1.1 FINDING THE FIRST PALINDROMIC STRING IN AN ARRAY

Question:

Given an array of strings words, return the first palindromic string in the array. If there is no such string, return an empty string " ". A string is palindromic if it reads the same forward and backward.

AIM

To design a Python program that finds and returns the first palindromic string from a list of words.

ALGORITHM

1. Start with the given list of words.
2. Traverse each word in the list sequentially.
3. For each word, check if it is equal to its reverse.

    - If yes, return that word immediately.

4. If no palindrome is found after traversing the entire list, return an empty string " ".

PROGRAM

```
def first_palindromic(words):
    for word in words:
        if word == word[::-1]:
            return word
    return ""

words = input("Enter words separated by space: ").split()
print("First palindromic string:", first_palindromic(words))
```

Input:

An array of strings.
["abc", "car", "racecar", "cool"]

Output:

```
Enter words separated by space: abc car racecar cool
First palindromic string: racecar
>>>
```

RESULT:

Thus the program is successfully executed and the output is verified.

PERFORMANCE ANALYSIS:

- Time Complexity:
  - Checking each word takes O(n) where n is the length of the word.
  - For m words, worst case = O(m * n).
- Space Complexity:
  - Uses only a few variables, so O(1) (constant extra space).