AP Computer Science A
Ticket Out the Door
Set 19: Adding Functionality with Methods

Name ____ Period _____

Skill 19.01 Exercise 1

Refer to the class below.

```
public class Student{
     private String name;
     private int gradeLevel;
     private double GPA;
     private boolean hasScholarship;

     public Student(){

     }
     public void setName(String n){
          name = n;
     }
     public String getName(){
          return name;
     }
}
```

Complete the stack and heap diagram for the following calls, then indicate the output that would be printed.

```
Student student1 = new Student();
String someName = “Bob”;
Student1.setName(someName);
Student student2 = new Student();
Student2.setName(“Marvin”);
Student1 = student2;
System.out.println(student1.getName());
System.out.println(student2.getName());
```

Stack	**Heap**	**Output**

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Skill 19.2 Exercise 1

The following method was added to the Student class above,

```
public int getGradYear(){

     int gradYear = 0;
     int year = YearMonth.now().getYear();
     int month = YearMonth.now().getMonthValue();
          if(month>=6){
               gradYear = 12 - gradeLevel + year + 1;
          }else{
               gradYear = 12 - gradeLevel + year;
          }
     return gradYear;
}
```

Student usernames are based on the students first initial followed by their graduation year. For example, a student name “Bart” is in grade 10. So, his username is b2023. Write the getUsername method below which returns the username of a student.

Skill 19.3 Exercise 1

Refer to the Student class above. Write the method getHasScholarship, which returns true if a student has a GPA over 3.5 and false otherwise.

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Skill 19.4 Exercise 1

Consider the following class declarations

```
public class SumNums{
     private int num1;
     private int num2;

     public SumNums(int a, int b){
         int sum = a + b;
     }
     public int getSum(){
          return sum;
     }
     public int reverseNum(int num){
        int reversed = 0;

        while(num != 0) {
            int digit = num % 10;
            reversed = reversed * 10 + digit;
            num /= 10;
        }
     }
     public int anotherMethod(int num){
          return reversed*Math.pow(reversed, num);
     }

}
```

The code above has errors. Fix the code so it works as intended. .

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Skill 19.5 Exercise 1

Consider the following partial class declaration

```
public class SomeClass{
     private int myA;
     public int myB;
     public int myC;

     public someClass(){}

     public void someMethod(){}

     private int getMyA(){
         return myA;
     }
}
```

The following declaration appears in another class. For each line of code, indicate whether or not it will compile without error. If it does not compile indicate why.

```
SomeClass obj = new SomeClass();
```

obj.myA = 5;	

int x = 10;
obj.myB = x;	

int x = obj.myA;	
int x = obj.myB;	
double x = obj.myC;	
System.out.println(obj.myA));	
System.out.println(obj.someMethod())	
System.out.println(obj.getMyA());	