Session Goals

- User should be able to type casting and its usefulness in Java.
- User should have a clear understanding about arrays in Java.
- User should be able to declare and initialize arrays.
- User should be able to write code to do common array operations such as accessing elements, modifying elements, iterating through arrays, and understanding array bounds.
- User should understand and able to fix ArrayIndexOutOfBoundsException Error.

Arrays in Java

Session 5

Session Agenda

- Typecasting
- Arrays
  - Creation
  - Indexes
  - Insertion
  - Searching
  - Sorting an array using inbuilt method

Concept #2 - Type Casting / Type Conversion

- What is a Type Cast?
  - Assigning value of 1 primitive data type to another
- What are the different possible casts?
  - **Widening Casting** (automatically) - converting a smaller type to a larger type size
    - byte -> short -> char -> int -> long -> float -> double
    - `double myDouble = myInt; // where myInt is an int`
  - **Narrowing Casting** (manually) - converting a larger type to a smaller size type
    - double -> float -> long -> int -> char -> short -> byte
    - `int myInt = (int) myDouble; // where myDouble is a double`
- When is it useful?
  - In cases where you need to comply with the return types

Curious Cats

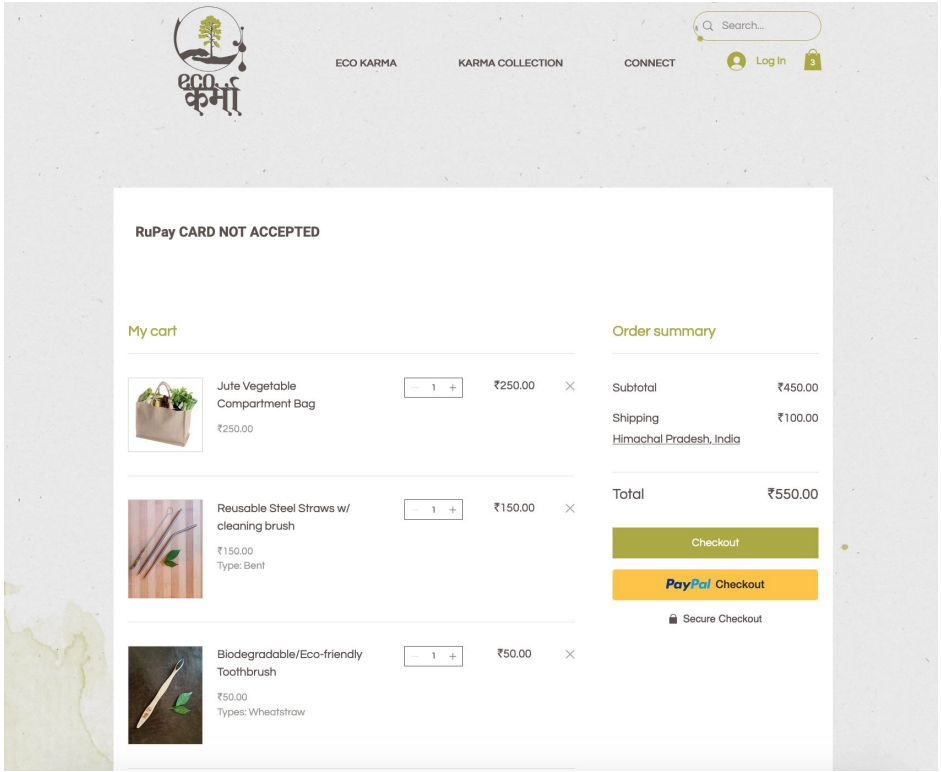
- What happens when I assign a larger data type to a smaller data type without casting?
  - You will see this compilation error “error: incompatible types: possible lossy conversion from int to char”
- What happens when I cast a larger data type to a smaller data type and assign?
  - Information loss occurs, so you have to be careful
- Java automatically promotes each byte, short, or char operand to int when evaluating an expression
- If one operand is a long, float or double the whole expression is promoted to long, float or double respectively

Arrays in Java

- Creating an array
- Length of an array
- Inserting into an array
- Searching in an array
- Sorting an array using sort method

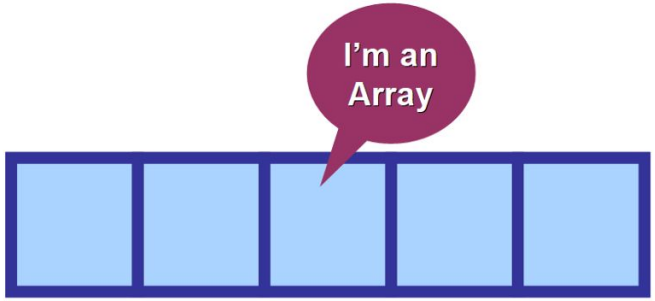
Link There is no assessment, “Submit” to complete the activity

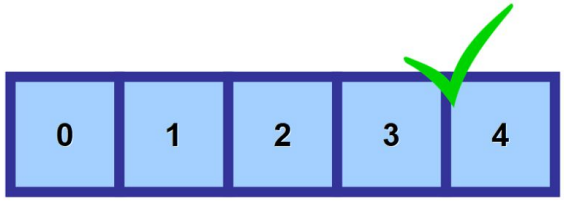
Arrays

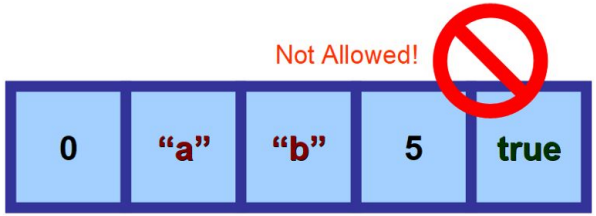


Shopping Cart

Arrays

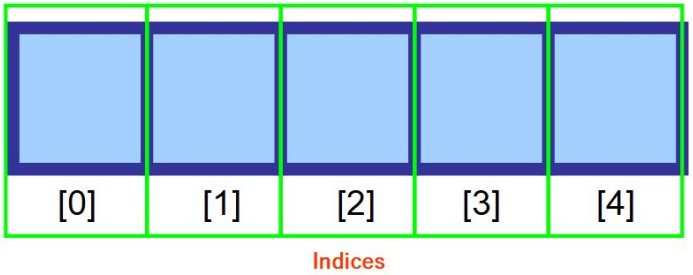


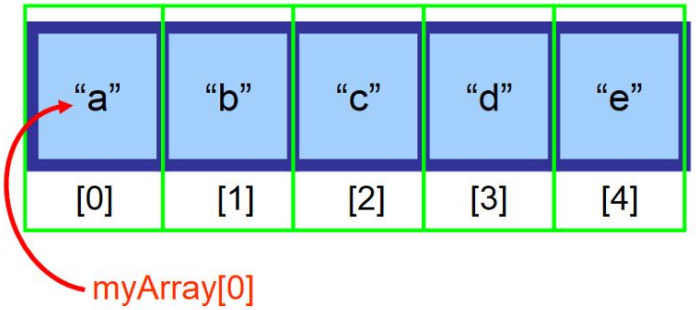




Src :
https://www.freecodecamp.org/news/data-structures-101-arrays-a-visual-introduction-for-beginners-7f013bcc355a

Arrays





Src :
https://www.freecodecamp.org/news/data-structures-101-arrays-a-visual-introduction-for-beginners-7f013bcc355a

Activity: Find the smallest number in an array

Link

What will be your approach to the problem? (Step 3)

Quickly put your answers in the chat!

Activity: Find the sum of two Arrays

You are given two arrays.

Return the sum of all elements in both arrays.

Do it from scratch

Link

What will be your approach to the problem? (Step 3)

Quickly put your answers in the chat!

Activity: Search for given target

Given an array of N distinct integers and a target value X, return 1 if the target is found. If not found then return -1.

Do it from scratch

Link

What will be your approach to the problem? (Step 3)

Quickly put your answers in the chat!

Activity: Reverse an Array

Given an array of strings, return another array with strings in reverse order.

Link

What will be your approach to the problem? (Step 3)

Quickly put your answers in the chat!

Debrief - Arrays

- An array is a collection of similar type of elements which has contiguous memory location
- Examples
  - Array of Strings {“abc”, “xyz”, “crio”}
  - Array of Integers {1,2,3,4,5}
  - Can be any data type or object type