

**Week-1 Conceptual Batch-3 [Time Complexity]**

-> Time Complexity

-> Types of Time Complexity with example

-> Real Life Example by solving problem

-> Discussion on Quiz

-> FAQs

1. **Time Complexity:**

The amount of time taken by an algorithm to run, relative to the input size.

1. **Types of Time Complexity with example:**

<https://ideone.com/z16UaS?fbclid=IwAR1psFGJDnwSQChuFJMuGIY9vG_BAWC1onXFxlwphgGAQdvtojVVRayfC90>

1. **Real Life Example by solving problem**

<https://codeforces.com/group/MWSDmqGsZm/contest/219158/problem/G>

1. **Discussion on Quiz**

1. What will be the final outcome of the following complexity?

O(N\*N+N+N/2)

1. O(N)
2. O(N/2)
3. **O(N\*N)**
4. O(N\*N+N)
5. What will be the time complexity of the following loop?

for(int i=0;i<N/2;i++)

1. **O(N)**
2. O(N\*N)
3. O(Nlog(N))
4. O(log(N))
5. What will be the time complexity of the following loop?

for(int i=1;i<=N;i++) {

        for(int j=1;j<=i;j++){

        }

    }

1. O(N)
2. **O(N\*N)**
3. O(N\*i)
4. O(log(N))
5. What will be the time complexity of the following loop?

for(int i=1;i<=N;i\*=10)

1. O(N)
2. O(N\*N)
3. O(N/10)
4. **O(log(N))**
5. What will be the time complexity of the following loop?

for(int i=1;i\*2<=N;i++)

1. **O(N)**
2. O(N/2)
3. O(sqrt(N))
4. O(log(N))

1. What will be the time complexity of the following loop?

for(int i=1;i\*i<=N;i++)

1. O(N)
2. O(N\*N)
3. **O(sqrt(N))**
4. O(log(N))
5. What will be the time complexity of the following loop?

#include<bits/stdc++.h>

using namespace std;

int main()

{

    int n; cin>>n;

    int a[n];

    for(int i=0;i<n;i++)

    {

        cin>>a[i];

    }

    sort(a,a+n);

    for(int i=0;i<n;i++)

    {

        cout<<a[i]<<" ";

    }

    return 0;

}

1. O(N)
2. O(N\*N)
3. **O(Nlog(N))**
4. O(log(N))
5. What will be the space complexity of the following loop?

#include<bits/stdc++.h>

using namespace std;

int main()

{

    int n; cin>>n;

    int a[n];

    for(int i=0;i<n;i++)

    {

        cin>>a[i];

    }

    sort(a,a+n);

    for(int i=0;i<n;i++)

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        cout<<a[i]<<" ";

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    return 0;

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1. **O(N)**
2. O(N\*N)
3. O(Nlog(N))
4. O(log(N))
5. What will be the time complexity of the following loop?

#include<bits/stdc++.h>

using namespace std;

int main()

{

    int n; cin>>n;

    int a[n];

    for(int i=0;i<n;i++) {

        cin>>a[i];

    }

    for(int i=0;i<n-1;i++) {

        for(int j=i+1;j<n;j++) {

            if(a[i]>a[j]) swap(a[i],a[j]);

        }

    }

    for(int i=0;i<n;i++) {

        cout<<a[i]<<" ";

    }

    return 0;

}

1. O(N)
2. **O(N\*N)**
3. O(Nlog(N))
4. O(log(N))
5. What will be the space complexity of the following loop?

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int main()

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    for(int i=0;i<n;i++) {

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    for(int i=0;i<n-1;i++) {

        for(int j=i+1;j<n;j++) {

            if(a[i]>a[j]) swap(a[i],a[j]);

        }

    }

    for(int i=0;i<n;i++) {

        cout<<a[i]<<" ";

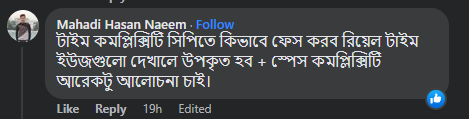
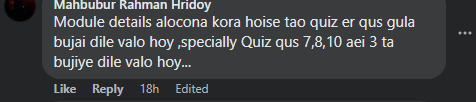
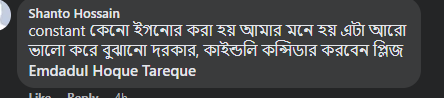
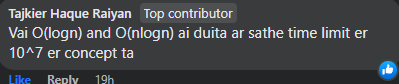
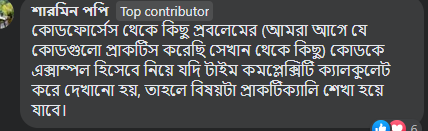
    }

    return 0;

}

1. **O(N)**
2. O(N\*N)
3. O(Nlog(N))
4. O(log(N))

**5)FAQS**

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