Java DSA Cheatsheet: Arrays and Strings

ARRAY - Java Cheatsheet

```
Declaration & Initialization
  int[] arr = new int[5];
  int[] nums = {1, 2, 3, 4, 5};

Common Operations
  int n = arr.length;
  Arrays.sort(arr);
  Arrays.sort(arr, Collections.reverseOrder()); // Integer[] only
  int max = Arrays.stream(arr).max().getAsInt();
  int min = Arrays.stream(arr).min().getAsInt();
  int sum = Arrays.stream(arr).sum();

Looping
  for (int i = 0; i < arr.length; i++) {...}
  for (int x : arr) {...}

Searching
  int idx = Arrays.binarySearch(arr, target);

Copying
  int[] copy = Arrays.copyOf(arr, arr.length);
  int[] rangeCopy = Arrays.copyOfRange(arr, 1, 4);

Multi-dimensional Array
  int[][] matrix = new int[3][3];
  int rows = matrix.length;
  int cols = matrix[0].length;
```

STRING - Java Cheatsheet

```
Declaration
  String s = "hello";
  String t = new String("world");

Common Methods
  s.length();
  s.charAt(i);
  s.indexOf("lo");
  s.equals(t);
  s.compareTo(t);
  s.toCharArray();

Modifications
  s.toUpperCase();
  s.toLowerCase();
  s.trim();
  s.replace("l", "x");
```

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```
StringBuilder
  StringBuilder sb = new StringBuilder("abc");
  sb.append("d");
  sb.insert(1, "x");
  sb.deleteCharAt(2);
  sb.reverse();
  sb.toString();
```

Key Algorithms

```
 Reverse an Array
  Collections.reverse(Arrays.asList(arr)); // for Integer[]

 Reverse a String
  new StringBuilder(str).reverse().toString();

 Frequency Count
  Map<Character, Integer> map = new HashMap<>();
  for (char c : str.toCharArray())
      map.put(c, map.getOrDefault(c, 0) + 1);

 Palindrome Check
  String reversed = new StringBuilder(str).reverse().toString();
  boolean isPalindrome = str.equals(reversed);

 Anagram Check
  char[] a = str1.toCharArray();
  char[] b = str2.toCharArray();
  Arrays.sort(a); Arrays.sort(b);
  boolean isAnagram = Arrays.equals(a, b);

 Prefix Sum
  int[] prefix = new int[n+1];
  for (int i = 0; i < n; i++) prefix[i+1] = prefix[i] + arr[i];
```