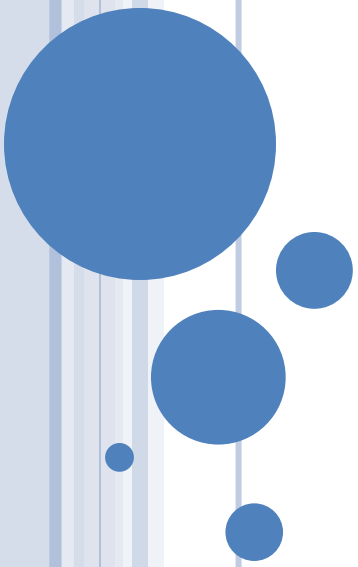


Comp 110
For and Arrays

Instructor: Prasun Dewan

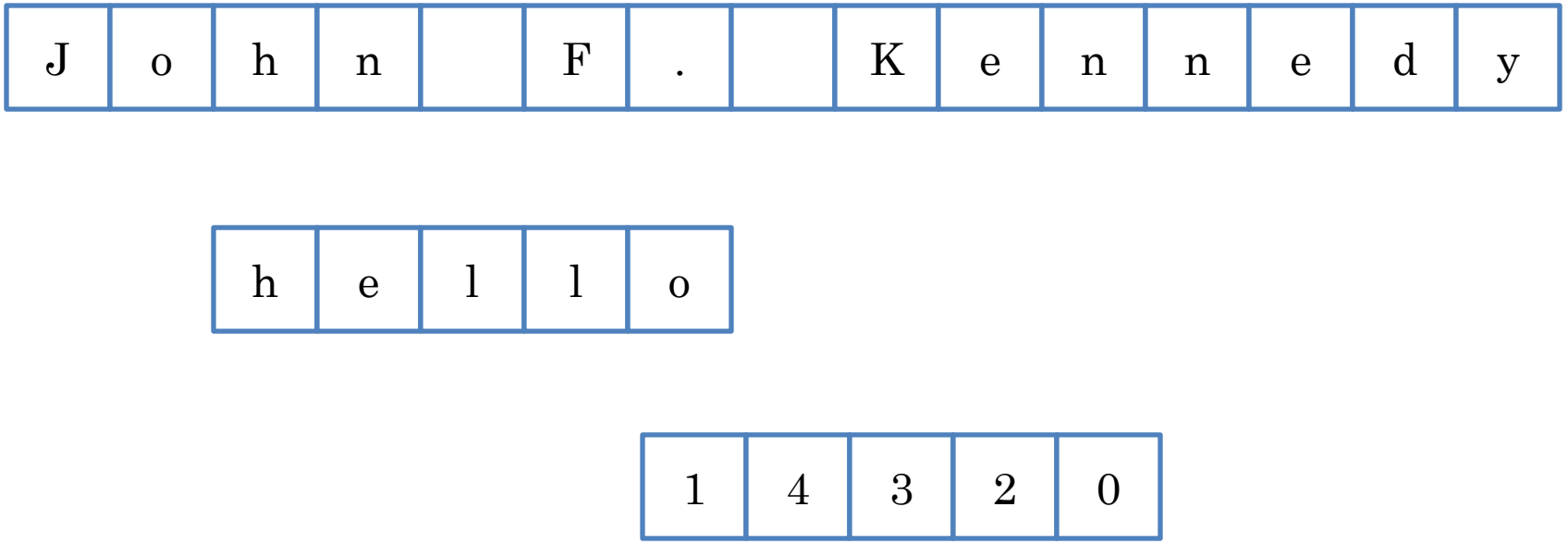
Prerequisite

- Loops Advanced

.

STRINGS = CHAR SEQUENCES

String {sequences of characters}



Other Predefined Types as Sequences

IntSequence {sequences of integers}

100	98	99	100	90	80

60	40	50

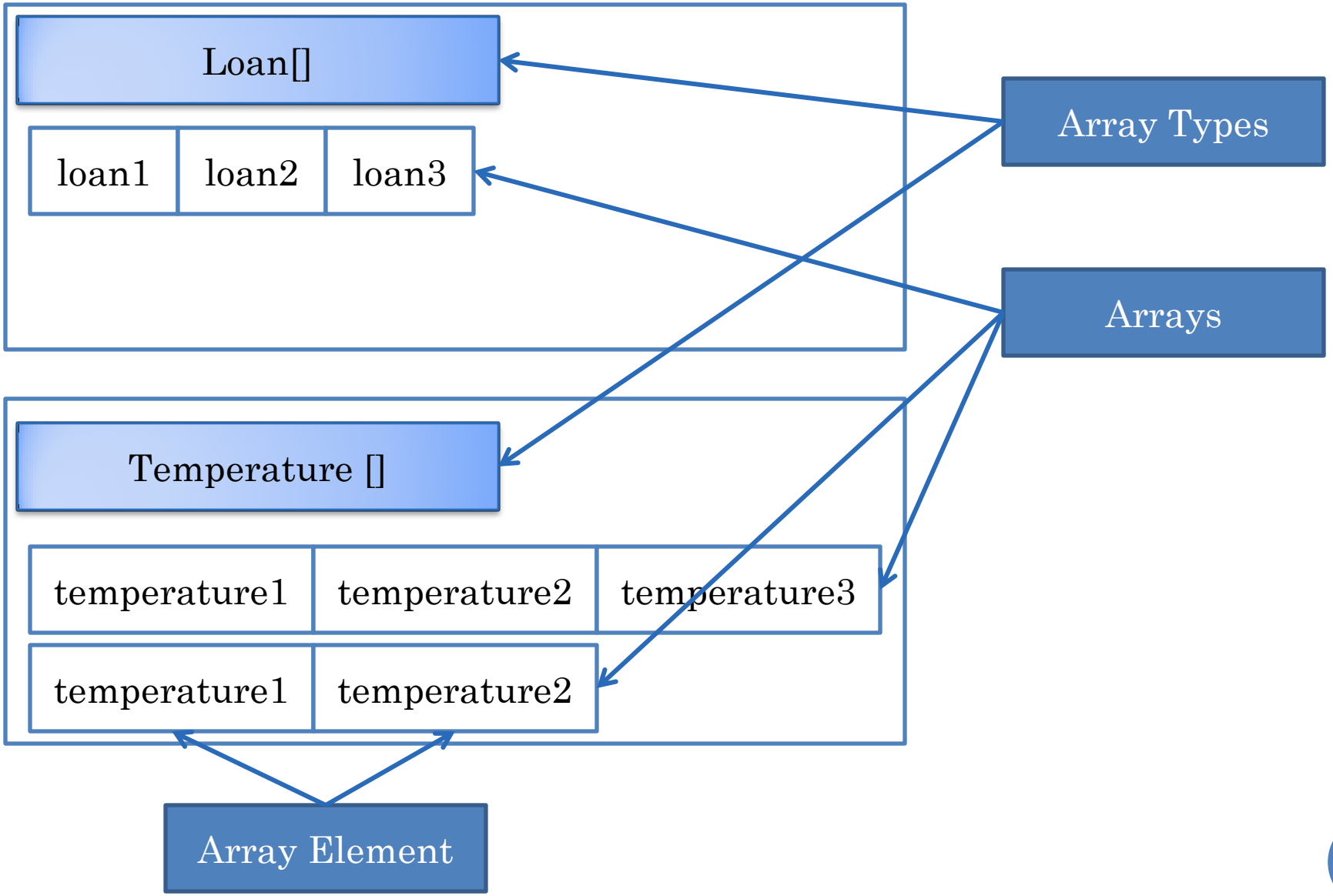
DoubleSequence {sequences of doubles}

3.8	3.1	3.7	3.1	3.6	3.9

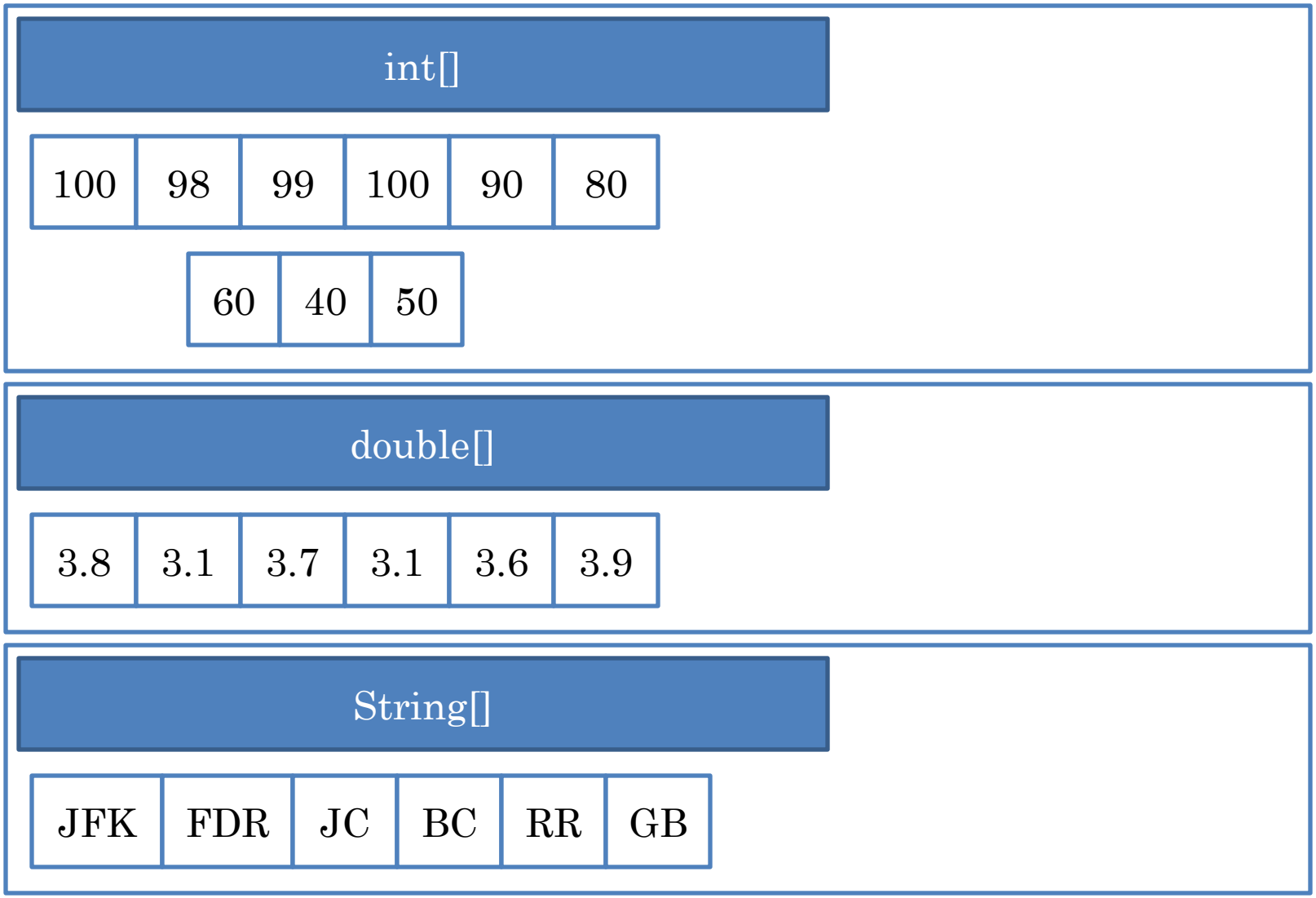
StringSequence {sequences of string}

JFK	FDR	JC	BC	RR	GB

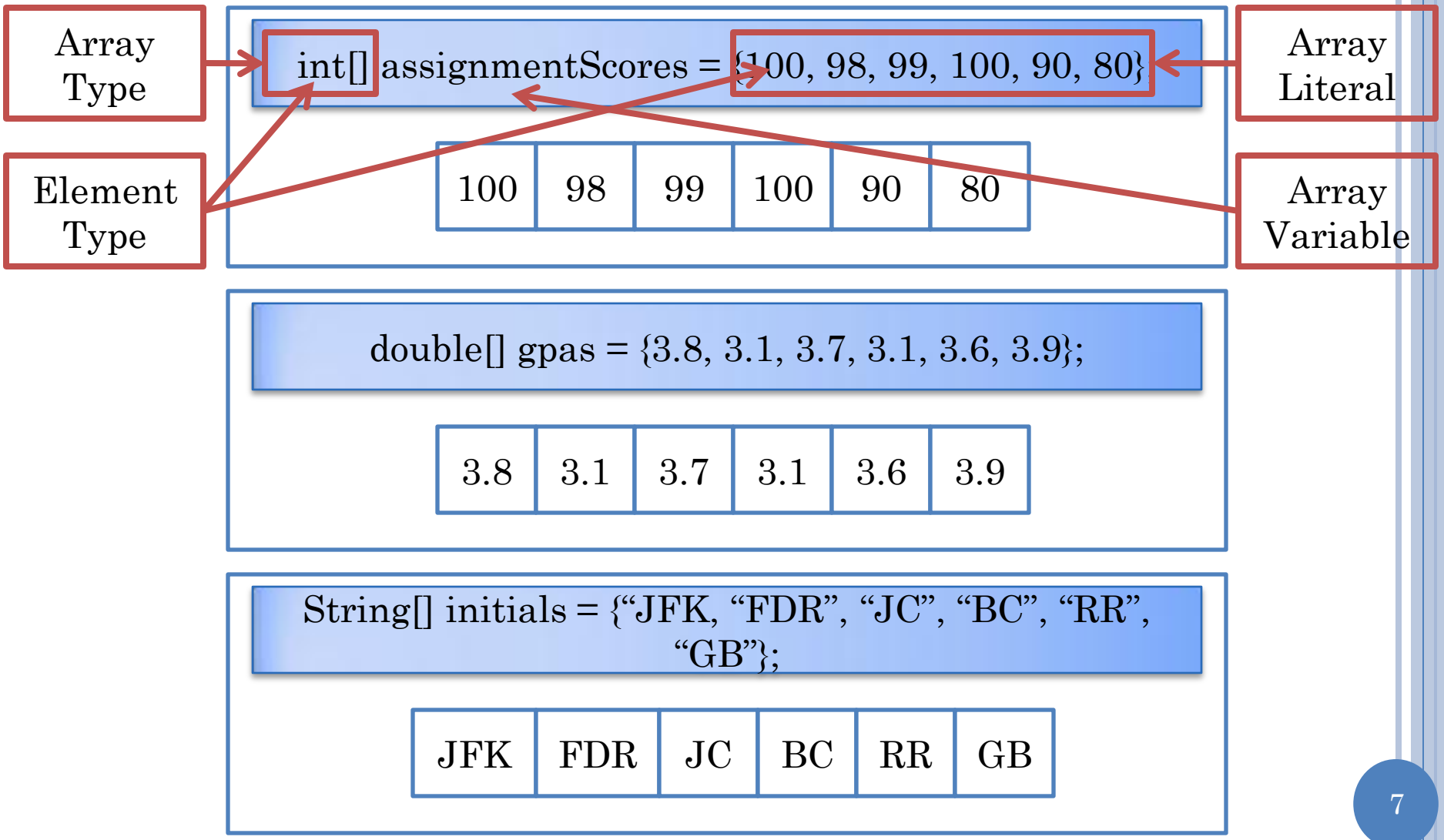
Sequences of Programmer-Defined Types



Other Sequences as Array Types



Initializing Array Declaration

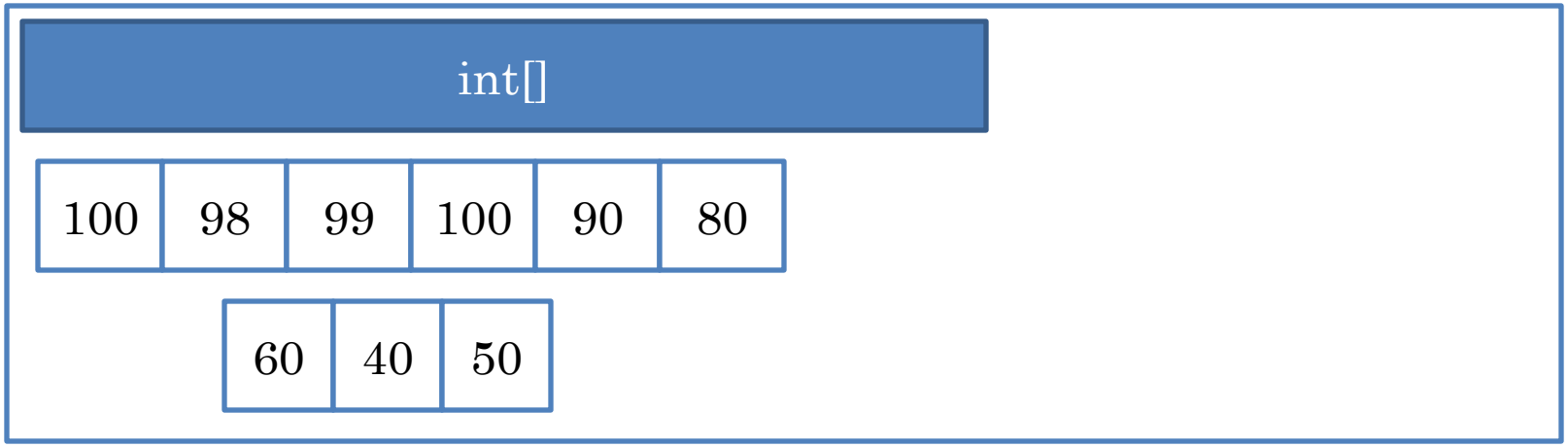


Initializing Array Declaration Syntax

<ElementType> [] <arrayVariable> = {<element1>, …, <elementN>}

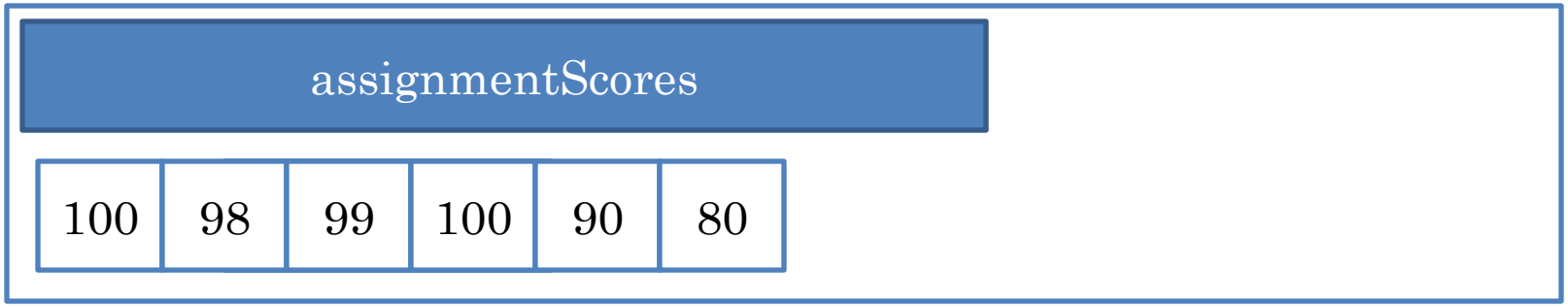
Loan [] loans = {**new** ALoan(100000), **new** AnotherLoan (100)};

Array Types Have Variable Size



int[] assignmentScores = {100, 98, 99, 100, 90, 80};

assignmentScores = **new int**[] {60, 40, 50};



Array Operations

public named constant

initials.length → 6

initials[0] → JFK

Array instance size fixed!

initials[initials.length-1] → WW

initials[initials.length] → ArrayIndexOutOfBounds Exception

initials[0] = “HT”

initials[initials.length] = “HT” → ArrayIndexOutOfBounds Exception

Uninitializing Array Declaration

```
int[] assignmentScores;

assignmentScores = {60, 40, 50};
```

Array Elements Uninitialized

```
int[] assignmentScores = new int[3];
```

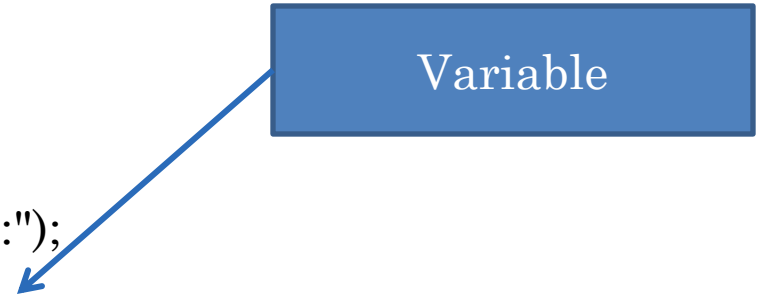
Object Array Elements Uninitialized

```
String[] initials = new String[3];
```

Example

```
Number of Strings:
3
Please enter 3 strings
James Dean
Joe Doe
Jane Smith
p
********************
James Dean
Joe Doe
Jane Smith
********************
p
********************
James Dean
Joe Doe
Jane Smith
********************
q
```

GETSTRINGS()




```
static String[] getStrings() {
        System.out.println("Number of Strings:");
        int numElements = Console.readInt();
        System.out.println("Please enter " + numElements + " strings");
        String[] strings = new String[numElements];
        for (int elementNum = 0;  elementNum < numElements; elementNum++)
            strings[elementNum] = Console.readString();
        return strings;
}
```

PRINT()

String array of arbitrary dimension

```
static void print(String[] strings) {
      System.out.println("********************");
      for ( int elementNum = 0; elementNum < strings.length; elementNum++)
         System.out.println(strings[elementNum]);
      System.out.println("********************");
}
```

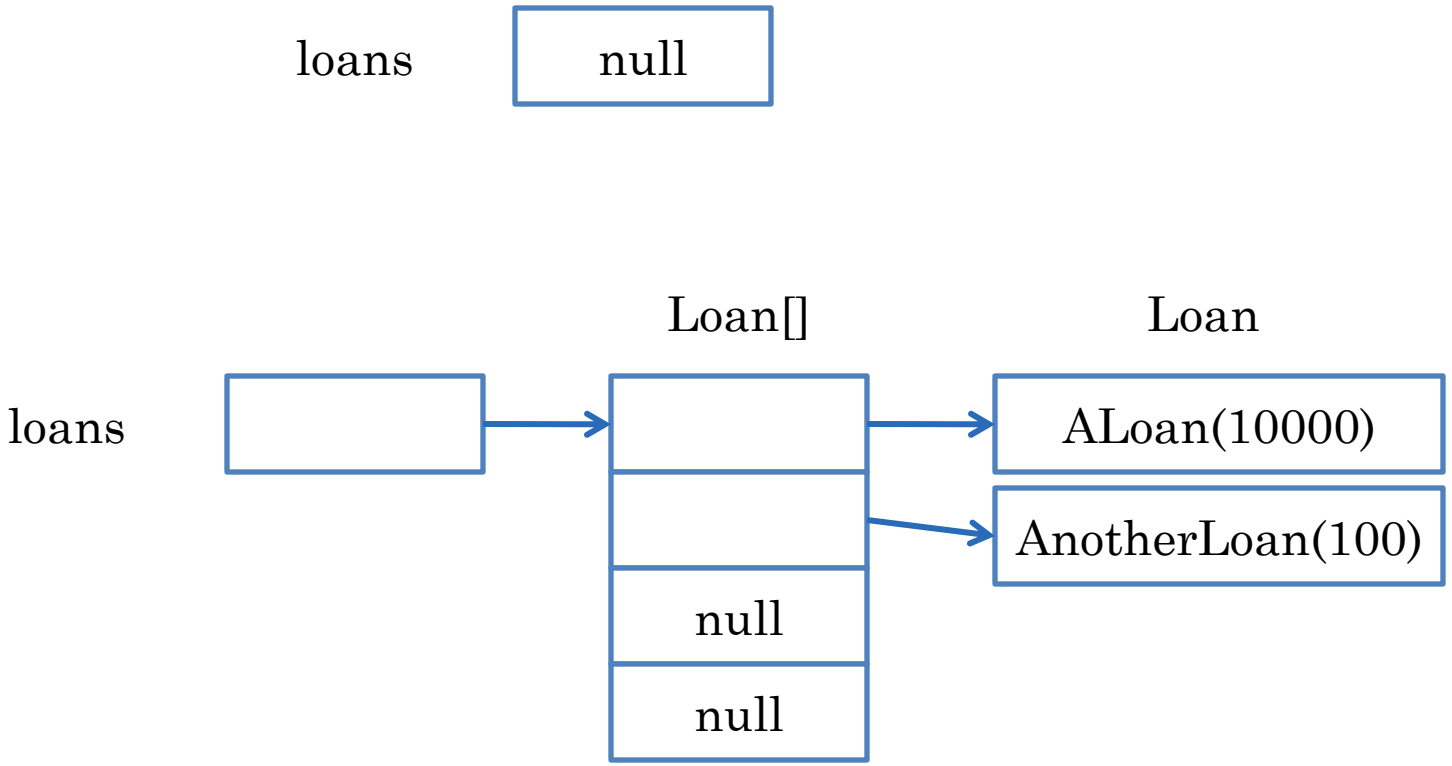
MAIN()

Must test that length is at least 1 before accessing char at position 0

```
public static void main(String[] args){
        String[] names = getStrings();
        String command = Console.readString();
        while (command.length() > 0 && command.charAt(0) != 'q') {
                if (command.charAt(0) == 'p')
                        print(names);
                command = Console.readString();
        }
}
```

No need to test length here

Extra Slides


loans
null
Loan[]
Loan
loans
ALoan(10000)
AnotherLoan(100)
null
null