[HACKATHON] : Problem Set 1

Hackathon 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

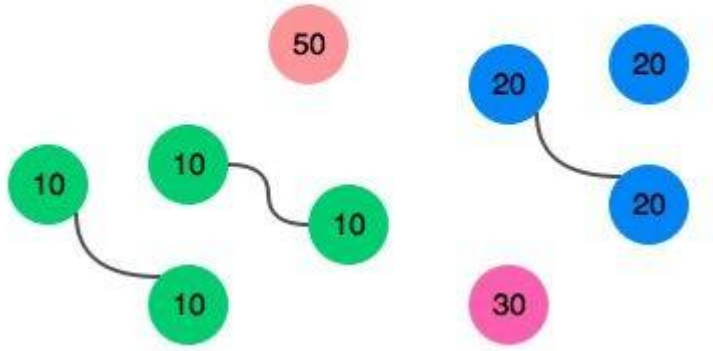
9

10 20 20 10 10 30 50 10 20

SAMPLE OUTPUT

3

Explanation



Solution

Python

```
n=9
socks_list = [10, 20, 20, 10, 10, 30, 50, 10, 20]


def sock_merchant_1(n, socks_list):
    """
        Using SET
        socks_list > {10, 20, 30, 50}
    """
    # convert the list into set
    socks_set = set(socks_list)
    pair_count = 0

    # loop over individual socks and compute
    # their respective counts in the provided list
    # and add to pair count
    for sock in socks_set:
        pair_count += socks_list.count(sock) // 2

    return pair_count
```

Hackathon Program - 2

NullStack University has the following grading policy:

- ***Every student receives a grade in the inclusive range from 0 to 100.***
- ***Any grade less than 40 is a failing grade.***

Sam is a professor at the university and likes to round each student's according to these rules:

- ***If the difference between the grade and the next multiple of 5 is less than 3, round up to the next multiple of 5.***
- ***If the value of is less than 38, no rounding occurs as the result will still be a failing grade.***

Constraints

- $1 \leq n \leq 60$
- $0 \leq grades[i] \leq 100$

ID	Original Grade	Final Grade
1	73	75
2	67	67
3	38	40
4	33	33

Sample Input

4 73 67 38 33

Sample Output

75 67 40 33

Solution:

Python

```
n = int(input().strip())
for a0 in range(n):
    grade = int(input().strip())

    if grade >= 38:
        # Here, we are only ever calculating 'grade mod 5' once:
        mod5 = grade % 5

        if mod5 >= 3:
            grade = grade + (5 - mod5)

    print(grade)
```

[HACKATHON] : Problem Set 2

Hackathon Program – 1

Given a string **S ,** **Check it is palindrom or not .**

Solution:

In C language

```
#include<stdio.h>
#include<string.h>
void reverse(char[],int);
int main()
{
	char string[100];
	int x;
	puts("Enter a string:");
	gets(string);
	x=strlen(string);
	reverse(string,x);
}
void reverse(char str[],int n)
{
	int i,k=0,comp;
	char rev[100];
	for(i=(n-1);i>=0;i--)
	{
		rev[k]=str[i];
		k++;
	}
	rev[k]='\0';
	printf("The reverse of the string is :");
	puts(rev);
	comp=strcmp(str,rev);
	if(comp==0)
	{
		printf("The entered string is palindrome.");
	}
	else
	{
		printf("The entered string is not palindrome.");
	}
}
```

Hackathon Program – 2

```
#include<stdio.h>
int main()
{
        int arr[10],i,value,*p;
        printf("Enter the size of an array: ");
   scanf("%d",&value);
        printf("Enter elements into array:\n");
        for(i=0;i<=value-1;i++)
        {
                scanf("%d",&arr[i]);
        }
        p=&arr[value-1];
        printf("The reverse of the array is:\n");
        for(i=value-1;i>=0;i--)
        {
                printf("\n\t%d",*p);
                p--;
        }
        return 0;
}
```