CollegeBoard AP

AP DAILY VIDEOS

AP Computer Science A

AP Daily is a series of on-demand, short videos—created by expert AP teachers and faculty—that can be used for in-person, online, and blended/hybrid instruction. These videos cover every topic and skill outlined in the AP Course and Exam Description and are available in AP Classroom for students to watch anytime, anywhere.

Unit 1

Video Title	Topic	Video Focus	Instructor
1.1: Daily Video 1	Why Programming? Why Java?	Students will call System class methods to generate output to the screen and will determine output based on a series of `System.out.print` and `System.out.println` statements.	Rob Schultz
1.1: Daily Video 2	Why Programming? Why Java?	Students will create string literals by placing a sequence of characters within double quotes.	Rob Schultz
1.1: Daily Video 3	Why Programming? Why Java?	Students will identify syntax and logic errors in program code containing `System.out.print` and `System.out.println` statements.	Rob Schultz
1.2: Daily Video 1	Variables and Data Types	The way data is represented in a program determines the operations we can perform with it. How we intend to use the data helps us decide how to represent information.	Jamila Mitchell
1.2: Daily Video 2	Variables and Data Types	An introduction to variables and why we use them; how to declare and initialize variables. Variables allow us to represent various types of information for reuse and adaptability.	Jamila Mitchell
1.3: Daily Video 1	Expressions and Assignment Statements	The way variables and operators are combined in an expression determines the result. Students will learn to use the basic arithmetic operators to build numeric expressions.	Rob Schultz
1.3: Daily Video 2	Expressions and Assignment Statements	Students will build on their knowledge of the basic arithmetic operators to build and evaluate compound expressions.	Rob Schultz
1.3: Daily Video 3	Expressions and Assignment Statements	Students will use the assignment operator to initialize or change the value stored in a variable.	Rob Schultz
1.4: Daily Video 1	Compound Assignment Operators	Java provides the ability to combine the five basic arithmetic operators with the assignment operator; the result is the compound assignment operators.	Rob Schultz
1.4: Daily Video 2	Compound Assignment Operators	Students will learn to use the increment and decrement operators to simplify the addition and subtraction of 1 from the stored value of a variable.	Rob Schultz
1.4: Daily Video 3	Compound Assignment Operators	Explaining the purpose and behavior of a segment of code can be a difficult task requiring practice. Students will learn to describe the behavior of an identified code segment.	Rob Schultz
1.5: Daily Video 1	Casting and Ranges of Variables	Sometimes there is a need for a value to temporarily behave as a different data type. Casting helps to achieve the desired output without having to change the structure of our information.	Jamila Mitchell
1.5: Daily Video 2	Casting and Ranges of Variables	The `int` data type is limited in the values it can hold. If an expression results in an int value outside of the allowed range, there could be errors in outcome.	Jamila Mitchell

Unit 2

Video Title	Topic	Video Focus	Instructor
2.1: Daily Video 1	Objects—Instances of Classes	In this video, we will explore the relationship between classes and objects. We will see how we can use classes to define attributes and behaviors to create blueprints for objects.	Jamila Mitchell
2.1: Daily Video 2	Objects—Instances of Classes	In this video, we will create objects with defined attributes and explore how we can use these objects in a program. We will determine the behavior of code that uses objects.	Jamila Mitchell
2.2: Daily Video 1	Creating and Storing Objects (Instantiation)	In this video, we will use constructors to initialize an object's attributes and identify which constructor is used when an object is instantiated.	Jamila Mitchell
2.2: Daily Video 2	Creating and Storing Objects (Instantiation)	In this video, we will create objects and call constructors to establish an object's state. We will use constructors without parameters and with parameters to create objects.	Jamila Mitchell
2.2: Daily Video 3	Creating and Storing Objects (Instantiation)	In this video, we will explore how reference data can hold an object reference or null if there is no object. We will use objects to complete program code to achieve an expected outcome.	Jamila Mitchell
2.3: Daily Video 1	Calling a Void Method	In this video, we will explore how object behavior is represented with methods. We will create and use non-static void methods without parameters to achieve an expected outcome.	Jamila Mitchell
2.3: Daily Video 2	Calling a Void Method	In this video, we will create and use non-static void methods without parameters using the dot operator and evaluate how using null references to call methods will create errors.	Jamila Mitchell
2.4: Daily Video 1	Calling a Void Method with Parameters	In this video, we will create and call non-static void methods with parameters. We will also overload methods to perform similar tasks and explore the benefits of overloading.	Jamila Mitchell
2.4: Daily Video 2	Calling a Void Method with Parameters	In this video, we will create objects with non-static void methods with parameters to represent desired behaviors. We will use these objects to achieve an expected outcome.	Jamila Mitchell
2.5: Daily Video 1	Calling a Non-void Method	In this video, we will create and use non-static methods with and without parameters to return values. We will identify the type of data expected and use the result in expressions.	Jamila Mitchell
2.5: Daily Video 2	Calling a Non-void Method	In this video, we will create objects that use non-static methods that return values to represent behaviors. We will use return values in expressions to produce expected outcomes.	Jamila Mitchell
2.6: Daily Video 1	String Objects—Concatenation, Literals, and More	This video features the three ways to create `String` objects for the `String` class, including use of literals and use of the keyword `new`.	Jill Westerlund

Video Title	Topic	Video Focus	Instructor
2.6: Daily Video 2	String Objects—Concatenation, Literals, and More	This video focuses on `String` class concatenation, including the creation of new `String` objects using operators and primitive values.	Jill Westerlund
2.6: Daily Video 3	String Objects—Concatenation, Literals, and More	This video provides examples of and rationale for the use of escape sequences used in the CSA course.	Jill Westerlund
2.7: Daily Video 1	String Methods	The CSA Java Quick Reference is introduced in this video, including its location on AP Central, with a focus and overview of `String` class methods and examples of the `indexOf` method.	Jill Westerlund
2.7: Daily Video 2	String Methods	This video demonstrates an unplugged activity featuring the Java Quick Reference `String` methods that return `String` types being used to create new `String` objects.	Jill Westerlund
2.7: Daily Video 3	String Methods	The Java Quick Reference `String` methods that return `int` and `boolean` types are demonstrated in this video, including `length`, `equals`, and `compareTo`.	Jill Westerlund
2.8: Daily Video 1	Wrapper Classes—Integer and Double	This video features an introduction to wrapper classes, with an emphasis on the constructors and methods of the `Integer` class as provided in the Java Quick Reference.	Jill Westerlund
2.8: Daily Video 2	Wrapper Classes—Integer and Double	This video features an introduction to the `Double` wrapper class which is used to create objects and call methods as provided in the Java Quick Reference.	Jill Westerlund
2.8: Daily Video 3	Wrapper Classes—Integer and Double	Autoboxing and unboxing conversion between a primitive type and the corresponding wrapper class, including an `int` to an `Integer` and a `double` to a `Double`, is explained in this video.	Jill Westerlund
2.9: Daily Video 1	Using the `Math` Class	This video provides an introduction and overview of the `Math` class methods provided in the Java Quick Reference with emphasis on calling static methods.	Jill Westerlund
2.9: Daily Video 2	Using the `Math` Class	This video highlights the evaluation of expressions that use the `Math` class and demonstrates program statements using `Math` class methods from the Java Quick Reference.	Jill Westerlund
2.9: Daily Video 3	Using the `Math` Class	This video explains and demonstrates the use of `Math.random` to produce random values in a defined range and how to cast these `double` values as an `int` to satisfy a post-condition.	Jill Westerlund

Unit 3

Video Title	Topic	Video Focus	Instructor
3.1: Daily Video 1	Boolean Expressions	This video focuses on comparing primitive and reference values using `Boolean` expressions with relational operators.	Jill Westerlund
3.1: Daily Video 2	Boolean Expressions	This video demonstrates `Boolean` expressions that use relational operators shown with examples in program code and from assessment items.	Jill Westerlund
3.2: Daily Video 1	if Statements and Control Flow	This video features the use of conditional statements to branch logical processes, as well as the effect of one-way selection on control flow.	Jill Westerlund
3.2: Daily Video 2	if Statements and Control Flow	This video uses the CSA Magpie Lab to demonstrate the use of conditional statements to branch logical processes, as well as the effect of one-way selection on control.	Jill Westerlund
3.3: Daily Video 1	if-else Statements	This video features the use of conditional statements to branch logical processes with two-way selection when there are two sets of statements—a true and a false.	Jill Westerlund
3.3: Daily Video 2	if-else Statements	This video demonstrates the use of conditional statements with two-way selection in the CSA Magpie Lab.	Jill Westerlund
3.4: Daily Video 1	else if Statements	The use of if-else-if conditional statements to branch logical process with multi-way selection is featured in this video.	Jill Westerlund
3.4: Daily Video 2	else if Statements	This video demonstrates the use of if-else-if conditional statements to branch logical processes with multi-way selection in the CSA Magpie Lab.	Jill Westerlund
3.5: Daily Video 1	Compound Boolean Expressions	This video introduces nested if statements, which allow for the representation of branching logical processes.	Timothy (Tim) Gallagher
3.5: Daily Video 2	Compound Boolean Expressions	This video focuses on logical operators and how to combine multiple logical expressions that can be evaluated to a single `Boolean` value.	Timothy (Tim) Gallagher
3.5: Daily Video 3	Compound Boolean Expressions	This video focuses on short-circuited evaluation and how the result of a logical expression can sometimes be determined by evaluating only the first half of the expression.	Timothy (Tim) Gallagher
3.6: Daily Video 1	Equivalent Boolean Expressions	This video introduces De Morgan's Laws and how they can be applied to `Boolean` expressions.	Timothy (Tim) Gallagher
3.6: Daily Video 2	Equivalent Boolean Expressions	This video demonstrates how truth tables can be used to prove `Boolean` identities and evaluate equivalent Boolean expressions.	Timothy (Tim) Gallagher
3.7: Daily Video 1	Comparing Objects	In this video, we will compare object references to identify aliases and null objects.	Timothy (Tim) Gallagher
3.7: Daily Video 2	Comparing Objects	This video demonstrates how to use the equals method to determine whether two objects are equivalent.	Timothy (Tim) Gallagher

Unit 4

Video Title	Topic	Video Focus	Instructor
4.1: Daily Video 1	`while` Loops	This video introduces `while` loops and how they can be used to represent iterative processes.	Timothy (Tim) Gallagher
4.1: Daily Video 2	`while` Loops	This video will explore infinite loops, loops that never execute, and other iteration errors.	Timothy (Tim) Gallagher
4.1: Daily Video 3	`while` Loops	This video focuses on standard algorithms and code examples that utilize `while` loops.	Timothy (Tim) Gallagher
4.2: Daily Video 1	`for` Loops	This video introduces `for` loops and how they can be used to represent iterative processes.	Timothy (Tim) Gallagher
4.2: Daily Video 2	`for` Loops	This video compares `for` loops to `while` loops and explores “off by one” errors.	Timothy (Tim) Gallagher
4.2: Daily Video 3	`for` Loops	This video explores writing code that contains `for` loops and evaluating code that utilizes iterative statements.	Timothy (Tim) Gallagher
4.3: Daily Video 1	Developing Algorithms Using Strings	This video focuses on developing an algorithm to search for a substring within a `String`.	Timothy (Tim) Gallagher
4.3: Daily Video 2	Developing Algorithms Using Strings	This video focuses on developing an algorithm to determine the number of substrings that meet a specific criterion while traversing a `String`.	Timothy (Tim) Gallagher
4.3: Daily Video 3	Developing Algorithms Using Strings	This video focuses on developing an algorithm to reverse the characters of a given `String` to create a new `String`.	Timothy (Tim) Gallagher
4.4: Daily Video 1	Nested Iteration	In this video, we will look at the relationship between the outer and inner loops in nested iteration and how the loops are executed.	Sandra Czajka
4.4: Daily Video 2	Nested Iteration	In this video, we will look at code that contains nested loops to determine order of execution and output.	Sandra Czajka
4.4: Daily Video 3	Nested Iteration	In this video, we will explore how a change to a line of code with nested iterations can change the result of the code.	Sandra Czajka
4.5: Daily Video 1	Informal Code Analysis	In this video, we will determine statement execution counts for loops with conditional statements in the loop body.	Sandra Czajka
4.5: Daily Video 2	Informal Code Analysis	In this video, we will compare the informal run times of a `while` loop and a `for` loop.	Sandra Czajka
4.5: Daily Video 3	Informal Code Analysis	In this video, we will determine statement execution counts for nested loops.	Sandra Czajka

Unit 5

Video Title	Topic	Video Focus	Instructor
5.1: Daily Video 1	Anatomy of a Class	In this video, we will examine the basic anatomy of a class, including instance variables, constructors, and methods.	Sandra Czajka
5.1: Daily Video 2	Anatomy of a Class	In this video, we will examine how the keywords public and private affect access and visibility inside and outside of the class.	Sandra Czajka
5.1: Daily Video 3	Anatomy of a Class	In this video, we will explore data encapsulation by the designation of instance variables with private visibility.	Sandra Czajka
5.2: Daily Video 1	Constructors	In this video, we will discuss the "has-a" relationship between an object and its instance variables and how a constructor sets the initial state of an object.	Sandra Czajka
5.2: Daily Video 2	Constructors	In this video, we will examine how constructors set the initial state of an object through default values or parameters.	Sandra Czajka
5.2: Daily Video 3	Constructors	In this video, we will analyze specifications for a class to determine the instance variables required and implement the necessary constructors.	Sandra Czajka
5.3: Daily Video 1	Documentation with Comments	In this video, we will look at various ways to create comments in code and why they are important.	Sandra Czajka
5.3: Daily Video 2	Documentation with Comments	In this video, we will explore how to interpret and utilize preconditions and postconditions when writing methods.	Sandra Czajka
5.4: Daily Video 1	Accessor Methods	In this video, we will explore how accessor methods are written so that other objects can obtain the value of instance variables.	Sandra Czajka
5.4: Daily Video 2	Accessor Methods	In this video, we will investigate the consequences of not implementing a toString method for a class and how to override the method to produce a desired outcome.	Sandra Czajka
5.5: Daily Video 1	Mutator Methods	In this video, we will create mutator methods for a class so that instance variables can be updated outside their own class.	Sandra Czajka
5.5: Daily Video 2	Mutator Methods	In this video, we will look at common errors found in the implementation of or calls to mutator methods.	Sandra Czajka
5.6: Daily Video 1	Writing Methods	In this video, we will look at where the private data and methods of a parameter object can be accessed.	Sage Miller
5.6: Daily Video 2	Writing Methods	In this video, we will look at how the behavior of an object is defined through methods, including how parameters are used by those methods.	Sage Miller
5.6: Daily Video 3	Writing Methods	In this video, we will look at how formal primitive and reference parameters affect the actual parameters.	Sage Miller
5.7: Daily Video 1	Static Variables and Methods	In this video, we will look at how and when to implement static methods in a class.	Sage Miller
5.7: Daily Video 2	Static Variables and Methods	In this video, we will look more closely at how and when to implement static variables in a class.	Sage Miller

Video Title	Topic	Video Focus	Instructor
5.8: Daily Video 1	Scope and Access	In this video, we will develop a class together to practice method decomposition, with a focus on the scope and access of the variables used.	Sage Miller
5.8: Daily Video 2	Scope and Access	In this video we will look at some common errors related to scope and access of variables.	Sage Miller
5.9: Daily Video 1	this Keyword	In this video, we will explore the meaning of the keyword "this," how its use can improve the readability of our code, and when its use is required.	Sage Miller
5.10: Daily Video 1	Ethical and Social Implications of Computing Systems	In this video, we will consider the ethical responsibilities of a programmer and how we can demonstrate those responsibilities as early as our first program.	Sage Miller

Unit 6

Video Title	Topic	Video Focus	Instructor
6.1: Daily Video 1	Array Creation and Access	In this video, we will focus on how to declare an array, assign values to it, and access those values without causing an exception.	Sage Miller
6.1: Daily Video 2	Array Creation and Access	In this video, we will look at some multiple-choice questions that involve array instantiation and access.	Sage Miller
6.1: Daily Video 3	Array Creation and Access	In this video, we will complete a practice free-response question involving array creation and access.	Sage Miller
6.2: Daily Video 1	Traversing Arrays	In this video, we will learn how to traverse an array, in part or whole, using both a standard `for` loop and a `while` loop.	Sage Miller
6.2: Daily Video 2	Traversing Arrays	In this video, we will practice multiple-choice questions focusing on determining the output of code segments traversing one-dimensional arrays.	Sage Miller
6.2: Daily Video 3	Traversing Arrays	In this video, we will complete a free-response question involving traversal of a one-dimensional array.	Sage Miller
6.3: Daily Video 1	Enhanced for Loop for Arrays	In this video, we will explore how the enhanced `for` loop is structured.	Cody Henrichsen
6.4: Daily Video 1	Developing Algorithms Using Arrays	In this video, we will demonstrate using the min/max algorithm with an array of primitive values.	Cody Henrichsen
6.4: Daily Video 2	Developing Algorithms Using Arrays	In this video, we will identify the average of a specified data member within an array of Objects.	Cody Henrichsen
6.4: Daily Video 3	Developing Algorithms Using Arrays	In this video, we will demonstrate shifting array values by a specified index.	Cody Henrichsen

Unit 7

Video Title	Topic	Video Focus	Instructor
7.1: Daily Video 1	Introduction to ArrayList	In this video, we will learn about a different type of data structure, similar to an array, that is a collection of object data of the same type.	Kymberly Ayodeji
7.1: Daily Video 2	Introduction to ArrayList	In this video, we will learn why an import statement is needed to use an `ArrayList` and how to instantiate an `ArrayList` with nonprimitive values or objects.	Kymberly Ayodeji
7.2: Daily Video 1	ArrayList Methods	In this video, we will learn how to access and modify the size and elements of an `ArrayList`.	Kymberly Ayodeji
7.2: Daily Video 2	ArrayList Methods	In this video, we will study what happens when we use an `ArrayList` as an argument in a method and when we return an `ArrayList` from a method.	Kymberly Ayodeji
7.2: Daily Video 3	ArrayList Methods	In this video, we will look at a past free-response question involving `ArrayList` objects and their methods.	Kymberly Ayodeji
7.3: Daily Video 1	Traversing ArrayLists	In this video, we will learn how we can access each element of an `ArrayList` using a `for` loop or a `while` loop.	Kymberly Ayodeji
7.3: Daily Video 2	Traversing ArrayLists	In this video, we will learn and practice how to successfully traverse an `ArrayList` using an enhanced `for` loop.	Kymberly Ayodeji
7.3: Daily Video 3	Traversing ArrayLists	In this video, we will practice traversing an `ArrayList` while avoiding common mistakes.	Kymberly Ayodeji
7.4: Daily Video 1	Developing Algorithms Using ArrayLists	In this video, we will revisit common Array algorithms and revise them to be used with `ArrayList` objects.	Kymberly Ayodeji
7.4: Daily Video 2	Developing Algorithms Using ArrayLists	In this video, we will learn how to copy `ArrayList` objects and discuss the difference between copying `ArrayList` references versus `ArrayList` objects.	Kymberly Ayodeji
7.5: Daily Video 1	Searching	In this video, we address the linear search algorithms of arrays and `ArrayLists`	Cody Henrichsen
7.5: Daily Video 2	Searching	In this video, we explore searching arrays and `ArrayLists`.	Cody Henrichsen
7.5: Daily Video 3	Searching	In this video, we answer questions about linear searches.	Cody Henrichsen
7.6: Daily Video 1	Sorting	In this video, we address the implementation of selection sort in arrays and `ArrayLists`.	Cody Henrichsen
7.6: Daily Video 2	Sorting	In this video, we address implementation of the insertion sort in arrays and `ArrayLists`.	Cody Henrichsen
7.6: Daily Video 3	Sorting	In this video, we address the execution count of sorting information.	Cody Henrichsen
7.7: Daily Video 1	Ethical Issues Around Data Collection	In this video, we address the impact of personal data in computer programs.	Cody Henrichsen

Unit 8

Video Title	Topic	Video Focus	Instructor
8.1: Daily Video 1 (Skill 3.E)	2D Arrays	In this video, we will be introduced to 2D arrays, how to declare and initialize them, and how to determine their size.	Kymberly Ayodeji
8.1: Daily Video 2 (Skill 3.E)	2D Arrays	In this video, we will learn about how to access and update elements of a 2D array.	Kymberly Ayodeji
8.1: Daily Video 3 (Skill 3.E)	2D Arrays	In this video, we will look at different problems involving 2D arrays.	Kymberly Ayodeji
8.2: Daily Video 1 (Skill 3.E)	Traversing 2D Arrays	This video demonstrates how nested iteration statements can be used to traverse and access all of the elements in 2D arrays.	Timothy (Tim) Gallagher
8.2: Daily Video 2 (Skill 3.E)	Traversing 2D Arrays	In this video, we will explore how nested iteration statements can be used to traverse 2D arrays in “row-major order” vs. “column-major order.”	Timothy (Tim) Gallagher
8.2: Daily Video 3 (Skill 3.E)	Traversing 2D Arrays	In this video, we will explore algorithms that require the use of 2D array traversals.	Timothy (Tim) Gallagher

Unit 9

Video Title	Topic	Video Focus	Instructor
9.1: Daily Video 1	Creating Superclasses and Subclasses	In this video, we will discuss what inheritance is and how it can be used to group common attributes and behaviors into superclasses and subclasses.	Timothy (Tim) Gallagher
9.1: Daily Video 2	Creating Superclasses and Subclasses	In this video, we will look at how the keyword “extends” is used to establish an inheritance relationship between a subclass and a superclass, as well as what that relationship entails.	Timothy (Tim) Gallagher
9.2: Daily Video 1	Writing Constructors for Subclasses	In this video, we will explore writing constructors for subclasses and how a superclass constructor is invoked.	Timothy (Tim) Gallagher
9.2: Daily Video 2	Writing Constructors for Subclasses	In this video, we will continue writing constructors for subclasses, use the keyword super to call the superclass constructor, and pass parameters to the superclass.	Timothy (Tim) Gallagher
9.3: Daily Video 1	Overriding Methods	In this video, we will demonstrate method overriding, which occurs when a public method in a subclass has the same signature as a method in the superclass.	Timothy (Tim) Gallagher
9.3: Daily Video 2	Overriding Methods	In this video, we will practice overriding methods of a superclass with methods in a subclass and look at how calling those methods is handled.	Timothy (Tim) Gallagher
9.4: Daily Video 1	super Keyword	In this video, we will look at how the keyword “super” can be used to call a superclass’s methods.	Timothy (Tim) Gallagher
9.4: Daily Video 2	super Keyword	In this video, we will practice using the keyword “super” to call overridden methods in a superclass.	Timothy (Tim) Gallagher
9.5: Daily Video 1	Creating References Using Inheritance Hierarchies	In this video, we will discuss the types of object references that can be stored in a particular reference variable based on the type of the reference variable.	Sage Miller
9.5: Daily Video 2	Creating References Using Inheritance Hierarchies	In this video, we will practice using polymorphic variables and method parameters by looking at an example and two multiple-choice questions.	Sage Miller
9.6: Daily Video 1	Polymorphism	In this video, we will examine polymorphic method calls in an inheritance relationship.	Sage Miller
9.6: Daily Video 2	Polymorphism	In this video, we will complete practice multiple-choice questions involving method calls in an inheritance relationship.	Sage Miller
9.6: Daily Video 3	Polymorphism	In this video, we will complete a practice free-response question involving an inheritance relationship.	Sage Miller
9.7: Daily Video 1	Object Superclass	In this video, we will discuss the inherited toString() method from the Object superclass and how to override it with a class-specific implementation.	Sage Miller
9.7: Daily Video 2	Object Superclass	In this video, we will discuss the inherited equals() method from the Object superclass and how to override it with a class-specific implementation.	Sage Miller

Unit 10

Video Title	Topic	Video Focus	Instructor
10.1: Daily Video 1	Recursion	In this video, we will practice tracing recursive methods in an organized manner in order to determine the result of a method call.	Sage Miller
10.1: Daily Video 2	Recursion	In this video, we will continue to practice tracing recursive methods to determine the result of a method call. We will also explore using recursion to traverse a data structure.	Sage Miller
10.2: Daily Video 1	Recursive Searching and Sorting	This video will introduce the logic behind the recursive binary search algorithm.	Rob Schultz
10.2: Daily Video 2	Recursive Searching and Sorting	This video will introduce the recursive logic behind the merge sort algorithm.	Rob Schultz
10.2: Daily Video 3	Recursive Searching and Sorting	This video will describe the “merge” portion of the merge sort algorithm.	Rob Schultz