2026

AP® Computer Science A

Free-Response Questions

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COMPUTER SCIENCE A
SECTION II
TIME – 1 HOUR AND 30 MINUTES

Directions:

Section II has 4 free-response questions and lasts 1 hour and 30 minutes.

All program segments must be written in Java.

Java Quick Reference information for programming questions can be used throughout the exam. A digital version is available in this application.

Assume that the classes listed in the Java Quick Reference have been imported where appropriate.

Unless otherwise noted in the question, assume that parameters in method calls are not `null` and that methods are called only when their preconditions are satisfied.

In writing solutions for each question, you may use any of the accessible methods listed in classes defined in that question. Writing significant amounts of code that can be replaced by a call to one of these methods will not receive full credit.

You may use the available paper for scratch work, but credit will only be given for responses entered in this application. Text you enter as an annotation will **not** be included as part of your answer.

You can go back and forth between questions in this section until time expires. The clock will turn red when 5 minutes remain—**the proctor will not give you any time updates or warnings.**

Note: This exam was originally administered digitally. It is presented here in a format optimized for teacher and student use in the classroom.

During the AP Exam administration, students have access to reference information. To see the reference information for this course, please visit AP Central: https://apcentral.collegeboard.org/exam-administration-ordering-scores/administering-exams/subject-specific/reference-information

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1. This question involves the `Account` class, which is used to represent user accounts for a website. The `Account` class contains a helper method, `isAvailable`, which determines whether a username is available. You will write a constructor and a method in the `Account` class.

```
public class Account
{
   private String username; // To be initialized in part (a)

   /**
    *  Creates a username based on the parameter requestedName. If the
    *  username is unavailable, appends successive integers, beginning
    *  with 1, to requestedName until an available username is found,
    *  as described in part (a).
    */
   public Account(String requestedName)
   { /* to be implemented in part (a) */ }

   /**
    *  Returns true if the parameter str is an available username;
    *  returns false otherwise.
    */
   public static boolean isAvailable(String str)
   { /* implementation not shown */ }

   /**
    *  Returns a shortened version of username with each hyphen ("-")
    *  and the character before it removed, as described in part (b)
    *  Preconditions: username does not start or end with a hyphen.
    *                 username does not contain consecutive hyphens.
    *                 username.length() >= 2
    *  Postcondition: username is unchanged.
    */
   public String getShortenedName()
   { /* to be implemented in part (b) */ }

   /* There may be instance variables, constructors, and methods
      that are not shown. */
}
```

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The following information applies to part A.

In part A, you will write the `Account` constructor, which creates a username based on the parameter `requestedName`.

A helper method, `isAvailable`, has been provided to determine whether a username is available. The `isAvailable` method returns `true` if its parameter is an available username and returns `false` otherwise.

If `requestedName` is an available username, the `Account` constructor will assign `requestedName` to the instance variable `username`. If not, the constructor will try different variations of `requestedName` until an available username is found and assigned to the instance variable `username`. The variations consist of `requestedName` followed by an integer, as in the following example.

- If `requestedName` is `"Luis-Cruz"` and this username is not available, then the constructor will check the availability of `"Luis-Cruz1"`, `"Luis-Cruz2"`, `"Luis-Cruz3"`, and so on, until an available username is found. The first available username found is assigned to `username`.
- If `requestedName` is `"PSmith"` and this username is available, then `"PSmith"` is assigned to `username`.

The following information applies to part B.

In part B, you will write the `getShortenedName` method, which returns a shortened version of the instance variable `username` with each hyphen (`"-"`) and the character immediately before it removed. If no hyphens appear in `username`, the value of `username` is returned.

For example, if `username` is `"Amy-Marie-Lin"`, `getShortenedName` should return `"AmMariLin"`.

As another example, if `username` is `"SammyB3"`, `getShortenedName` should return `"SammyB3"`.

Part A

Complete the `Account` constructor. You must use `isAvailable` appropriately in order to receive full credit.

```
/**
 *  Creates a username based on the parameter requestedName. If the
 *  username is unavailable, appends successive integers, beginning
 *  with 1, to requestedName until an available username is found,
 *  as described in part (a).
 */
public Account(String requestedName)
```

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Part B

Complete method `getShortenedName`.

```
/**
 *  Returns a shortened version of username with each hyphen ("-")
 *  and the character before it removed, as described in part (b)
 *  Preconditions: username does not start or end with a hyphen.
 *                 username does not contain consecutive hyphens.
 *                 username.length() >= 2
 *  Postcondition: username is unchanged.
 */
public String getShortenedName()
```

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