|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm findThirdLargest(A) | | | | | | | | |  |  |  |  |  |
| Input array A of integer | | | | | | |  |  |  |  |  |  |  |
| Output thirdLargestNumber of array | | | | | | | | | |  |  |  |  |
| Max <- A[0] | | | |  |  |  |  |  |  |  |  |  | 2 |
| count <- 1 | | |  |  |  |  |  |  |  |  |  |  | 1 |
| For i<- 1 to n-1 do | | | | |  |  |  |  |  |  |  |  | 1+n |
|  | If A[i] > Max then | | | | |  |  |  |  |  |  |  | 2(n-1) |
|  |  | Max <- A[i] | | | |  |  |  |  |  |  |  | 2(n-1) |
|  |  | count <- 1 | | |  |  |  |  |  |  |  |  | 1(n-1) |
|  | If A[i] == Max then | | | | |  |  |  |  |  |  |  | 2(n-1) |
|  |  | Count <- Count + 1 | | | | |  |  |  |  |  |  | 2(n-1) |
| SecondMax <- A[0] | | | | | |  |  |  |  |  |  |  | 2 |
| If Count >=2 then | | | | |  |  |  |  |  |  |  |  | 1 |
|  | SecondMax <- Max | | | | | |  |  |  |  |  |  | 1 |
|  | Count <- Count – 1 | | | | |  |  |  |  |  |  |  | 2 |
| Else then | | |  |  |  |  |  |  |  |  |  |  |  |
| For i<- 1 to n-1 do | | | | |  |  |  |  |  |  |  |  | 1+n |
|  |  | If A[i] > SecondMax AND A[i]<Max then | | | | | | | | | | | 4(n-1) |
|  |  |  | SecondMax <- A[i] | | | | |  |  |  |  |  | 2(n-1) |
|  |  |  | Count <- 1 | | |  |  |  |  |  |  |  | 1(n-1) |
|  |  | If A[i] == SecondMax then | | | | | | |  |  |  |  | 2(n-1) |
|  |  |  | Count <- Count + 1 | | | | |  |  |  |  |  | 2(n-1) |
| ThirdMax <- A[0] | | | | |  |  |  |  |  |  |  |  | 2 |
| If Count>=2 then | | | | |  |  |  |  |  |  |  |  | 1 |
|  | ThirdMax <- SecondMax | | | | | | |  |  |  |  |  | 1 |
| Count <- Count – 1 | | | | |  |  |  |  |  |  |  |  | 2 |
| Else then | | |  |  |  |  |  |  |  |  |  |  |  |
| For i<- 1 to n-1 do | | | | |  |  |  |  |  |  |  |  | 1+n |
|  |  | If A[i] > ThirdMax AND A[i]< SecondMax then | | | | | | | | | | | 4(n-1) |
|  |  |  | ThirdMax <- A[i] | | | | |  |  |  |  |  | 2(n-1) |
|  |  |  | Count <- 1 | | |  |  |  |  |  |  |  | 1(n-1) |
|  |  | If A[i] == ThirdMax then | | | | | | |  |  |  |  | 2(n-1) |
|  |  |  | Count <- Count + 1 | | | | |  |  |  |  |  | 2(n-1) |
| Return thirdMax | | | | |  |  |  |  |  |  |  |  | 1 |

Total **34n-12**