C++ VS. JAVA

C++ arrays are a primitive data type
Java arrays are objects

Delroy A. Brinkerhoff
• Java arrays have a length attribute (instance field)
  • `int[] scores = new int[10];`
  • `scores.length`

• C++ arrays are really pointers – they do not have attributes or fields
  • Track the size with a (named) constant
    • `const int size = 10;`
    • `int scores[size];`
• Java checks each array index, throws an exception if the index is out of bounds
  • `scores[i]`, throws an exception if $i < 0$ or $i \geq 10$
• C++ does not check any array index
  • `scores[-1]` or `scores[10]` will crash the program or corrupt adjacent data
JAVA: ARRAYS OF OBJECTS

Employee[ ] emp;

emp = new Employee[5];

for (int i = 0; i < emp.length; i++)
    emp[i] = new Employee( );
Employee emp[5];
C++: DYNAMIC ARRAYS OF OBJECTS

Employee* emp;
emp = new Employee[5];
C++: ARRAY OF POINTERS TO OBJECTS

Employee* emp[5];
for (int i = 0; i < 5; i++)
    emp[i] = new Employee;
C++: POINTER TO AN ARRAY OF POINTERS

```cpp
Employee** emp;
emp = new Employee*[5];
for (int i = 0; i < 5; i++)
    emp[i] = new Employee;
```