# Problem 1 – Employee Role Checker

Create the following:  
**1. A base class Employee that contains:**  
 - Name (string)  
 - Salary (double)  
 - A constructor to initialize both properties.  
**2. Three child classes: Manager, Admin, and Staff, each inheriting from Employee.**  
**3. A method CheckEmployeeRole(Employee emp) that:**  
 - Checks if emp is a Manager, Admin, or Staff.  
 - Prints a message like:  
 • Manager: Approve Budget & Conduct Meetings  
 • Admin: Manage Users & Handle Permissions  
 • Staff: Perform Daily Tasks  
 - If emp is none of the above, print Unknown Role.  
**4. In Main:**  
 - Create an array of Employee objects containing one Manager, one Admin, and one Staff.  
 - Loop through the array and call CheckEmployeeRole() for each object.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Problem 2 – Local Function Calculator

Create a program that:  
**1. Stores an array of integers { 5, 10, 15, 20 }.**  
**2. Inside Main, create a local function Calculate() that:**  
 - Contains another nested local function GetSum() to return the sum of the numbers.  
 - Calculates and prints the sum and the average.

# Problem 3 – List Operations

Create a program that:  
1. Creates a List<string> containing: Ali, Sara, Mona, Abdullah, Mohamed.  
2. Adds Laila, Omar and Ali to the list.  
3. Removes Mona from the list.  
4. Prints all student names.  
5. Prints only names starting with letter 'A'.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Problem 4 – Dictionary Lookup

Create a program that:  
1. Creates a Dictionary<string, string> to store country codes and names.  
 **Example:** EG -> Egypt, US -> United States, UK -> United Kingdom.  
2. Asks the user to enter a country code.  
3. If the code exists, print the country name.  
4. Otherwise, print Code Not Found.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Problem 5 – Passing by Value with Reference Type

Create a program that:  
1. Creates an int[] arr = { 1, 2, 3 }.  
2. Prints the array before calling a method ModifyArray().  
3. Inside ModifyArray():  
 - Change the first element to 100.  
 - Reassign arr to a new array { 9, 9, 9 }.  
4. Prints the array after calling ModifyArray().  
Observe which changes affect the original array and which do not.