Search sorted array

c header

```
int  Search(int target);
void InitArrayReader(int* nums);
int  ArrayReaderGet(int index);
```

tests

-1, 0, 3, 5, 9, 12 ?

gap = 2

c source

```
int Search(int target) {
    int start = 0;
    int end = 1;
    int gap = 1;
    int x = ArrayReaderGet(start);
    while (x > -1) {
        if (target < x) {
            return -1;
        } else if (target == x) {
            return start;
        } else { // target > x
            int upper = ArrayReaderGet(end);
            if (target < upper) {
                return BinarySearch(target, start, end);
            } // then target >= upper
            int oldStart = start;
            start = end;
            end = (oldStart + gap) + 1;
            gap *= 2;
        }
    }
    return -1;
}
```

start → 1 (end)
end → 2+1 (start+gap) +1
oldstart = start;
start = end;
end = (oldstart + gap) +1;
gap = gap * 2;

check
if (target < a[i]):
    return -1
if target == a[i]:
    return i
else # target > a[i];