Python - Basics & Beyond -Session 6

Packages, OOPs, Time-Space Coordination and Some Programs

NullStack Technologies Pvt. Ltd.

EXERCISE

Tower of Hanoi Problem

Using Recursion

PACKAGES/ MODULES

A Python may contain several classes, functions, variables, etc. whereas a Python package can contains several module. In simpler terms a package is folder that contains various modules as files.

```
stcet
|
|
---__init__.py
|
|
---module_1.py
|
|
  ---module_2.py
```

Object Oriented Programming in Python

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The Gems

- Searching
- Sorting
- Recursion
- Greedy, Divide and Rule, etc. Algorithms
- Graph Theory
- Flood Fill
- Playing with Strings
- Game Theory
- Dynamic Programming
- BitWise Programming

Trade-of between Time and Space & the Big O Notation

Like Astronomy or Physics, Programming is also a trade off between Time and Space.

- The time taken to complete the computation
- The Space being the Memory it utilizes during the computation
- An optimum program takes care of both

Examples of: O(n) and O(n^2)

Program - 1

Narendra works at a clothing store. He has a large pile of socks that he must pair them by color for sale.

You will be given an array of integers representing the color of each sock. Determine how many pairs of socks with matching colors there are.

Two socks i and j are a single pair if they have the same color.

INPUT FORMAT

The first line contains an integer n, the number of socks.

The second line contains n space-separated integers describing the colors c of the socks in the pile.

CONSTRAINTS

$1 \leq n \leq 100$

$1 \leq ar[i] \leq 100$ where $0 \leq i < n$

SAMPLE INPUT

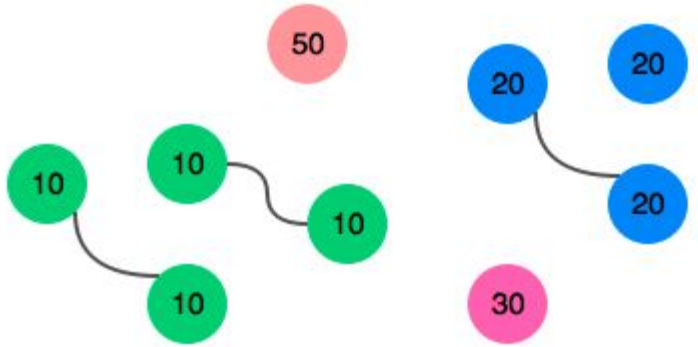
9

10 20 20 10 10 30 50 10 20

SAMPLE OUTPUT

3

Explanation



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Resonate Ideas, Overreach Limits


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