

Prog No. 1

Approach: An array can be used to store elements and to keep track of the frequencies we can use HashMap to pair frequency to corresponding number

```
class Test
{
    int find (int[] arr, int ele)
    {
        for (int i=0; i < length (arr); i++)
        {
            if (arr[i] == ele)
                return i;
        }
        return -1;
    }

    void print
    {
        // To print the top k numbers
        int[] top = new int[k+1];
        // Create a HashMap to track frequencies
        HashMap<Integer>Integer> freq = new HashMap<>();
        for (int i=0; i < k+1; i++)
            freq.put(i, 0);
        for (int j=0; j < m; j++)
            // increase the frequency
            if (freq.get(a[j]) != null)
                freq.put(a[j], freq.get(a[j]) + 1);
            else
                freq.put(a[j], 1);
    }
}
```

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ADS LAB TEST
IBM18 CS040

```
top[k] = a[m];  
int i = find(top, a[m]);  
i = -1;  
while (i >= 0)  
{  
    // compare the frequency and swap if  
    // higher frequency element is there  
    if (freq(top[i]) < freq.get(top[i+1]))  
    {  
        int temp = top[i];  
        top[i] = top[i+1];  
        top[i+1] = temp;  
    }  
    else if (freq(top[i]) == freq(top[i+1])  
            && (top[i] > top[i+1]))  
    {  
        temp = top[i];  
        top[i] = top[i+1];  
        top[i+1] = temp;  
    }  
    else  
        break;  
    i = -1;  
    // print top k elements  
    for (int x = 0; x < k && top[x] != 0; x++)  
    {  
        print(top[x]);  
    }  
}
```

}

void main

```
{  
    int arr[] = input();  
    int k = input();  
    int n = length(arr);  
    print(arr, n, k);  
}
```