Day 9 - ArrayList & Strings

Wednesday, 27 October 2021 8:48 PM

`int[] arr = new int[5];` → Size (mandatory) → fixed Size

ARRAYLIST → Collections

1) only objects (cannot have primitive data types)

int, char, float ? → Wrapper classes → Integer, Character, Boolean, Long, Double → class

INITIALIZATION

`ArrayList<type> var_name = new ArrayList<>();` → Size is not mandatory

(12)

Default : 10

eg: `ArrayList<Integer> nums = new ArrayList<>();` → without size

Array of students → Student → class

eg: `ArrayList<Student> students = new ArrayList<>();`

ADD:

```
nums[index] = 10;
```

```
nums.add(10);  -> add at last
nums.add(20);
      └> value
```

ADD AT PARTICULAR INDEX: (1)

```
nums.add(1, 30); -> value
         ↓
       index
```

Change at Particular index:

```
nums.set(2, 40);
```

REMOVE:

```
nums.remove(2);  -> [10, 30]
```
(By index)

```
colours.remove("red");  ->
```
└> By value/object

```
nums = [10, 30, 40]
       0   1   2
```

colours = ["Red", "blue", "green"]

ITERATION:

① `for(int i=0; i<nums.size(); i++){` → length of the arraylist

For loop

`System.out.Println(nums.get(i));` → nums[i] → nums.get(i)

→ index

`}`

② `Iterator<Integer> itr = nums.iterator();` // [10, 20, 30]

Obj

Iterator class

`while(itr.hasNext()){`

`System.out.println(itr.next());` //10, 20, 30

i++; X

`}`

③ `for(Integer num : nums){` 10, 20, 30

// for each

`system.out.Println(num);`

`}`

CONVERT ARRAYLIST TO ARRAY

① `Object[] arr = nums.toArray();` → return Objects [] type

```
ArrayList<Colour> colour = new ArrayList<>();
Object[] arr = colour.toArray();
    for(Object obj : arr){
        Colour col = (Colour) Obj; →Object ↔ Colour

    }
```

[10, 20, 30]

```
ArrayList<Integer> nums =new ArrayList<>();
Object[] arr = nums.toArray(); → convert Arraylist to Array.
    for(Object obj : arr) {
        Integer value = (Integer) Obj;
    }
```

②

```
Integer[] arr = new Integer[nums.size()];
    arr = nums.toArray(arr);
for(Integer val : arr) {
        S.O.p(val)
}
```

CONVERT ARRAY TO ARRAYLIST

```
Integer [ ] arr = new Integer[5];  → [10, 20, 30]
ArrayList<Integer> arrlist = new ArrayList<>();
arrlist = Arrays.asList(arr);
```

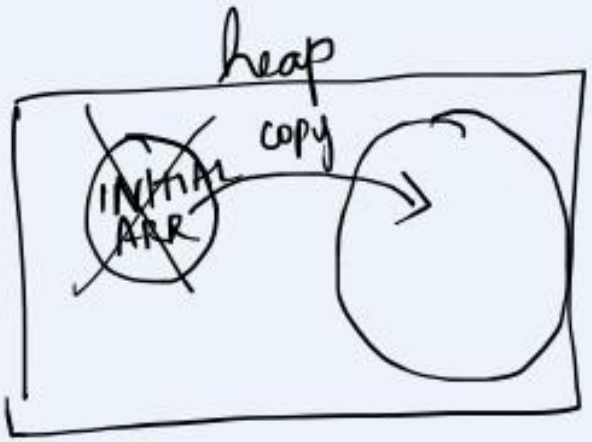
---

default size = 10; → Threshold value → 0.75

1

[1, 2, 3, 4, 5, 6, 7] _ _ _] → grow

10



CLEAR

nums.clear(); → remove all the elements in arraylist

ISEMPTY [ ] ✓ return boolean

nums.ISEMpty() ⟺ nums.size() != 0

INDEXOF [10, 20, 30] target = 20 → [10, 10, 20, 20, 10, 50] (0 1 2 3 4 5)

int index = nums.indexOf(20); → Not present → -1 ✓

int index = nums.indexOf(10); → return 0; (first ocarence)

LASTINDEX

int lastIndex = nums.lastIndexOf(10) → return 4

CONTAINS

colours.contains("red") → return true/false;

SORT:

Collections.sort(nums) → integer

↓

String (sort based on Alphabets)

Reverse

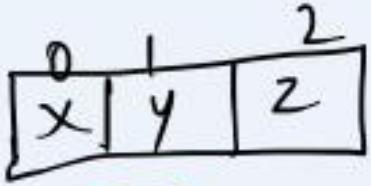
```
Collections.reverse(nums);
```

eg: All Prime numbers for 5 to 30 → return an Array

```
ArrayList<Integer> PrimeNumber = new ArrayList<>();
    for(int i=5; i<=30; i++){
        if(isPrime(i)){
            primenumbers.add(i);
        }
    }
}
```

Strings: → Non_Primitive (Objects)

→ Sequence of characters (char array)

eg: "xyz" → 

✓ (fixed size)

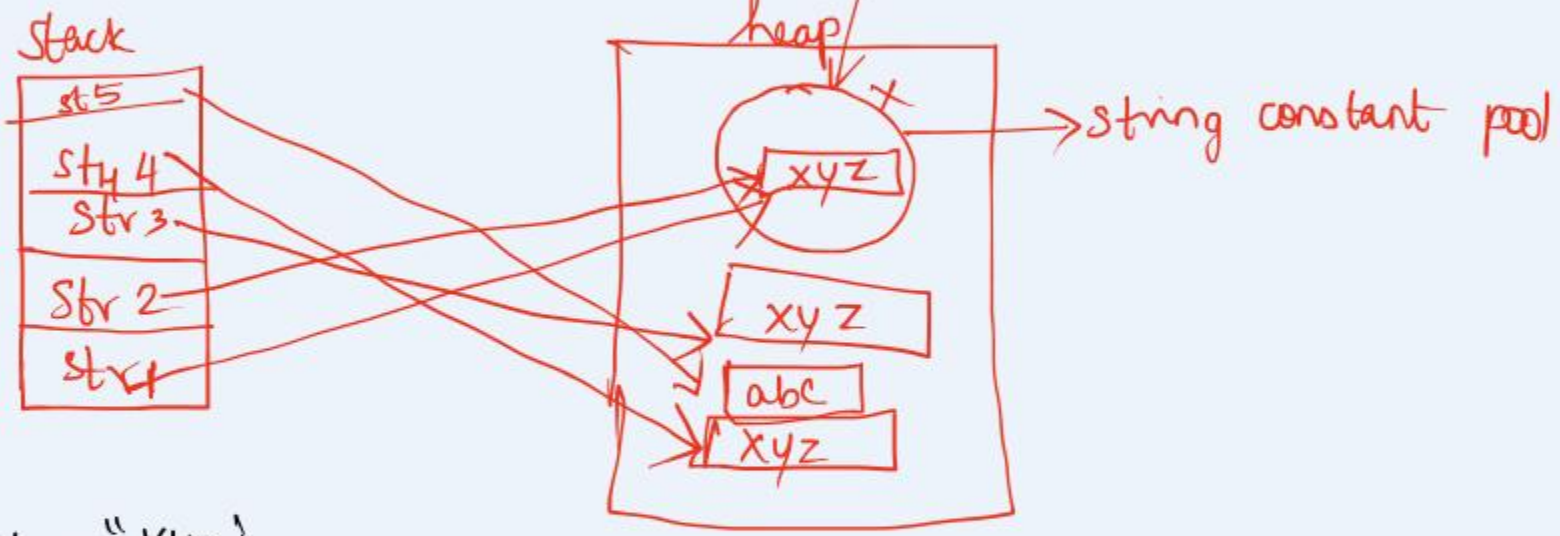
Strings are **immutable** → Cannot Change

Class → java.lang.String ✓ (default class)

CREATE A STRING

① String str = "xyz"; → literal ✓

② String str = new String("xyz"); ✓



✓ String str1 = "xyz";

✓ String str2 = "xyz"; //abc

String str3 = new String("xyz"); ✓ X String constant pool

String str4 = new String("xyz");

Str 5 = new String("abc");

TO CHARARRAY :

```
Char [ ] charArr = Str.toCharArray ( );
```

✓ charArr [i]

TO FIND LENGTH;

```
int length = Str.length ( );
```

TO FIND INDEX OF A CHARACTER → XyZ (0 1 2)

```
int index = str.indexOf('z');   → 2   → lastIndexOf(' ')
```

→ str.toUpperCase ( ); ABcdE → ABCDE

→ str.toLowerCase ( ); ↳ abcde

→ str1 → str 2 ; XyZ xyz

```
Str1.equalsIgnoreCase(str2);   → true
Str1.equals(str2)   → false
```

→ contains ( ) → str1 → "Sentence"

```
Str1.contains("ten") ;   → true
```