

2017

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AP Computer Science Principles

Scoring Guidelines

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AP[®] COMPUTER SCIENCE PRINCIPLES 2017 SCORING GUIDELINES

Performance Task: Create — Applications from Ideas

CONTENT AREA & WEIGHTING	PERFORMANCE QUALITY		
	LOW	MEDIUM	HIGH
<p>1: Developing a Program with a Purpose</p> <p>Submission Requirement: 1; 2a</p> <p>LO: 5.1.1; OR 5.1.2; 5.4.1</p> <p>Weighted: 20%</p>	<p>The video demonstrates the running of at least one feature of the program.</p> <p style="text-align: center;">OR</p> <p>The written response or video narration summarizes what the video illustrates, without clearly identifying the program's purpose.</p>	<p>The video demonstrates the running of at least one feature of the program.</p> <p style="text-align: center;">AND</p> <p>The written response or video narration summarizes what the video illustrates, without clearly identifying the program's purpose.</p>	<p>The video demonstrates the running of at least one feature of the program that illustrates the program's intended purpose as described in the written response or the video narration.</p>
<p>2: Developing a Program with a Purpose</p> <p>Submission Requirement: 2b</p> <p>LO: 5.1.1; OR 5.1.2</p> <p>Weighted: 20%</p>	<p>The response identifies the steps in the development of the program in at least one point.</p> <p style="text-align: center;">AND</p> <p>The response must identify at least one point in the development of the program that was completed independently.</p>	<p>The response describes a difficulty and an opportunity encountered (or two difficulties or two opportunities) at two points in the development of the program.</p> <p style="text-align: center;">AND</p> <p>The response must identify at least one point in the development of the program that was completed independently.</p>	<p>The response describes a difficulty and an opportunity encountered (or two difficulties or two opportunities) at two points in the development of the program.</p> <p style="text-align: center;">AND</p> <p>The response describes how each of the difficulties and/or opportunities were resolved and incorporated as part of an incremental and iterative development process.</p> <p style="text-align: center;">AND</p> <p>The response must identify at least one point in the development of the program that was completed independently.</p>
<p>3: Applying Algorithms</p> <p>Submission Requirement: 2c</p> <p>LO: 4.1.1; 4.1.2; 5.2.1; 5.5.1</p> <p>Weighted: 30%</p>	<p>The selected algorithm is a commonly used algorithm and integrates mathematical and/or logical concepts.</p> <p style="text-align: center;">AND</p> <p>The response provides a general description of the algorithm OR a correct line-by-line summary of the algorithm.</p> <p>*If needed, more than one area of the program code can be selected as part of the response to describe the algorithm.</p>	<p>The selected algorithm integrates two or more commonly used or new algorithms and integrates mathematical and/or logical concepts to create a new algorithm.</p> <p style="text-align: center;">AND</p> <p>The response identifies the algorithm's purpose in the program and accurately describes with specificity how the algorithm achieves this purpose.</p> <p>*If needed, more than one area of the program code can be selected as part of the response to describe the algorithm.</p>	<p>The selected algorithm integrates two or more commonly used or new algorithms, and integrates mathematical and/or logical concepts to create a new algorithm.</p> <p style="text-align: center;">AND</p> <p>The response identifies the algorithm's purpose in the program and accurately describes with specificity how the algorithm achieves this purpose.</p> <p style="text-align: center;">AND</p> <p>The response accurately describes how two of the algorithms function independently as well as in combination to create a new algorithm.</p> <p>*If needed, more than one area of the program code can be selected as part of the response to describe the algorithm.</p>
<p>4: Applying Abstraction</p> <p>Submission Requirement: 2d</p> <p>LO: 2.2.1; 5.3.1</p> <p>Weighted: 30%</p>	<p>The selected abstraction includes mathematical and/or logical concepts and serves to manage complexity of the program.</p> <p style="text-align: center;">AND</p> <p>The response indicates that an abstraction was developed and provides a general description or summary of the purpose the abstraction.</p> <p>*If needed, more than one area of the program code can be selected as part of the response to describe the abstraction.</p>	<p>The selected abstraction integrates mathematical and/or logical concepts and serves to manage complexity of the program.</p> <p style="text-align: center;">AND</p> <p>The response indicates that an abstraction was developed and provides an accurate description with specificity of the purpose of the abstraction.</p> <p>*When necessary, the response should include descriptions of a list(s) or procedure(s), and explains any use of parameters and return values in the abstraction.</p> <p>**If needed, more than one area of the program code can be selected as part of the response to describe the abstraction.</p>	<p>The selected abstraction integrates mathematical and/or logical concepts and serves to manage complexity of the program.</p> <p style="text-align: center;">AND</p> <p>The response indicates that an abstraction was developed and provides an accurate description with specificity of the purpose of the abstraction.</p> <p style="text-align: center;">AND</p> <p>The response explains how the abstraction manages complexity of the program due to the inclusion of the abstraction in the program or explains how the program would function without the abstraction.</p> <p>*When necessary, the response should include descriptions of a list(s) or procedure(s), and explains any use of parameters and return values in the abstraction.</p> <p>**If needed, more than one area of the program code can be selected as part of the response to describe the abstraction.</p>

A program that uses a **code segment(s)** written by someone else without citation or reference is considered plagiarized work. The work should be returned to the student to add the necessary citations or references before submitting it to College Board.

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Performance Task: Create — Applications from Ideas

Scoring Notes

Row	Criteria	Low	Medium	High
Developing a Program with a Purpose Submission Requirements: 1, 2a	Criteria	The video demonstrates the running of at least one feature of the program. OR The written response or video narration summarizes what the video illustrates, without clearly identifying the program’s purpose.	The video demonstrates the running of at least one feature of the program. AND The written response or video narration summarizes what the video illustrates, without clearly identifying the program’s purpose.	The video demonstrates the running of at least one feature of the program that illustrates the program’s intended purpose as described in the written response or the video narration.
	General Scoring Notes for All criteria	<ul style="list-style-type: none"> There MUST be a video, and it should demonstrate the continuous running of the program. (A video consisting of a series of individual screen shots is not acceptable and will receive a 0.) Where written responses or video narration are provided (med and high), program purpose must be clearly described to obtain a HIGH. 		
	Scoring Notes	VIDEO DEMOS FEATURE	VIDEO DEMOS FEATURE and NARR WR SUMMARIZES VIDEO (BUT NO PROGRAM PURPOSE)	VIDEO DEMOS FEATURE and NARR WR SUMMARIZES VIDEO CLEARLY IDENTIFIES PURPOSE
Row	Criteria	Low	Medium	High
Developing a Program with a Purpose Submission Requirements: 2b	Criteria	The response identifies the steps in the development of the program in at least one point. AND The response must identify at least one point in the development of the program that was completed independently.	The response describes a difficulty and an opportunity encountered (or two difficulties or two opportunities) at two points in the development of the program. AND The response must identify at least one point in the development of the program that was completed independently.	The response describes a difficulty and an opportunity encountered (or two difficulties or two opportunities) at two points in the development of the program. AND The response describes how each of the difficulties and /or opportunities were resolved and incorporated as part of an incremental and iterative development process. AND The response must identify at least one point in the development of the program that was completed independently.
	General Scoring Notes for ALL Criteria	<p>Note that each scoring criteria states that the response must identify at least one point in the development of the program that was completed independently.</p> <p>To be considered independent work:</p> <ul style="list-style-type: none"> States their portion of work was done independently. Uses at least one “I” statement instead of all “we” statements Resolution may include explicit decision to drop/delete the feature “I fixed it”, “I found it in documentation” without explanation does not receive credit; technical “how” required ZERO unless one independent development step which is required to be any step in the software design process (design, interface, programming, debugging, etc.) 		
	Scoring Notes	1 INDEP DEV STEP	1 INDEP DEV STEP and 2 DECISION POINTS BUT NOT 2 RESOLUTIONS	1 INDEP DEV STEP and 2 DECISION POINTS EACH WITH RESOLUTION

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Scoring Notes

Row		Low	Medium	High
Applying Algorithms Submission Requirement: 2C	Criteria	The selected algorithm is a commonly used algorithm and-integrates mathematical and/or logical concepts. AND The response provides a general description of the algorithm OR a correct line-by-line summary of the algorithm.	The selected algorithm integrates two or more commonly used or new algorithms and integrates mathematical and/or logical concepts to create a new algorithm. AND The response identifies the algorithm’s purpose in the program and accurately describes with specificity how the algorithm achieves this purpose.	The selected algorithm integrates two or more commonly used or new algorithms and integrates mathematical and / or logical concepts to create a new algorithm. AND The response identifies the algorithm’s purpose in the program and accurately describes with specificity how the algorithm achieves this purpose. AND The response accurately describes how two of the algorithms function independently as well as in combination to create a new algorithm.
	General Scoring Notes for ALL rows	<ul style="list-style-type: none"> • ZERO if NONE of the algorithms contains MATH or LOGIC (e.g., only sequences of statements) • If needed, more than one area of the program code can be selected as part of the response to describe the algorithm(s). • The written response is used to aid in understanding the algorithm(s). • For HIGH, note that the instructions ask for the selection of an algorithm that utilizes at least two other algorithms. The selected algorithm must be described with specificity, but the utilized algorithms can be more briefly described. The selected algorithm description must include a description of how the utilized algorithms are integrated. 		
	Scoring Notes	MINIMUM OF 1 ALG and GEN DESCRIPTION [HOW OR WHAT] OF ALG or LINE-BY-LINE SUMMARY	SELECTED ALG INTEGRATES 2+ UTILIZED ALGS and IDENTIFIES PURPOSE OF SELECTED and SPECIFICALLY DESCRIBES HOW SELECTED WORKS	SELECTED ALG INTEGRATES 2+ UTILIZED ALGS and IDENTIFIES PURPOSE OF SELECTED and SPECIFICALLY DESCRIBES HOW SELECTED WORKS and DESCRIBES HOW UTILIZED ALGS WORK INDEP and DESCRIBES HOW UTILIZED ALGS COMBINE TO MAKE SELECTED ALG
Row		Low	Medium	High
Applying Abstraction Submission Requirements: 2d	Criteria	The selected abstraction includes mathematical and/or logical concepts and serves to manage complexity of the program. AND The response indicates that an abstraction was developed and provides a general description or summary of the purpose of the abstraction.	The selected abstraction includes mathematical and/or logical concepts and serves to manage complexity of the program. AND The response indicates that an abstraction was developed and provides an accurate description with specificity of the purpose of the abstraction.	The selected abstraction includes mathematical and/or logical concepts and serves to manage complexity of the program. AND The response indicates that an abstraction was developed and provides an accurate description with specificity of the purpose of the abstraction. AND The response explains how the abstraction manages complexity of the program due to the inclusion of the abstraction in the program or explains how the program would function without the abstraction.
	General Scoring Notes for ALL rows	<ul style="list-style-type: none"> • ZERO if selected abstraction is a variable, existing control structure (ex. loop, if stmt, sequence), or event-handler widget. • If needed, more than one area of the program code can be selected as part of the response to describe the abstraction. • HIGH requires the DESCRIPTION of how the selected abstraction functions and how the abstraction contributes to managing complexity. • When necessary, the response should include descriptions of a list(s) or procedure(s), and explains any use of parameters and return values in the abstraction. • Abstraction needs to be substantially developed by the student. • The 1st criteria refers to the code, and the 2nd (and 3rd) criteria deal with the written response. Readers should look at the response to aid understanding the abstraction. 		
	Scoring Notes	STUDENT-CREATED ABS ID’D and PURPOSE GENERALLY DESCRIBED (e.g., LINE-BY-LINE)	STUDENT-CREATED ABS ID’D and PURPOSE SPECIFICALLY DESCRIBED	STUDENT-CREATED ABS ID’D and PURPOSE SPECIFICALLY DESCRIBED and COMPLEXITY MANAGEMENT DESCRIBED