Design and Analysis of Algorithm Lab8

Name:V.Prasanna Vyshnavi

Regno:19BCE7661

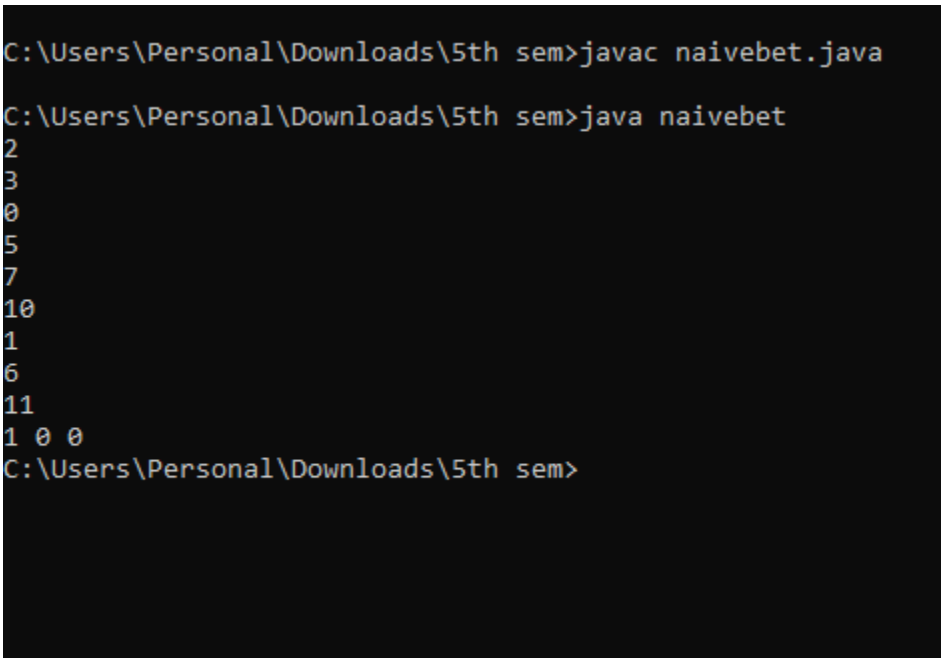
Naive online bet:

Code:

```
import java.util.Scanner;
public class naivebet {
static int[] naivecount(int[] starts, int[] ends, int[] points) {
int[] cnt = new int[points.length];
for (int i = 0; i < points.length; i++) {
for (int j = 0; j < starts.length; j++) {
if (starts[j] <= points[i] && points[i] <= ends[j]) {
cnt[i]++;
}
}
}
return cnt;
}
public static void main(String[] args) {
Scanner scanner = new Scanner(System.in);
int n, m;
n = scanner.nextInt();
m = scanner.nextInt();
int[] starts = new int[n];
int[] ends = new int[n];
int[] points = new int[m];
```

```
for (int i = 0; i < n; i++) {
starts[i] = scanner.nextInt();
ends[i] = scanner.nextInt();
}
for (int i = 0; i < m; i++) {
points[i] = scanner.nextInt();
}
int[] cnt = naivecount(starts, ends, points);
for (int x : cnt) {
System.out.print(x + " ");
}
}
}
```

Output:



Asymptotic Analysis:

Naive online bet:-

```
Naive count (start, end, points):
    count[] = 0;
for i from 1 to n:
    for j from 1 to n:
        if (start[j] <= point[i] &&
                point[i] <= end[j])
            count[i]++;
return count;
```

$T(n) = (n+1)(n+1) + 1+1+1$ (count++ → return)

$=$ (Two for loops; Initialize)

$= n^2+2n+1+1+1+1$

$= n^2+2n+4$

$T(n) = O(n^2)$