AP Computer Science A

UNIT 2 TOPIC 7
Lab 2: String Engineering!

Do Now!

1. Warm Up in Google Classroom

What will the code in the runner class below output when executed?

```java
public class Main {
    public static void main(String[] args) {
        Weird odd = new Weird();
        String phrase = odd.randomPhrase("bat");
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```java
public class Weird {

    // no instance variables

    public Weird() { }

    public String randomPhrase(String str) {
        if (str.length() > 5) {
            return str + " is happy";
        }

        String firstLetter = str.substring(0, 1);
        if (firstLetter.equals("c")) {
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Program done executing

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Are these logically equivalent? (i.e. do they work the same way?)

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Yes! Both result in "it's october!" being returned if the first letter is not c

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UNIT 2 Using Objects

College Board Standards

Unit 2 Topic 7

ENDURING UNDERSTANDING

VAR-1

To find specific solutions to generalizable problems, programmers include variables in their code so that the same algorithm runs using different input values.

LEARNING OBJECTIVE

VAR-1.E

For `String` class:

a. Create `String` objects.

b. Call `String` methods.

ESSENTIAL KNOWLEDGE

VAR-1.E.6

Application program interfaces (APIs) and libraries simplify complex programming tasks.

VAR-1.E.7

Documentation for APIs and libraries are essential to understanding the attributes and behaviors of an object of a class.

VAR-1.E.8

Classes in the APIs and libraries are grouped into packages.

VAR-1.E.9

The `String` class is part of the `java.lang` package. Classes in the `java.lang` package are available by default.

VAR-1.E.10

A `String` object has index values from 0 to `length` − 1. Attempting to access indices outside this range will result in an `IndexOutOfBoundsException`.

VAR-1.E.11

A `String` object can be concatenated with an object reference, which implicitly calls the referenced object's `toString` method.

LEARNING OBJECTIVE

VAR-1.E

For `String` class:

a. Create `String` objects.

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ESSENTIAL KNOWLEDGE

VAR-1.E.12

The following `String` methods and constructors—including what they do and when they are used—are part of the Java Quick Reference:

- `String(String str)` — Constructs a new `String` object that represents the same sequence of characters as `str`
- `int length()` — Returns the number of characters in a `String` object
- `String substring(int from, int to)` — Returns the substring beginning at index `from` and ending at index `to - 1`
- `String substring(int from)` — Returns `substring(from, length())`
- `int indexOf(String str)` — Returns the index of the first occurrence of `str`; returns –1 if not found
- `boolean equals(String other)` — Returns `true` if `this` is equal to `other`; returns `false` otherwise
- `int compareTo(String other)` — Returns a value < 0 if `this` is less than `other`; returns zero if `this` is equal to `other`; returns a value > 0 if `this` is greater than `other`

VAR-1.E.13

A string identical to the single element substring at position `index` can be created by calling `substring(index, index + 1)`.

VAR-1.E.2

`String` objects are immutable, meaning that `String` methods do not change the `String` object.

Agenda

- U2T7 Lab 2: String Engineering!