

The background of the entire image is a dark blue field filled with a pattern of red dots. These dots are arranged in a way that they form a large, faint, stylized circular shape, reminiscent of a DNA helix or a molecular structure, with the density of the dots varying to create a sense of depth and movement.

HUST

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Applied Algorithm Lab

Max even sub-sequence

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Max even sub-sequence

- Given a sequence of n integers a_1, \dots, a_n .
- A subsequence of a consists of continuous elements of a (for example, a_i, a_{i+1}, \dots, a_j).
- The weight of a subsequence is defined to be the sum of its elements. A subsequence is called even-subsequence if its weight is even.
- Find the even-subsequence of a having largest weight.

Input

8

4 -5 2 4 -8 2 3 1

Output

6

Max even sub-sequence

- Idea to solve: dynamic programming
- Construct a cumulative array S , where $S[i]$ is sum of from $a[1]$ to $a[i]$.
 - Let $f[i][0]$ be minimal $S[j]$ with $1 \leq j \leq i$ and j is even.
 - Let $f[i][1]$ be minimal $S[j]$ with $1 \leq j \leq i$ and j is odd.
 - Formula:
 - $f[i][0] = \min(S[i], f[i - 2][0])$, with i is even;
 - $f[i][1] = \min(S[i], f[i - 2][1])$, with i is odd;
- Return:
$$\max_{i:1 \rightarrow n} (S[i] - f[i][i \% 2])$$
- Complexity: $O(n)$.

Max even sub-sequence - Implementation

```
1  #include <bits/stdc++.h>
2  using namespace std;
3  long long n, ai, S=0, mineven=0, minodd=1e12+1, maxevenss;
4  int main() {
5      cin >> n;
6      for (int i=1; i<=n; i++) {
7          cin >> ai;
8          S+=ai;
9          if (S%2==0) {
10             mineven = min(S, mineven);
11             maxevenss = max(maxevenss, S-mineven);
12         } else {
13             minodd = min(S, minodd);
14             maxevenss = max(maxevenss, S-minodd);
15         }
16     }
17     cout << maxevenss;
18     return 0;
19 }
```



A large graphic on the left side of the slide. It features a dark blue background with a circular pattern of red dots of varying sizes, creating a sense of depth and movement. The word "HUST" is centered within this pattern in a white, bold, sans-serif font.

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THANK YOU !