

```
1 from exceptions import Empty
2
3 class ArrayQueue:
4     def __init__(self):
5         self._data = []
6         self._size = 0
7         self._front = 0
8     def __len__(self):
9         return self._size
10    def is_empty(self):
11        return self._size == 0
12
13    def enqueue(self, e):
14        self._data.append(e)
15        self._size = self._size + 1
16
17    def dequeue(self):
18        if self.is_empty():
19            raise Empty('Queue is Empty')
20        value = self._data[self._front]
21        self._data[self._front] = None
22        self._front = self._front + 1
23        self._size = self._size - 1
24        return value
25
26    def first(self):
27        if self.is_empty():
28            raise Empty('Queue is Empty')
29        return self._data[self._front]
30
31
32 q = ArrayQueue()
33 q.enqueue(10)
34 q.enqueue(20)
35 print('Queue: ', q._data)
36 print('Length: ', len(q))
37 print('Dequeue: ', q.dequeue())
38 print('Queue: ', q._data)
39 q.enqueue(30)
40 q.enqueue(40)
41 print('Queue: ', q._data)
42 print('First Element: ', q.first())
43 print('Queue: ', q._data)
44 print('Dequeue: ', q.dequeue())
45 print('Queue: ', q._data)
46
```