make history.

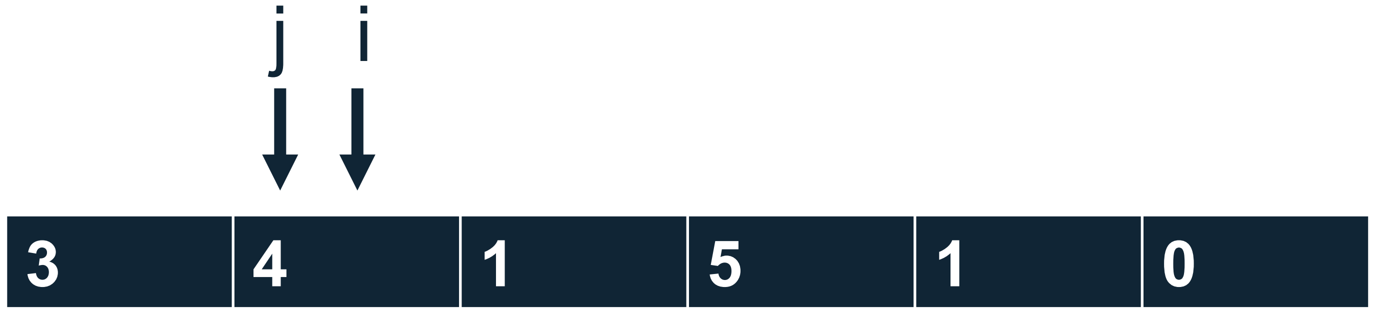
THE UNIVERSITY of ADELAIDE

Insertion sort

Dr. Anna Kalenkova

Insertion sort

```
void insertionSort(vector<int>& array) {
      for (int i = 1; i < array.size(); i++) {
          for(int j = i; j > 0; j--) {
              if(array.at(j) < array.at(j-1)) {
                   // swap array.at(j+1) and array.at(j)
              }
              else break;
          }
     }
}
```



3	4	1	5	1	0

Insertion sort

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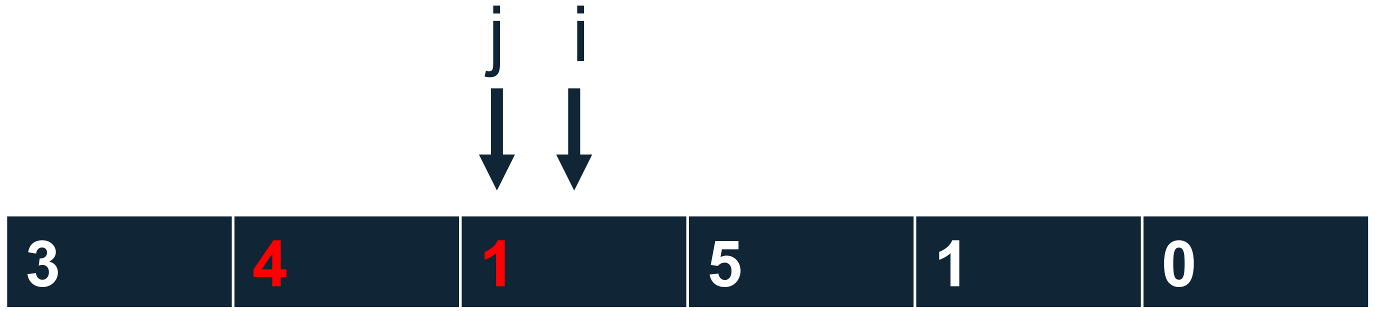

j i

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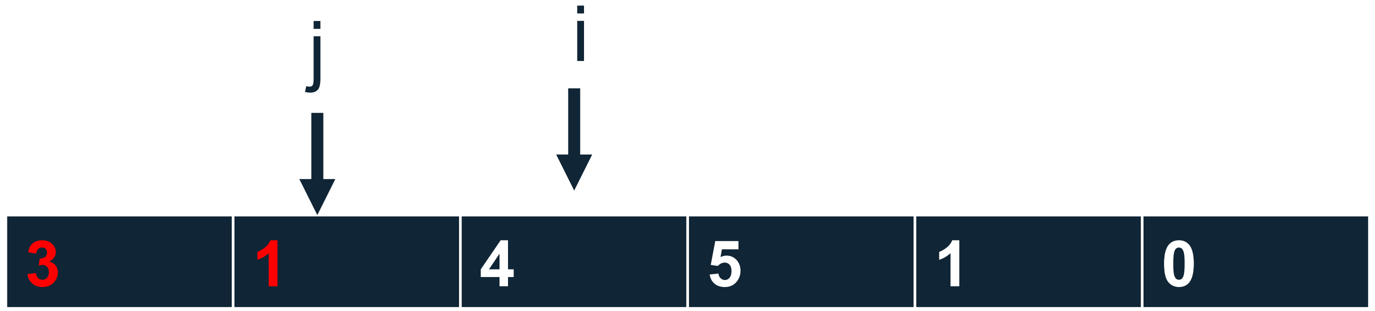

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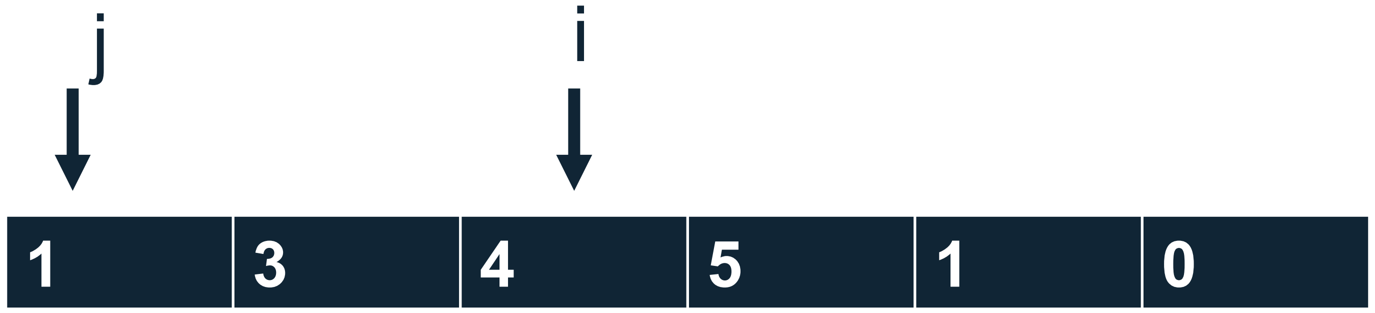

1	3	4	5	1	0

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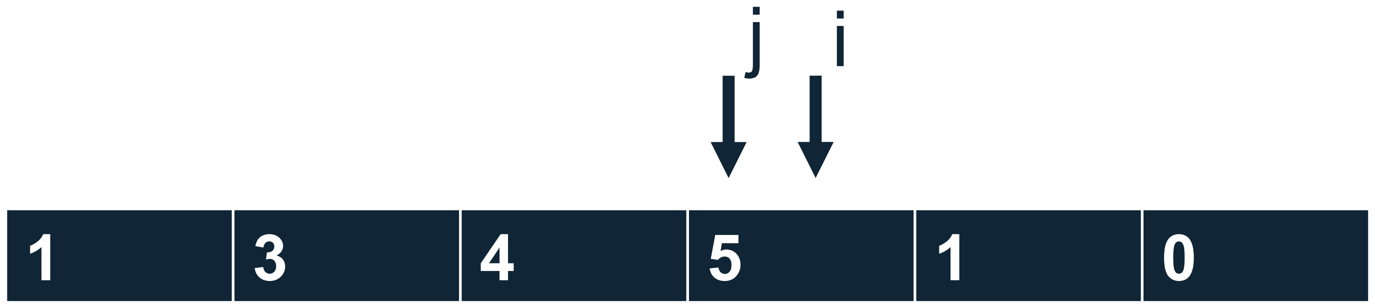

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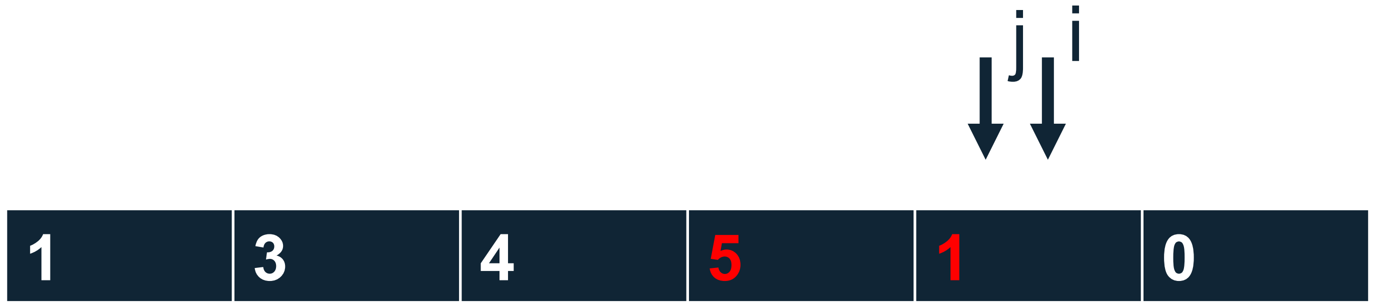

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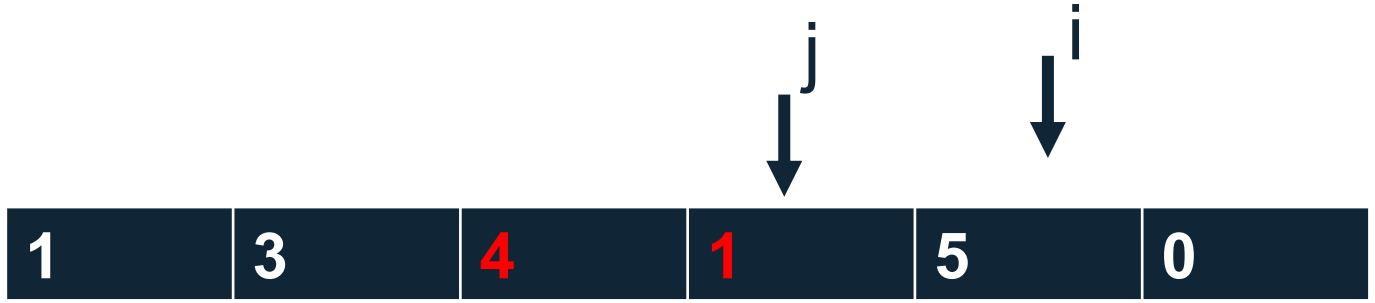

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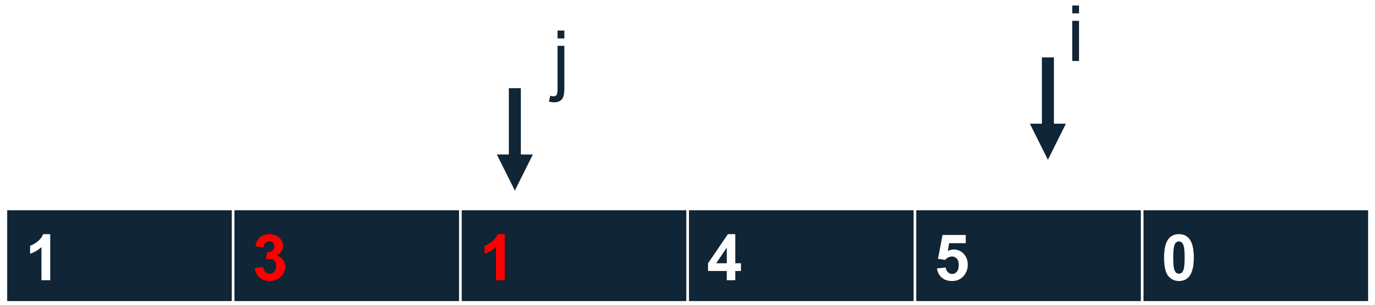

1	3	1	4	5	0

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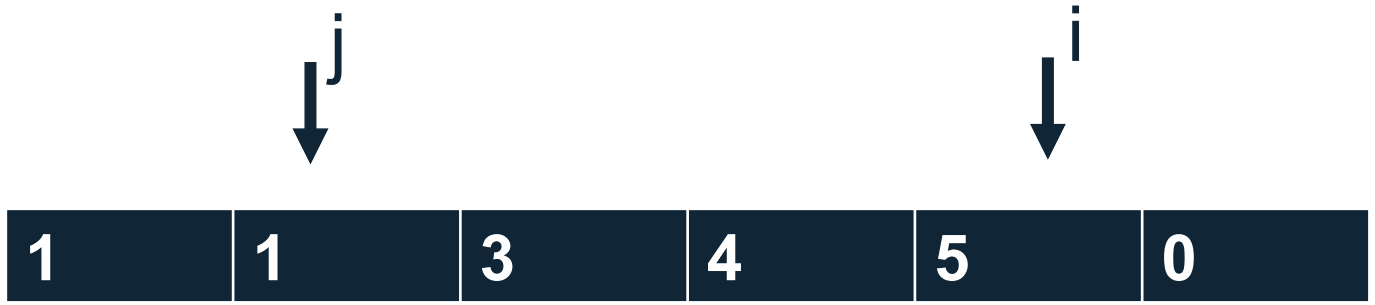

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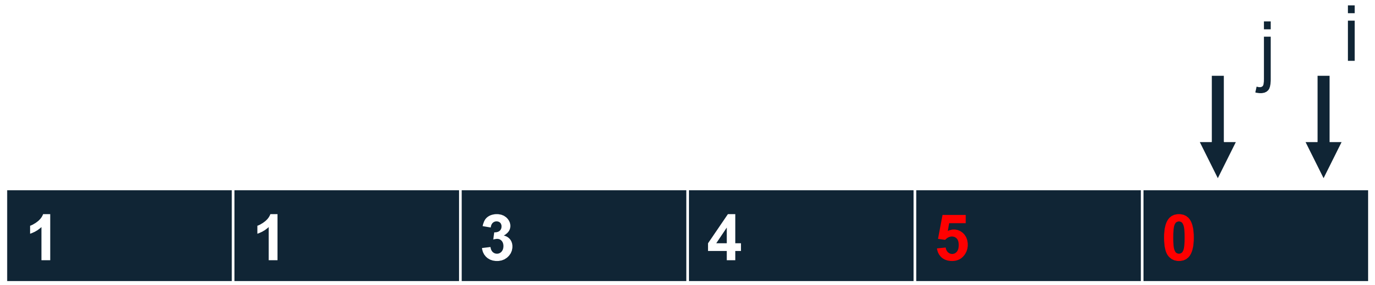

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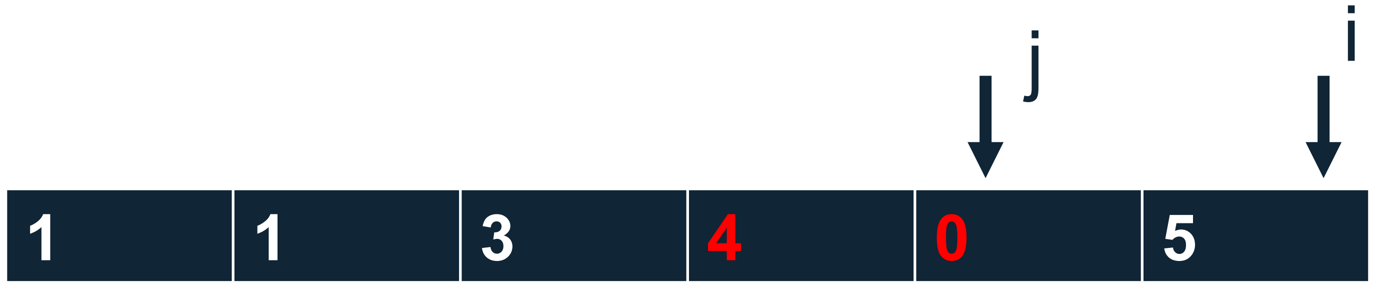

j

i

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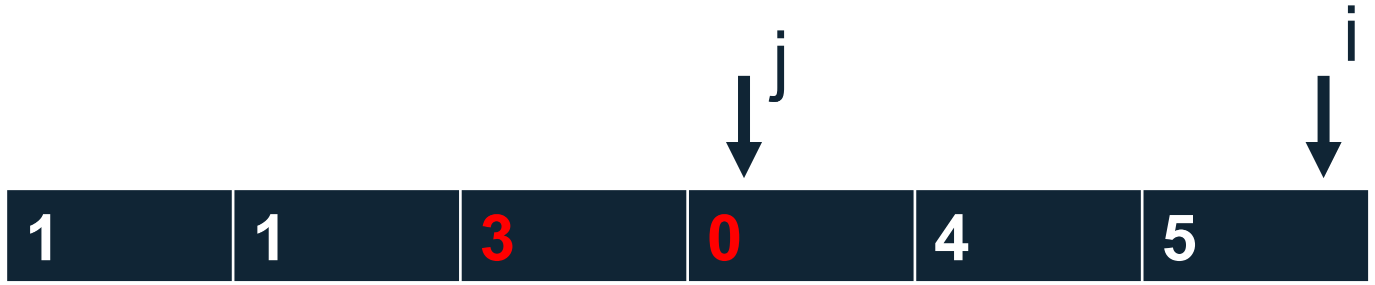

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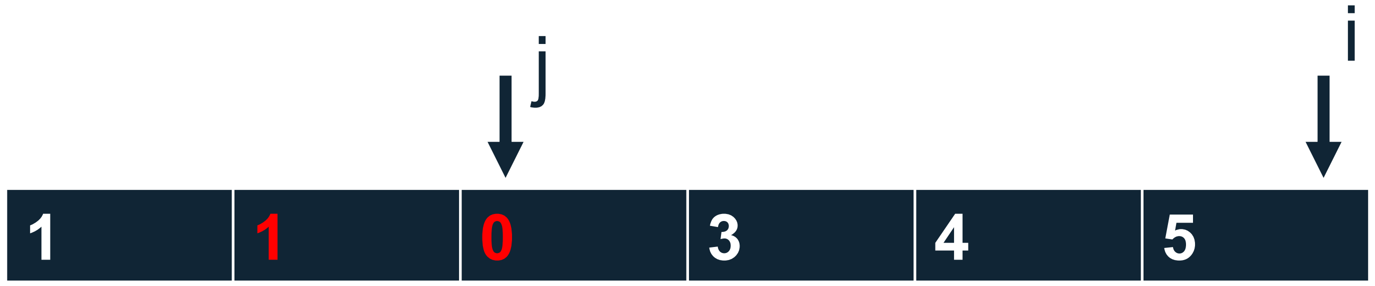

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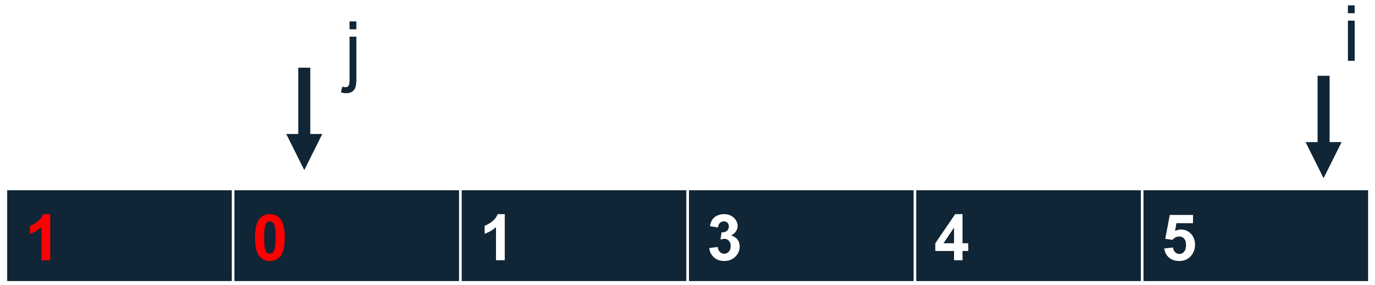

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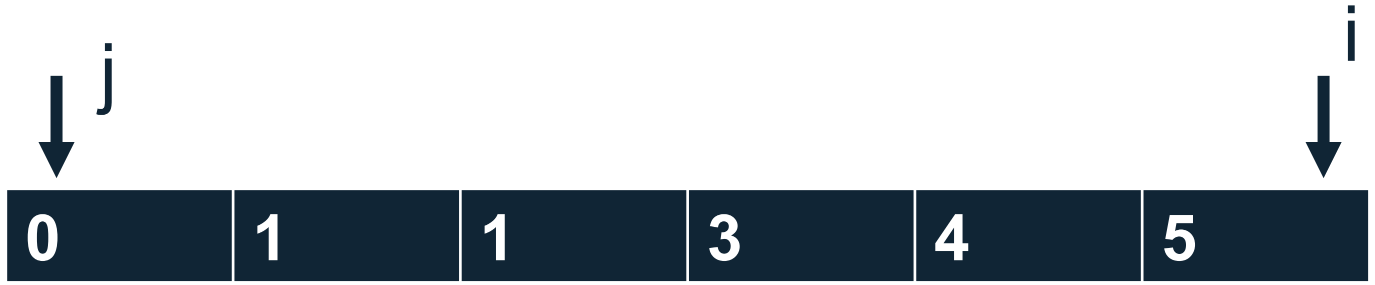

0	1	1	3	4	5

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Time complexity: O(n^2) in worst and average cases and O(n) in the best case.