2. **Algorithm Analysis**

- **binary search demo**
- **sorted rotated array demo**
Binary search demo

**Goal.** Given a sorted array and a key, find index of the key in the array?

**Binary search.** Compare key against middle entry.
- Too small, go left.
- Too big, go right.
- Equal, found.

successful search for 33

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\[ lo \] \[ mid \] \[ hi \]
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**Successful search for 33**

```
mid
```

```
6 13 14 25 33 43 51 53 64 72 84 93 95 96 97
```

```
lo hi
```

**return 5**
Binary search demo

Goal. Given a sorted array and a key, find index of the key in the array?

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unsuccessful search for 34
Binary search demo

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unsuccessful search for 34

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unsuccessful search for 34

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```

```
lo hi
```

return -1