

```
1  #include <stdio.h>
2  #include <string.h>
3  int main() {
4      char string[50];
5      int i, len, flag = 1;
6      printf("The Grammar is:\n");
7      printf("S → aS | Sb | ab\n\n");
8      printf("Enter the string to be checked: ");
9      scanf("%s", string);
10     len = strlen(string);
11     if (string[0] != 'a' || string[len - 1] != 'b') {
12         printf("✗ The string does not belong to the specified grammar.\n"
13             );
14         return 0;
15     }
```

```
15     int seen_b = 0;
16     for (i = 0; i < len; i++) {
17         if (string[i] == 'a') {
18             if (seen_b) { // if 'a' comes after 'b'
19                 flag = 0;
20                 break;
21             }
22         } else if (string[i] == 'b') {
23             seen_b = 1;
24         } else {
25             flag = 0; // invalid character
26             break;
27         }
28     }
29     if (flag)
30         printf("✅ String accepted!\n");
31     else
32         printf("❌ The string does not belong to the specified grammar.\n");
33     return 0;
34 }
```

The Grammar is:

$S \rightarrow aS \mid Sb \mid ab$

Enter the string to be checked: aab

✓ String accepted!

=== Code Execution Successful ===