CPP-A13: Static and Non-Static Members

Problem 1: Counting Objects

Problem Statement:

Create a class `Counter` that keeps track of the number of objects created. Use a **static variable** to maintain the count of objects and a **non-static variable** to store a unique ID for each object. Implement a function to display the object count and object ID.

Input:

```
Counter obj1;
Counter obj2;
Counter obj3;
obj1.display();
obj2.display();
obj3.display();
```

Output:

```
Object ID: 1, Total Objects: 3
Object ID: 2, Total Objects: 3
Object ID: 3, Total Objects: 3
```

Problem 2: Bank Account Balance

Problem Statement:

Create a class `BankAccount` with a **non-static variable** `balance` to store an individual's account balance. Use a **static variable** `interestRate` to apply the same interest rate to all accounts. Implement functions to deposit money, display balance, and update interest rate for all accounts.

Input:

```
BankAccount acc1(1000);
BankAccount acc2(2000);
acc1.deposit(500);
acc2.deposit(1000);
BankAccount::setInterestRate(5.0);
acc1.showBalance();
acc2.showBalance();
```

Output:

```
Account Balance: 1500, Interest Rate: 5.0%
Account Balance: 3000, Interest Rate: 5.0%
```

Problem 3: Student Grade Tracker

Problem Statement:

Create a class `Student` with a **non-static variable** `marks` to store individual marks and a **static variable** `passingMarks` to store the minimum marks required to pass. Implement functions to check if a student has passed and update the passing criteria.

Input:

```
Student s1(85);
Student s2(40);
Student::setPassingMarks(50);
s1.checkPass();
s2.checkPass();
```

Output:

```
Marks: 85, Status: Passed
Marks: 40, Status: Failed
```

Happy Coding!