NAMUNAVIY MASALALAR

1-masala. Eng ko‘p uchragan son

n ta butun son berilgan. Eng ko‘p uchragan sonni toping (teng bo‘lsa — kichigini oling).

Yechim

```
HashMap<Integer, Integer> map = new HashMap<>();
for (int x : a) {
    map.put(x, map.getOrDefault(x, 0) + 1);
}

int ans = a[0], best = 0;
for (int x : map.keySet()) {
    int f = map.get(x);
    if (f > best || (f == best && x < ans)) {
        best = f;
        ans = x;
    }
}
System.out.println(ans);
```

2-masala. Ikkita yig‘indi (Two Sum)

Shart:
Massiv va S berilgan.
Yig‘indisi S bo‘ladigan ikkita element mavjudmi?

Yechim (HashSet)

```
HashSet<Integer> set = new HashSet<>();
boolean ok = false;

for (int x : a) {
    if (set.contains(S - x)) {
        ok = true;
        break;
    }
    set.add(x);
}
System.out.println(ok ? "YES" : "NO");
```

3-masala. Saralashdan keyin noyoblar soni

Massiv berilgan. Turli elementlar sonini toping.

Yechim (Sort)

```
Arrays.sort(a);
int cnt = 1;
for (int i = 1; i < n; i++) {
    if (a[i] != a[i - 1]) cnt++;
}
System.out.println(cnt);
```

4-masala. Eng uzun noyob bo‘lak

Massiv berilgan. Barcha elementlari turli bo‘lgan eng uzun uzluksiz bo‘lak uzunligini toping.

Yechim (Sliding Window)

```
HashSet<Integer> set = new HashSet<>();
int l = 0, ans = 0;

for (int r = 0; r < n; r++) {
    while (set.contains(a[r])) {
        set.remove(a[l++]);
    }
    set.add(a[r]);
    ans = Math.max(ans, r - l + 1);
}
System.out.println(ans);
```

5-masala. Oraliq yig‘indi so‘rovlari

Massiv berilgan. Ko‘p so‘rov: `[l, r]` oraliq yig‘indisini toping.

Yechim (Prefix Sum)

```
long[] pref = new long[n + 1];
for (int i = 1; i <= n; i++) {
    pref[i] = pref[i - 1] + a[i - 1];
}

long sum = pref[r] - pref[l - 1];
```

6-masala. Minimal elementlar yig‘indisi

Shart:
Har qatordan eng kichik elementni tanlab, ularning yig‘indisini toping.

Yechim (Greedy)

```
long sum = 0;
for (int i = 0; i < n; i++) {
    int mn = Integer.MAX_VALUE;
    for (int j = 0; j < m; j++) {
        mn = Math.min(mn, a[i][j]);
    }
    sum += mn;
}
System.out.println(sum);
```

7-masala. Zinadan chiqish

n pog‘ona bor. 1 yoki 2 qadam bilan chiqish yo‘llari sonini toping.

Yechim (DP)

```
long[] dp = new long[n + 1];
dp[0] = 1;
dp[1] = 1;

for (int i = 2; i <= n; i++) {
    dp[i] = dp[i - 1] + dp[i - 2];
}
System.out.println(dp[n]);
```

8-masala. Eng yaqin juftlik

Massiv berilgan. Yig‘indisi 0 ga eng yaqin bo‘lgan juftlikni toping.

Yechim (Sort + Two Pointers)

```
Arrays.sort(a);
int l = 0, r = n - 1;
int best = Integer.MAX_VALUE;

while (l < r) {
    int s = a[l] + a[r];
    best = Math.min(best, Math.abs(s));
    if (s < 0) l++;
    else r--;
}
System.out.println(best);
```

9-masala. Ko‘pchilik elementi

Massiv berilgan. Agar element `n/2` martadan ko‘p uchrasa — uni chiqaring, aks holda `-1`.

Yechim (Boyer–Moore)

```
int cand = 0, cnt = 0;
for (int x : a) {
    if (cnt == 0) {
        cand = x;
        cnt = 1;
    } else if (x == cand) cnt++;
    else cnt--;
}

cnt = 0;
for (int x : a) if (x == cand) cnt++;

System.out.println(cnt > n / 2 ? cand : -1);
```

10-masala. Eng katta kvadrat yig‘indisi

Massiv berilgan. Eng katta kvadrat yig‘indisini toping.

Yechim

```
long best = 0;
for (int x : a) {
    best = Math.max(best, 1L * x * x);
}
System.out.println(best);
```