Programs | Class Room Assignment-7

**Q1. Hospital Management System (Array of Objects)**  
Create a program to manage a hospital using **Object-Oriented Programming** concepts.

**Requirements:**

1. Create at least **three modules**:
   * **Patient**
   * **Doctor**
   * **Medicine**
2. Each module should be represented as a **class** with attributes and methods. Example:
   * **Patient**: id, name, age, disease
   * **Doctor**: id, name, specialization
   * **Medicine**: id, name, price
3. Use an **array of objects** for storing multiple Patients, Doctors, and Medicines.
4. Implement methods to:
   * Add new entries
   * Display all entries
   * Search by ID or Name
5. Write a **main class** (HospitalManagement) that provides a menu-driven program to interact with all modules.

**Q2. Marksheet Generator (Console Application)**  
Create a console application that generates a colored marksheet.

**Inputs:**

1. Ask for **5 theory subjects**:
   * Subject names
   * “Out of” marks (enter once for all theory subjects; fixed at **100**)
   * Marks obtained in each theory subject
2. Ask for **2 practical subjects**:
   * Practical names
   * “Out of” marks (enter once for all practicals; fixed at **25**)
   * Marks obtained in each practical subject

**Validation:**

* If the user enters marks **< 0** or **> out-of** (i.e., >100 for theory, >25 for practical), re-prompt **only for that subject** until valid.

**Processing & Rules:**

* Count how many theory subjects have **marks < 33**.
  + If the count is **≥ 3**, remark = **Year Back**
  + Else if the count is **> 0 and < 3**, remark = **ATKT**
  + Else remark = **Pass**
* Compute totals, percentage, and **overall grade** based on percentage:
  + A+ (≥90), A (80–89), B+ (70–79), B (60–69), C (50–59), D (40–33), F (<33)

**Output (Console):**

* Print a marksheet with:
  + Proper headings and sectioning
  + A table for theory and practical marks (Name, Out Of, Obtained)
  + Totals, percentage, grade, remark
  + **Background and foreground colors** to give an “official marksheet” feel (use terminal colors)