

Vectors

Problem: read lines from stdin,
print them in reverse order.

stdin

0
1
2
3

→
3
2
1
0

observation: no fixed #
of variables will suffice!

Enter vectors. They give you an expandable
container of variables.

$V = \boxed{0} \boxed{1} \boxed{2} \boxed{3} \dots \boxed{}$
 $V[0] \ V[1] \ V[2] \ V[3] \ \dots \ V[\#elements - 1]$

How to declare a vector?

```
#include <vector>  
using std::vector;
```

// Note: Vectors are not datatypes, but
datatype "templates".

```
vector<int> V; // All  $V[i]$  of type int
```

↑
You can put
any type in here!

Important stuff: do not read/write out of bounds!

$V[33] = 9;$ // danger!! There is no $V[33]$!

Have to add elements, like this:

`V.push-back(9);`

// `V = [9]`

`V.push-back(13);`

// `V = [9, 13]`

↑
"front"

↑
"back"

`V.pop-back();`

// `V = [9]`