# contiguous sequence types

- `int[N]`
    - not much more then a raw pointer
    - can also be declared with `new int[N]` for storing in the heap
- `std::array`
    - fixed-size at compile-time
- `std::vector`
    - dynamic-size
- `std::span`

# std::span[1]

- defined in header <span>

```
template<
    class T,
    std::size_t Extent = std::dynamic_extent
> class span;
```

- Extent can be
  - std::dynamic_extent (default)
  - std::static_extent

[1] [1]

# std::span[1]

- describes contiguous sequence of objects starting at position 0
- pointers, iterators and references to elements of a span are invalidated when an operation invalidates a pointer in the range of the span:

```
[span.data(), span.data() + span.size()]
```

[1] [1]

# usage

# pointer invalidation

# assembly

# outlook

# std::spanstream

# `std::mdspan`

[1] "std::span - cppreference.com." Accessed: May 29, 2025. [Online]. Available: https://en.cppreference.com/w/cpp/container/span.html