

## Problem 2: KMP algo/LPS(pi) array

```
def compute_lps(pattern):
```

```
    length = len(pattern)
```

```
    lps = [0] * length
```

```
    j = 0
```

```
    for i in range(1, length):
```

```
        while j > 0 and pattern[i] != pattern[j]:
```

```
            j = lps[j-1]
```

```
        if pattern[i] == pattern[j]:
```

```
            j += 1
```

```
            lps[i] = j
```

```
    return lps
```

```
def kmp_search(text, pattern):
```

```
    n = len(text)
```

```
    m = len(pattern)
```

```
    lps = compute_lps(pattern)
```

```
    i = j = 0
```

```
    indices = []
```

```
    while i < n:
```

```
        if pattern[j] == text[i]:
```

```
            i += 1
```

```
            j += 1
```

```
        if j == m:
```

```
            indices.append(i - j)
```

```
            j = lps[j-1]
```

```
        else:
```

```
            if j != 0:
```

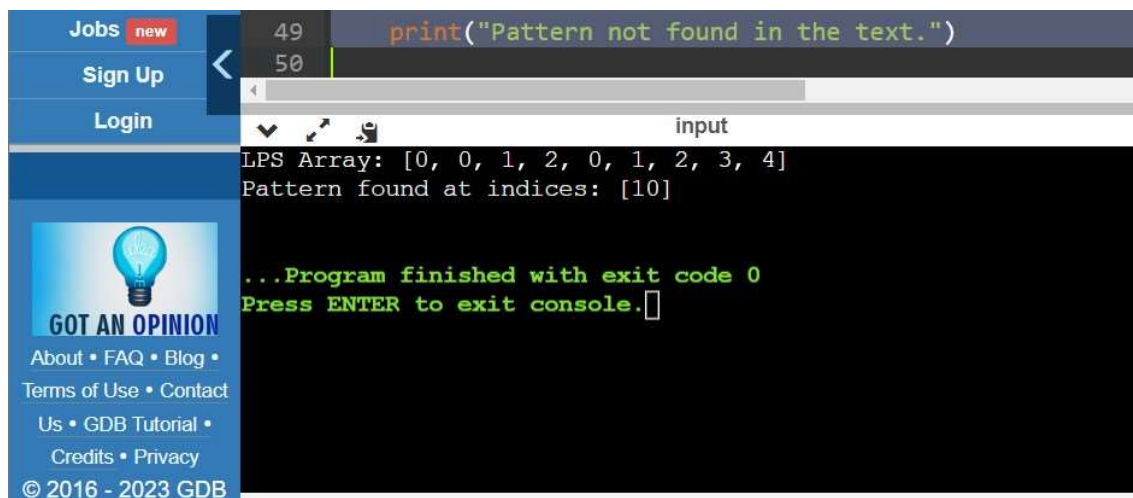
```

        j = lps[j-1]
    else:
        i += 1

return indices

text = "ABABDABACDABABCABAB"
pattern = "ABABCABAB"
lps_array = compute_lps(pattern)
print("LPS Array:", lps_array)
matches = kmp_search(text, pattern)
if matches:
    print("Pattern found at indices:", matches)
else:
    print("Pattern not found in the text.")

```



The screenshot shows a web application interface. On the left, there is a sidebar with navigation links: "Jobs new", "Sign Up", "Login", and a section titled "GOT AN OPINION" with links for "About", "FAQ", "Blog", "Terms of Use", "Contact Us", "GDB Tutorial", "Credits", and "Privacy". The main area displays a code editor with a dark background. The code in the editor is:
 

```

49 print("Pattern not found in the text.")
50

```

 Below the code editor, there is a terminal window showing the output of the program:
 

```

input
LPS Array: [0, 0, 1, 2, 0, 1, 2, 3, 4]
Pattern found at indices: [10]

...Program finished with exit code 0
Press ENTER to exit console.
    
```