

CSE 332: Data Abstractions

Section 6: ForkJoin Practice

0. lessThan7

```
public static int lessThan7(int[] arr)
```

Returns the number of elements in arr that are less than 7.

For example, if arr is [21, 7, 6, 8, 17, 1], then lessThan7(arr) == 2.

Your code must have $\mathcal{O}(n)$ work, $\mathcal{O}(\lg n)$ span, where n is the length of arr.

1. parity

```
public static int parity(int[] arr)
```

Returns true if there are an even number of even numbers and false otherwise.

For example if arr is [1, 7, 4, 3, 6], then parity(arr) == true. But, if arr is [6, 5, 4, 3, 2, 1], parity(arr) == false.

Your code must have $\mathcal{O}(n)$ work, $\mathcal{O}(\lg n)$ span, where n is the length of arr.

2. countStrs

```
public static int countStrs(String str, String[] arr)
```

Returns the number of elements in arr that equal str.

For example, if arr is ["h", "ee", "llll", "llll", "oo", "llll"], then countStrs("llll", arr) == 3 and countStrs("h", arr) == 1.

Your code must have $\mathcal{O}(n)$ work, $\mathcal{O}(\lg n)$ span, where n is the length of arr.

3. secondSmallest

```
public static int secondSmallest(int[] arr)
```

Returns the second smallest element of arr.

For example if arr is [1, 7, 4, 3, 6], then secondSmallest(arr) == 3. But, if arr is [6, 1, 4, 3, 5, 2, 1], secondSmallest(arr) == 2.

Your code must have $\mathcal{O}(n)$ work, $\mathcal{O}(\lg n)$ span, where n is the length of arr.

4. powmod

```
public static void powmod(int[] arr, int p, int m)
```

Replaces every element of arr with $\text{arr}[i]^p \bmod m$.

For example if arr is [1, 7, 4, 3, 6], then powmod(arr, 2, 5) would result in arr = [1, 4, 1, 4, 1].

Your code must have $\mathcal{O}(n)$ work, $\mathcal{O}(\lg n)$ span, where n is the length of arr.