```
1  /*
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3
4  CS A200
5  Sep 27, 2017
6
7  Lab 3
8  */
9  int j = 0;
10 int exp = 1;
11 int check = 0;
12
13 for (int n = 1; n <= digits; ++n)
14 //This is O(n) because the loop will check each digit of a number and stop until
15 //it reaches the last digit.
16 {
17     while ((check <= 9) && (j < numOfElements))
18         //This is O(1) because the loop only checks from 0 to 9.
19         //By checking if j is less than number of elements, the loop will end if
              the array is full
20     {
21         for (int k = 0; k < numOfElements; ++k)
22             //This is O(k) because the loop will traverse the array and check
                  each elements
23             //and stop until it reach the last element.
24
25         {
26             if ((a1[k] / exp) % 10 == check)
27             {
28                 a2[j] = a1[k];
29                 ++j;
30             }
31         }
32         ++check;
33     }
34     //So, the loop has the running time of O(n*k)
35     check = 0;
36     j = 0;
37     exp *= 10;
38
39     //swap those 2 arrays
40     int *temp = a2;
41     a2 = a1;
42     a1 = temp;
43
44     //Print sorted array after each iteration
45     cout << "Pass " << n << ": ";
46     print(a1, numOfElements);
47     cout << endl;
```

```
48  }
49
50  delete[]a2;
51
52  /*************************************************************************
    ************************/
53
```