10.3-2.

Write the procedures ALLOCATE-OBJECT and FREE-OBJECT for a homogeneous collection of objects implemented by the single-array representation.

Answer.

The single-array representation of objects is shown in Figure 10.6. An object occupies a contiguous subarray $A[j..k]$ can be accessed by the index j. As the offeset corresponding to *next* is 1, the pointer to its successor is $A[j+1]$. Both ALLOCATE-OBJECT and FREE-OBJECT remains almost identical to the ones in the text, instead of retrieving from another array, the *next* attribute is accessed by adding an offeset 1 to the current pointer.

```
ALLOCATE-OBJECT()
1  if free == NIL
2       error "out of space"
3  else x = free
4       free = A[x + 1]
5       return x
```

```
FREE-OBJECT(x)
1  A[x + 1] = free
2  free = x
```


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