# Assignment Solutions | Problems on sorting | Week 9

**What is an in-place sorting algorithm?**
**a) It needs O(1) or O(logn) memory to create auxiliary locations**
**b) The input is already sorted and in-place**
**c) It requires additional storage**
**d) It requires additional space**
**Solution :**

a) It needs O(1) or O(logn) memory to create auxiliary locations.

**In the following scenarios, when will you use selection sort?**
**a) The input is already sorted**
**b) A large file has to be sorted**
**c) Large values need to be sorted with small keys**
**d) Small values need to be sorted with large keys**
**Solution :**

c) Large values need to be sorted with small keys.

**Given an integer array and an integer k where k<=size of array, We need to return the kth smallest element of the array.**
**Solution :**

```
#include <iostream>
using namespace std;
void insertionSort(int arr[], int n){
int i, key, j;
for (i = 1; i < n; i++){
key = arr[i];
j = i - 1;
while (j >= 0 && arr[j] > key){
arr[j + 1] = arr[j];
j = j - 1;
}
arr[j + 1] = key;
}
}
int main() {
int arr[5]={7,2,32,5,20};
int size=5;
int k=3;
insertionSort(arr,5);
cout<<arr[k-1]<<endl;
return 0;
```