Z Algorithm

Given two strings, one is a text string and the other is a pattern string. The task is to print the indexes of all the occurrences of the pattern string in the text string. For printing, Starting Index of a string should be taken as 1.

Example 1:

```
Input:
S = "batmanandrobinarebat", pat = "bat"
Output: 1 18
Explanation: The string "bat" occurs twice
in S, one starts are index 1 and the other
at index 18.
```

Example 2:

```
Input:
S = "abesdu", pat = "edu"
Output: -1
Explanation: There's not substring "edu"
present in S.
```

Your Task:

You don't need to read input or print anything. Your task is to complete the function **search()** which takes the string S and the string pat as inputs and returns an array denoting the start indices (**1-based**) of substring pat in the string S.

Note: You don't need to return -1 yourself when there are no possible answers, just return an empty list.

Expected Time Complexity: $O(|S|)$.
Expected Auxiliary Space: $O(|S|)$.

Constraints:
$1 \leq |S| \leq 10^5$
$1 \leq |pat| \leq |S|$