

Fill and Create Ranges

Next in the line of modifying algorithms, we have the 'fill' and 'generate' functions.

You can fill a range with `std::fill` and `std::fill_n`; you can generate new elements with `std::generate` and `std::generate_n`.

fill: Fills a range with elements:

```
void fill(FwdIt first, FwdIt last, const T& val)
void fill(ExePol pol, FwdIt first, FwdIt last, const T& val)
```



fill_n: Fills a range with n new elements:

```
OutIt fill_n(OutIt first, Size n, const T& val)
FwdIt fill_n(ExePol pol, FwdIt first, Size n, const T& val)
```



generate: Generates a range with a generator **gen**:

```
void generate(FwdIt first, FwdIt last, Generator gen)
void generate(ExePol pol, FwdIt first, FwdIt last, Generator gen)
```



generate_n: Generates n elements of a range with the generator **gen**:

```
OutIt generate_n(OutIt first, Size n, Generator gen)
FwdIt generate_n(ExePol pol, FwdIt first, Size n, Generator gen)
```



The algorithms expect the value **val** or a generator **gen** as an argument. **gen** has to be a function taking no argument and returning the new value. The return value of the algorithms `std::fill_n` and `std::generate_n` is an output iterator, pointing to the last created element.

```
#include <algorithm>
#include <iostream>
#include <list>
```



```
#include <vector>
```

```
int getNext(){
```

```
    static int next{0};
```

```
    return ++next;
```

```
}
```

```
int main(){
```

```
    std::cout << std::endl;
```

```
    std::vector<int> vec(20);
```

```
    std::fill(vec.begin(), vec.end(), 2011);
```

```
    for ( auto v: vec ) std::cout << v << " ";
```

```
    std::cout << std::endl;
```

```
    std::generate_n(vec.begin(), 15, getNext);
```

```
    for ( auto v: vec ) std::cout << v << " ";
```

```
    std::cout << "\n\n";
```

```
}
```



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