Lab 3C

Problem 1: The Attendance Crisis

You, a student of IIIT Hyderabad, have consistently achieved perfect scores in your exams. However, your attendance record has been less than stellar. The college's attendance policy dictates penalties for low attendance, and now you need to determine how your attendance will affect your final grade.

Attendance Policy:

- **Required minimum attendance:** 85%
- **Penalties for falling short of minimum attendance:**
  - 75% to 85% attendance: Your grade is reduced by one level . The lowest grade you can achieve is D.(e.g., A becomes B, B becomes C)
  - 65% to 75% attendance: Your grade is reduced by two levels . The lowest grade you can achieve is D.(e.g., B becomes D, C becomes D)
  - 0% to 65% attendance: Your grade is changed to 'F', regardless of your exam scores.

Input:

- The first line contains a number, `N` the number of days. and `G` the grade of the student before applying the penalty.
- The second lines contains `n` integers, where `1` indicates presence and `0` indicates absence.

Output:

- The final grade, which is a single character: `A`, `B`, `C`, `D`, or `F`, after applying the attendance penalties.

Constraints:

- $1 \leq N \leq 100$.
- `G: A`, `B`, `C`, `D`, or `F`

Example 1:

Input:

```
5 A
1 0 1 1 1
```

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Output:

```
B
```

In this example, the student's attendance is calculated to be 80%, which falls into the lowest penalty range, changing their grade to 'B'.

Example 2:

Input:

```
20 A
1 0 1 0 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1
```

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Output:

```
A
```

Good luck!

Problem 2: Alternating Sum Sequence

You are given an integer N and an array arr of size N containing integers. Your task is to compute the result of applying alternate addition and subtraction operations on the elements of the array in the following pattern:

- Start with the first element of the array.
- Subtract the second element.
- Add the third element.
- Continue this pattern for all elements of the array.

Formally, the result can be expressed as:
Result = arr[0] − arr[1] + arr[2] − arr[3] + . . . + (−1)^i * arr[i] for i in [0,N-1]

Input Format:

Consists of 2 lines

- The first line containing 1 integer `N`, the number of entries.
- The second line consists array arr of `N` space seperated inetgers.

Constraints:

- `N` ≤ 100
- `arr[i]` ≤ 1e6

Output Format:

A single integer representing the result of the alternate addition and subtraction operations on the elements of the array.

Example:

```
Input:
5
5 3 2 7 4
Output:
1
Explanation:  5 - 3 + 2 - 7 + 4
```

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```
Input:
4
50 101 70 90
Output:
-71
Explanation: 50 - 101 + 70 - 90
```

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Problem 3: Dance with Modulo

Aaditya has 2 numbers N and a prime number P. He just learnt about the modulo operation and wants to use it. His good friend Jawa told him that N on being multiplied with a constant

factor can generate all numbers from 1 to P when taken modulo wrt P.

Input Format:

A single line containing 2 integers, N and P, the number N and the prime P.

Output Format:

A single line containing N space seperated integers(0 to P-1) in the order of obtaining them. You need to generate all of them.

Constraints:

- `1 <= N <= 10^8`
- `1 <= P <= 10^8`
- `N < P`

Example:

Input:

```
3 5
```
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Output:

```
3 1 4 2 0
```

Explanation:

Let's break down the examples:

- 3*1 = 3 ; 3%5 = 3
- 3*2 = 6 ; 6%5 = 1
- 3*3 = 9 ; 9%5 = 4
- 3*4 = 12 ; 12%5 = 2
- 3*5 = 15 ; 15%5 = 0

Submission Guidelines

- Do not rename any files given in the handout. Only write the code in the specified C

files in the respective directories.