

cse 101-02

2-14-23

11

• Pay extended 1 last day

ADTs in C++

struct in C:

```
struct Blah {
```

```
    int foo;
```

```
    int bar;
```

```
};
```

```
struct Blah x;
```

```
x { foo bar  
  [ 6  7 ]
```

```
x.foo = 6;
```

```
x.bar = 7;
```

Struct in C++

```
struct Blah {
```

```
    int foo;
```

```
    int bar;
```

```
    Blah(int a, int b) {
```

```
        foo = a;
```

```
        bar = b;
```

```
    }
```

```
};
```

```
Blah x(6, 7);
```

class in C++

```
class Blah {
```

```
    int foo;
```

```
    int bar;
```

```
    Blah(int a, int b) {
```

```
        foo = a;
```

```
        bar = b;
```

```
    }
```

```
    void set-foo(int a) {
```

```
        foo = a;
```

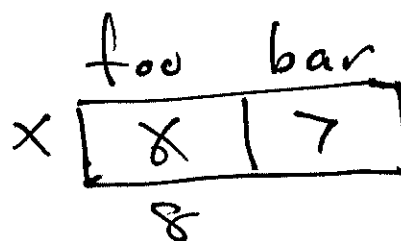
```
    }
```

```
};
```

```
:
```

```
Blah x(6, 7);
```

```
x.set-foo(8);
```



stack

To build an ADT in C++ :

files: Blah.h, Blah.cpp

Blah.h

class Blah {

Private:

// inner classes/structs

// member variables

// Private functions/helpers

Public:

// constructor, copy constructor

// destructor

// ADT ops.

// overloaded ops.

};

Blah.cpp

namespace resolution operator ::

// member method (public)

```
type Blah::fcn1(-----) {
    :
}
```

// another one (private)

```
type Blah::fcn2(-----) {-----}
```

// non-member (helper) function

```
type helper(-----) {-----}
```

Ex. Queue ADT in C++

meaning of & :

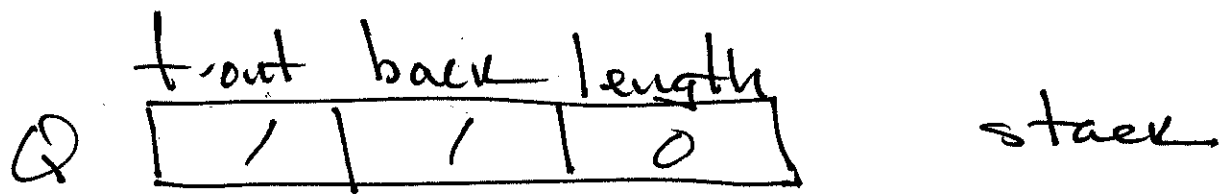
- Bitwise and operator (C, C++)
- Address-of operator (C, C++)
- Reference operator (C++ only)

operator on a type on left

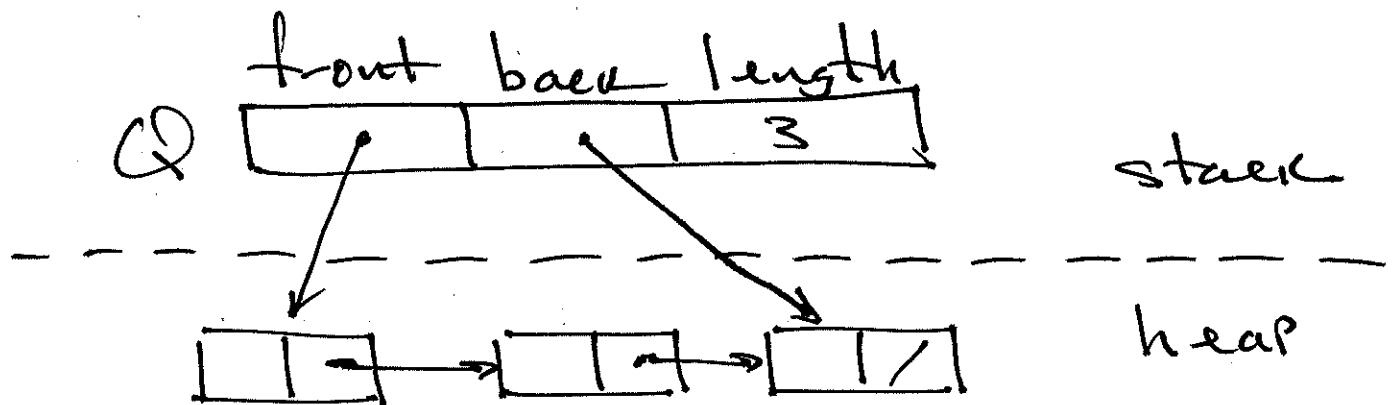
typed

gives corresponding reference type.

Empty state for Queue



non-empty state:



- The this Pointer is a Pointer to the object on LHS of .

x.setfoo(e);