Eman Fathi

1) Combine names & ages into array of objects

Input:
Names: ["Sara", "Ali", "Mona"]
Ages: [20, 22, 19]
Output:
[{name:"Sara", age:20}, {name:"Ali", age:22}, {name:"Mona", age:19}]

2) Count frequency of items

Input: ["a", "b", "a", "c", "b", "a"]
Output: { a: 3, b: 2, c: 1 }

3) Group grades into A/B/C/D/F

Input: [95, 82, 60, 45, 77, 88]
Output:

{
A: [95]
B: [82, 88]
C: [77]
D: [60]
F: [45]

}

4) Convert student names to PascalCase

create a function takes a string as input and return string pascal case, then use it with map
Input:
[{name:"ahmed", grade:90}, {name:"mona", grade:80}]
Output:
[{name:"Ahmed", grade:90}, {name:"Mona", grade:80}]

5) Sort students by grade (descending)

Input:
[{name:"Ali", grade:70}, {name:"Sara", grade:95}]
Output:
[{name:"Sara", grade:95}, {name:"Ali", grade:70}]

6) Find student with highest grade

Input:
[{name:"Ali", grade:70}, {name:"Sara", grade:95}]

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Output:
{name:"Sara", grade:95}

7) Filter students who passed (grade ≥ 60)
Input:
[{name:"Ali", grade:55}, {name:"Sara", grade:95}, {name:"Mona", grade:62}]
Output:
[{name:"Sara", grade:95}, {name:"Mona", grade:62}]

8) Convert array of objects → array of strings
Input:
[{name:"Ali", grade:70}, {name:"Sara", grade:95}]
Output:
["Ali 70", "Sara 95"]

9) Count students with names ≥ 4 letters
Input:
[{name:"Ali"}, {name:"Mona"}, {name:"Zyad"}]
Output: 2

10) factory function

Create a **Factory Function** named `createBook` that represents a book in a digital library system.

The function must accept:

- `title` (string)
- `author` (string)
- `year` (number)
- `price` (number)

returb Object contains

1- method returns book details
2- a method `isClassic()` that returns:
    - `true` if the book is more than 20 years old
    - `false` otherwise
3- a method `ApplyDicount(percent)` that increases the book price.

Now create many books then

Print the **details** of each book.

Print whether each book is a **classic**.

Apply a **discount of 10%** to all books older than 10 years.

Print the **updated details** of all books after discount.