Competitive Programming

Week3-5

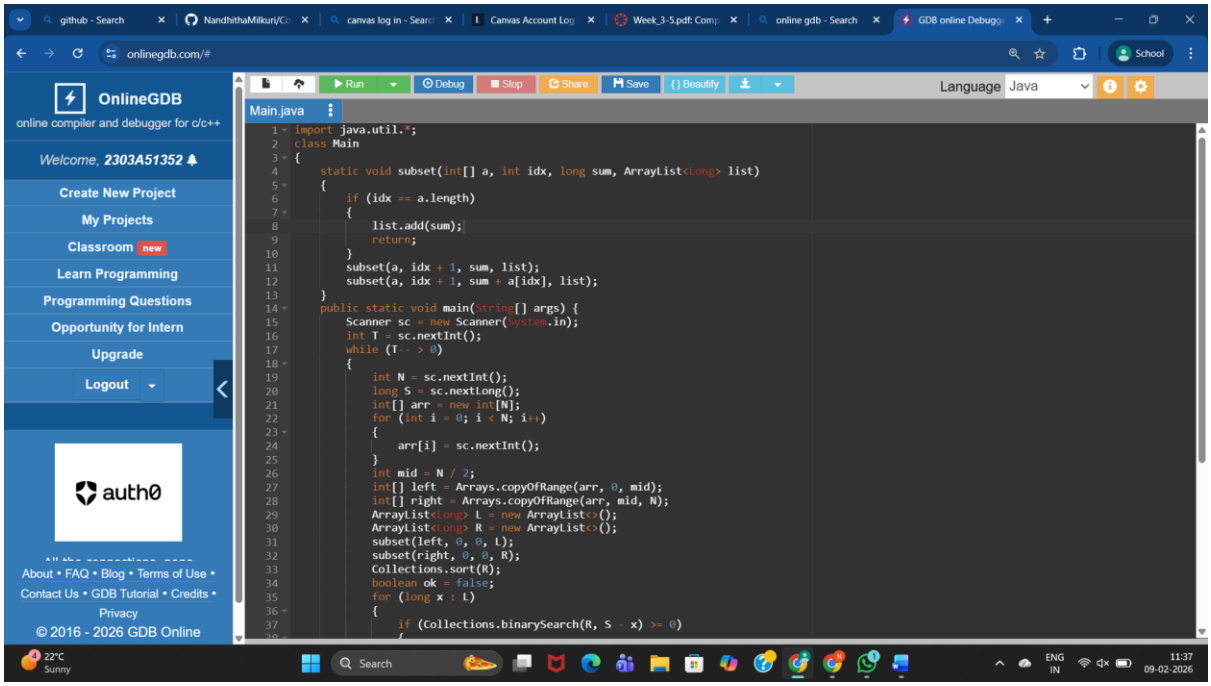
Assignment-1(Monday)

Subset Sum Using Meet-in-the-Middle

Code:

```
import java.util.*;
class Main
{
   static void subset(int[] a, int idx, long sum, ArrayList<Long> list)
   {
      if (idx == a.length)
      {
         list.add(sum);
         return;
      }
      subset(a, idx + 1, sum, list);
      subset(a, idx + 1, sum + a[idx], list);
   }
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);
      int T = sc.nextInt();
      while (T-- > 0)
      {
         int N = sc.nextInt();
         long S = sc.nextLong();
         int[] arr = new int[N];
         for (int i = 0; i < N; i++)
```

```
{
   arr[i] = sc.nextInt();
}
int mid = N / 2;
int[] left = Arrays.copyOfRange(arr, 0, mid);
int[] right = Arrays.copyOfRange(arr, mid, N);
ArrayList<Long> L = new ArrayList<>();
ArrayList<Long> R = new ArrayList<>();
subset(left, 0, 0, L);
subset(right, 0, 0, R);
Collections.sort(R);
boolean ok = false;
for (long x : L)
{
   if (Collections.binarySearch(R, S - x) >= 0)
   {
      ok = true;
      break;
   }
}
if(ok)
{
   System.out.println("YES");
}
else
{
   System.out.println("NO"); }}}}
```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{ } Beautify
Language Java
Main.java
import java.util.*;
class Main
{
static void subset(int[] a, int idx, long sum, ArrayList<Long> list)
{
if (idx == a.length)
{
list.add(sum);
return;
}
subset(a, idx + 1, sum, list);
subset(a, idx + 1, sum + a[idx], list);
}
public static void main(String[] args) {
Scanner sc = new Scanner(System.in);
int T = sc.nextInt();
while (T-- > 0)
{
int N = sc.nextInt();
long S = sc.nextLong();
int[] arr = new int[N];
for (int i = 0; i < N; i++)
{
arr[i] = sc.nextInt();
}
int mid = N / 2;
int[] left = Arrays.copyOfRange(arr, 0, mid);
int[] right = Arrays.copyOfRange(arr, mid, N);
ArrayList<Long> L = new ArrayList<>();
ArrayList<Long> R = new ArrayList<>();
subset(left, 0, 0, L);
subset(right, 0, 0, R);
Collections.sort(R);
boolean ok = false;
for (long x : L)
{
if (Collections.binarySearch(R, S - x) >= 0)
22°C
Sunny
Search
ENG
IN
11:37
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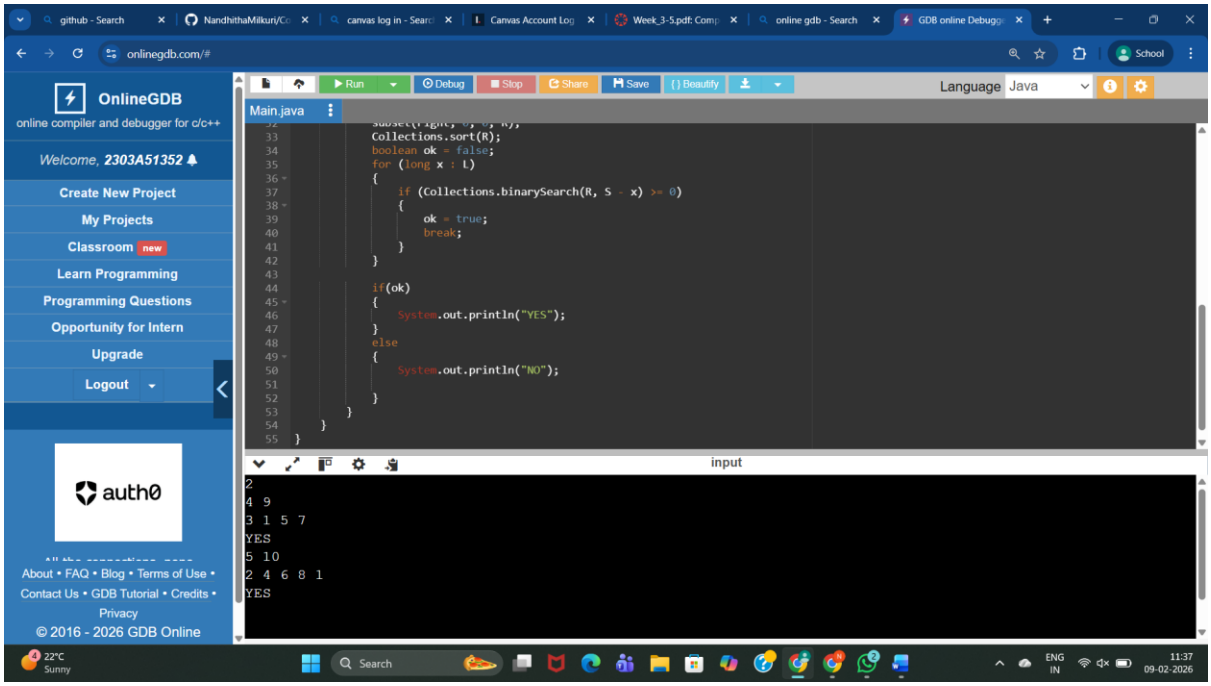
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Language Java
Main.java
Collections.sort(R);
boolean ok = false;
for (long x : L)
{
if (Collections.binarySearch(R, S - x) >= 0)
{
ok = true;
break;
}
}
if(ok)
{
System.out.println("YES");
}
else
{
System.out.println("NO");
}
}
}
}
input
2
4 9
3 1 5 7
YES
5 10
2 4 6 8 1
YES
22°C
Sunny
Search
ENG
IN
11:37
09-02-2026