🔥 Coding Challenges

Challenge 1: Student Info Formatter (Variables + Blocks)

Problem:
Create a program that stores a student's name, age, and grade in **variables**. Then use a function (block of code) to print the student's details in a formatted sentence.

Hints:

- Use variables to store data.
- Define a function (`def`) for printing.
- Use **string concatenation** or **f-strings**.

Expected Outcome Example:

```
Student Name: Alice, Age: 14, Grade: A
```

Challenge 2: Shopping Cart Calculator (Operators + Variables)

Problem:
Build a simple shopping cart program where you store prices of 3 items in variables. Use **arithmetic operators** (`+`, `*`) to calculate the total cost and apply a 10% discount if the total is greater than 100.

Hints:

- Use `if` block for discount.
- Use `*` operator for multiplication.
- Use `/` and – for discount.

Expected Outcome Example:

```
Cart Total: 120
Discount Applied: 12
Final Total: 108
```

Challenge 3: Odd/Even Checker (Blocks + Operators)

Problem:
Write a program that takes a number and checks whether it is odd or even using the `%` operator. Wrap the check inside a function.

Hints:

- `%` operator gives remainder.
- Use `if/else` block.
- Use variables to hold input/output.

Expected Outcome Example:

```
Number 15 is Odd
Number 20 is Even
```

Challenge 4: Temperature Converter (Variables + Operators + Functions)

Problem:
Create a program with a function that converts temperature:

- Celsius → Fahrenheit
- Fahrenheit → Celsius

Formula:

- F = C * 9/5 + 32
- C = (F - 32) * 5/9

Hints:

- Store input temperature in variables.
- Use operators for calculation.
- Write two functions: `c_to_f()` and `f_to_c()`.

Expected Outcome Example:

```
25°C = 77.0°F
100°F = 37.77°C
```

Challenge 5: Calculator (Operators + Blocks)

Problem:
Create a calculator program with functions for addition, subtraction, multiplication, and division. Call each function with test inputs.

Hints:

- Define functions `add()`, `sub()`, `mul()`, `div()`.
- Use operators inside functions.
- Test with at least two numbers.

Expected Outcome Example:

```
Add: 15
Subtract: 5
Multiply: 50
Divide: 2.0
```

Challenge 6: Bank Account Simulation (Variables + Operators + Blocks)

Problem:
Simulate a simple bank account:

- Balance starts at 1000.
- Create functions: `deposit(amount)` and `withdraw(amount)`.
- Update balance using operators.
- Prevent withdrawal if amount > balance (use `if` block).

Hints:

- Use a **global variable** or pass balance as a function parameter.
- Use arithmetic operators + and −.
- Use conditional block `if balance >= amount:`.

Expected Outcome Example:

```
Deposit 200 → Balance: 1200
Withdraw 500 → Balance: 700
Withdraw 1000 → Insufficient funds! Balance: 700
```

7)Given 2 numbers N,M. Print 'yes' if their product is a perfect square else print 'no'.
Sample Testcase :
INPUT
5 5
OUTPUT
yes

8)Given 2 numbers N and M add both the numbers and check whether the sum is odd or even.
Sample Testcase :
INPUT
9 2
OUTPUT
odd

10)Find the minimum among 10 numbers.
Sample Testcase :
INPUT
5 4 3 2 1 7 6 10 8 9
OUTPUT
1

11)Given a number N followed by N numbers.Find the smallest number and largest number and print both the indices(1 based indexing).
Input Size : N <= 100000
Sample Testcase :
INPUT
5
1 2 3 4 5
OUTPUT
1 5

12)Given 2 numbers N,M find the GCD of N and M.If it cannot be found for given number(s) then print -1

Sample Testcase :
INPUT
10 5
OUTPUT
5

13)Write a program to print the sum of the first K natural numbers.
Input Size : n <= 100000
Sample Testcase :
INPUT
3
OUTPUT
6

14)Given 3 numbers N , L and R. Print 'yes' if N is between L and R else print 'no'.
Sample Testcase :
INPUT
3
2 6
OUTPUT
yes

15) You are given a number ‘n’. You have to tell whether a number is great or not. A great number is a number whose sum of digits let (m) and product of digits let(j) when summed together gives the number back
m+j=n

Input Description:
You are given a number n;
Output Description:
Print Great if a number is great else print the no
Sample Input :
59
Sample Output :
Great

16) You are given an array of digits. Your task is to print the digit with maximum frequency.

Input Description:

You are given length of array 'n',next line contains n space separated numbers.

Output Description:

Print the number with maximum frequency. If two number have equal frequency print the number that comes first

Sample Input :

```
7
1 2 3 4 4 4 5
```

Sample Output :

```
4
```

17) In a garage the service man takes 10 minutes to service one car.If there are N cars in garage and X is number of minutes after which one person arrives,Calculate how much time last person has to wait in garage.(Print answer in minutes)

Input Description:

You are given Two numbers 'N' and 'X'

Output Description:

Waiting time of last person

Sample Input :

```
4 5
```

Sample Output :

```
15
```

18) Dityan is alloted with a task. He is provided with some positive numbers. He has to tell the smallest positive natural number(greater than the minimum number present in the list) and in addition to it,the number should not be present in the list and it should not be equal to the sum of any combination of 'n' numbers present in the list.You have to develop a suitable program in order to find that number 'm'.

Input Description:

First line contains a number 'n' . next line contains 'n' space separated numbers.

Output Description:

print the smallest positive number ‘m’.

Sample Input :

```
5
1 2 10 12 13
```

Sample Output :

```
4
```

19) you are given with ‘arasu’ series(shown in example).You have to understand it and you will be given a number ‘n’ ,you have to print the series till n numbers.

Input Description:

You are given a number n;

Output Description:

Print series till nth number

Sample Input :

```
4
```

Sample Output :

```
2 5 10 17
```

22) you are given with array of numbers.you have to find whether array is beautiful or not. A beautiful array is an array whose sum of all numbers is divisible by 2, 3 and 5

Input Description:

You are given a number ‘n’ denoting the size of array.Next line contains n space separated numbers.

Output Description:

Print 1 if array is beautiful and 0 if it is not

Sample Input :

```
5
5 25 35 -5 30
```

Sample Output :

```
1
```

20) You are given with an array of numbers, Your task is to print the difference of indices of largest and smallest number.All number are unique.

Input Description:

First line contains a number ‘n’. Then next line contains n space separated numbers.

Output Description:

Print the difference of indices of largest and smallest array

Sample Input :

```
5
1 6 4 0 3
```

Sample Output :

```
-2
```

21) Prateek finds it difficult to judge the minimum element in the list of elements given to him. Your task is to develop the algorithm in order to find the minimum element.

Input Description:

You are given ‘n’ number of elements. Next line contains n space separated numbers.

Output Description:

Print the minimum element

Sample Input :

```
5
3 4 9 1 6
```

Sample Output :

```
1
```