



STATIC

Task 1

Follow the video. Can you get the program to update a single copy of the variable `passMark` which is available to all `Student` objects?

Task 2

Answer the following questions.

1. Analyse the following code. Which variable is shared by all `Student` objects and how do you know?

Java

```
class Student {  
    String name;  
    int grade;  
    static int passMark = 50;  
}
```

2. Analyse the following code. What will be printed? Explain why both lines produce this result.

Java

```
Student s1 = new Student("Aiko", 70);
Student s2 = new Student("Ren", 45);

Student.setPassMark(60);

System.out.println(s1.getPassMark());
System.out.println(s2.getPassMark());
```

3. Predict! Will this code compile? If so, what will be displayed?

Java

```
Student s1 = new Student("Aiko", 70);
s1.setPassMark(40);
System.out.println(Student.getPassMark());
```

4. Run the above code in your IDE. Was your prediction correct?

5. The following code exists in the Student class:

Java

```
class Student {
    static int passMark = 50;

    public static void changePassMark(int newMark) {
        passMark = newMark;
    }
}
```

In a Main class, only the following code exists:

Java

```
public static void main(String[] args){  
    Student.changePassMark(65);  
    System.out.println(Student.passMark);  
}
```

Will this code compile successfully, given that we are not constructing an instance of a Student object? Why or why not?

6. The Student class exists as follows:

Java

```
class Student {  
    int grade;  
    static int passMark = 50;  
  
    public Student(int grade){  
        this.grade = grade;  
    }  
    static void changePassMark(int newMark) {  
        passMark = newMark;  
    }  
  
    boolean hasPassed(){  
        return grade>=passMark;  
    }  
}
```

In a Main class, the following code exists:

Java

```
Student s1 = new Student("Aiko", 55);  
Student s2 = new Student("Ren", 55);  
  
Student.passMark = 40;  
s2.passMark = 60;  
  
System.out.println(s1.hasPassed());
```

What will the output of the program be? Explain your reasoning.

7. The video introduced the concept of **breakpoints**. These are super useful as they allow programmers to pause the execution of a program at specific points and inspect what the program is doing internally. Instead of guessing why a program does not work as intended, developers can watch variables change, follow the order of method calls and confirm whether conditions evaluate as expected.
- In the video, the presenter was unable to trace the value of passMark by using breakpoints. Can you figure out how to do it? If possible, create a short screencast demonstrating your technique.