The College Board

AP® Computer Science Principles

DRAFT Rubrics

March 2014

Instructors:

We suggest that if you wish to share these rubrics with your students, please avoid including the score points, which may unintentionally influence students' work on the components of each task. As you know, these rubrics are still in draft form, and the weight of the components has not been finalized.

A new version of this document will be made available by fall 2014.

AP Computer Science Principles Performance Task Draft Rubric: *INVESTIGATE*

ASPECT	PERFORMANCE QUALITY			SCORE
Collaborative Report	The dataset represents a rich factual source that supports the discovery of useful, expansive information and knowledge for answering all of the investigative questions. Questions and data focus on significant properties and multiple attributes, leading to meaningful discovery of new information or knowledge. Questions are insightful and lead to multiple connections among data, information, and knowledge. Non-textual representations, if present, created by tool(s) communicate insight and knowledge gained through analysis and enhance the answers to the questions posed. The report provides clear insights into how the questions raised and answers generated contribute knowledge and insight to the identified field.	There is reasonable alignment between the data set and the questions. Combined, the questions and data set enable the discovery of useful information and knowledge that helps answer some portion of the investigative questions. Questions and data focus on a limited range of attributes, limiting the scope of meaningful discovery of new information or knowledge. Questions lead to some useful connections among data, information, and knowledge. Minor discrepancies exist between the answers to the questions posed and any accompanying non-textual representations. The report contributes knowledge to the identified field. While going beyond mere description, the report provides little relevant insight.	The data set is too small to support the generation of information and knowledge. The connection between the data set and the accompanying questions provides a weak foundation for answering the investigative questions. Questions and data focus on the properties of a very limited range of attributes, greatly limiting the scope of meaningful discovery of new information or knowledge. Questions are superficial and can be answered using limited data with few, if any, connections among data, information, and knowledge. Non-textual representations, if present, provide minimal insight and knowledge gained from tool use and are misaligned with the textual answers to the questions posed. The report delivers confusing or misleading information and makes weak connections between knowledge gained during the investigation and the identified field.	
	5-4	3-2	1-0	
Individual Report: Use of computational tools and techniques	Use of the selected tools and techniques demonstrates strategic and creative processing of information to produce meaningful artifacts. Computational techniques used to manipulate large data sets enable extensive, meaningful exploration and discovery of connections among data, information and knowledge.	Use of the selected tools and techniques demonstrates able processing of information to produce artifacts. Computational techniques used to manipulate large data sets enable some meaningful exploration and discovery of connections among data, information and knowledge.	Use of the selected tools and techniques demonstrates little processing of information to produce artifacts. The limited size of the data set and/or the techniques used to manipulate the data result in little or no exploration and discovery of connections among data, information and knowledge.	
	5-4	3-2	1-0	

Individual Report: Acquisition of insight and knowledge	The investigation's purposeful use of computing is directly related to the resulting insight and knowledge. The process and tools used promote a depth of understanding. The description is such that it allows for the replication of the investigation and verification of results.	The investigation's use of computers demonstrates the transformation of data into information and knowledge. Additional information is required to fully understand or replicate the investigation, based on the narrow description of the process and tools used.	The investigation's use of computers minimally contributes to the development of insight and knowledge. The analysis of the processes and tools used to manage information lacks focus.	
	5-4	**3-2**	**1-0**	
Individual Reflection	The reflection on collaboration demonstrates a high level of cooperation between partners in coordinating the workload. The partners communicate effectively in sharing what each knows, questioning each other and giving feedback, and reviewing and revising their work.	The reflection on collaboration demonstrates a balance between partners in coordinating the workload. The partners communicate in sharing what they know. However, they skip the important steps of providing each other with feedback and reviewing and revising their work.	The reflection on collaboration indicates that the partner work is primarily independent, each contributing separate portions of an artifact without receiving insights or feedback from each other.	
	5-4	**3-2**	**1-0**	
			Total Score – INVESTIGATE (max = 20)	

AP Computer Science Principles Performance Task Draft Rubric: *EXPLORE*

ASPECT	PERFORMANCE QUALITY			SCORE
Digital Artifact	The artifact provides significant insight into the chosen area of interest and demonstrates a high level of creativity. It was generated using an effective combination of the available features of the chosen computational tool(s). Creation of the artifact is strongly supported by the necessary use of the computational tool(s).	The artifact provides some insight into the chosen areas of interest and demonstrates creativity. It was generated using a combination of the available features of the chosen computational tools. Creation of the artifact is supported by the necessary use of the computational tool(s).	The artifact provides little insight into the chosen area of interest. It was created using limited, mostly unrelated features of the chosen computational tool(s).The artifact can be created manually.	
	5-4	3-2	1-0	
Written Report: Identification of, and analysis of impact on, a given population	The submission precisely identifies a significant population that has been affected. It presents a rich analysis of the computing innovation and describes in detail how it affects the identified population economically, socially, or culturally. High-quality referenced sources provide context to the examined innovation. The analysis demonstrates a strong understanding of the impact of the innovation within a population. Impact includes how the innovation affects communication, interaction, and cognition within a population.	The submission generally identifies a significant population that has been affected. It presents an analysis of the computing innovation and identifies how it affects the identified population economically, socially, or culturally. The referenced sources provide context to the examined innovation. The analysis demonstrates a clear relationship between the innovation and its effects on communication, interaction, or cognition within a population.	The submission minimally or partially identifies an affected population of a small size. It loosely connects the innovation to the identified economic, social, or cultural impact. The sources lack proper references and align with a context other than the one identified (economic, social, or cultural). The analysis demonstrates a weak relationship between the examined innovation and its effects on communication, interaction, or cognition within a population.	
	5-4	3-2	1-0	
Written Report: Explanation of algorithms and abstractions	A clear explanation of at least one algorithm and one use of abstraction associated with the innovation are included.	An explanation of at least one algorithm associated with the innovation is included.	No explanation of any algorithm or use of abstraction associated with the innovation is included.	
	5-4	3-2	1-0	
Written Report: Analysis of beneficial and harmful effects	The analysis offers a clear, well-supported explanation of both beneficial and harmful impacts of the innovation. Security and privacy issues associated with the innovation are effectively analyzed and presented in the report.	The analysis offers a partial explanation of the innovation's beneficial and harmful impacts. Security and privacy issues associated with the innovation have been identified in the report.	The analysis disregards the beneficial and/or harmful impacts of the innovation, including security and privacy issues.	
	5-4	3-2	1-0	
			Total Score – EXPLORE (max = 20)	

AP Computer Science Principles Performance Task Draft Rubric: *CREATE*

ASPECT	PERFORMANCE QUALITY			SCORE
Collaborative Program and Report	A complex program demonstrates strategic, creative use of the selected tools and techniques. The program source code is correct, logical and easily readable. The video makes a clear connection between the area of focus and the program functionality.	An understandable program demonstrates able use of the selected tools and techniques. The program source code is mostly correct, logical and readable. The video makes a moderate connection between the area of focus and the program functionality.	A simple program demonstrates limited use of the selected tools and techniques. The program source code is incomplete and/or incorrect. The video makes a weak connection between the area of focus and the program functionality.	
	The language and programming environment are well-defined. There is evidence of the use of mathematical and logical concepts and appropriate use of abstractions and algorithms.	The language and programming environment are defined, and there is some evidence of the use of mathematical and logical concepts or appropriate use of abstractions and algorithms.	The language and programming environment are defined. However, little or no evidence of the use of mathematical and logical concepts exists, or there is inappropriate use of abstractions and algorithms.	
	The report effectively articulates the purpose of the program and its connection to the area of focus and is well-supported by source code.	The report articulates the purpose of the program and its connection to the area of focus and is supported by source code.	The report exhibits a lack of focus and a confused description of the program's purpose, along with an unclear source code.	
	The report clearly describes the purpose of the chosen algorithm and effectively explains how the algorithm is integrated into the program, as well as how errors were detected and corrected.	The report describes the purpose of the program and identifies the process for detecting errors. The explanation of how the algorithm is integrated into the program, if provided, lacks detail. The report includes no information about how errors were corrected.	The report describes the purpose of the algorithm, but excludes an explanation of how the algorithm is integrated with the program and how errors have been managed.	
	5-4	**3-2**	**1-0**	
Individual Program	A complex program demonstrates strategic, creative use of the selected tools and techniques. The program source code is correct, logical and easily readable .The video makes a clear connection between the area of focus and the program functionality.	An understandable program demonstrates able use of the selected tools and techniques. The program source code is mostly correct, logical and readable. The video makes a moderate connection between the area of focus and the program functionality.	A simple program demonstrates limited use of the selected tools and techniques. The program source code is incomplete and/or incorrect. The video makes a weak connection between the area of focus and the program functionality.	

	The language and programming environment are well-defined. There is evidence of the use of mathematical and logical concepts and appropriate use of abstractions and algorithms.	The language and programming environment are defined, and there is some evidence of the use of mathematical and logical concepts or appropriate use of abstractions and algorithms.	The language and programming environment are identified. However, little or no evidence of the use of mathematical and logical concepts exists, or there is inappropriate use of abstractions and algorithms.	
	5-4	**3-2**	**1-0**	
Individual Report	The report effectively articulates the purpose of the program and its connection to the area of focus and is well-supported by source code. The report clearly describes the purpose of the chosen algorithm and effectively explains how the algorithm is integrated into the program, as well as how errors were detected and corrected.	The report articulates the purpose of the program and its connection to the area of focus and is supported by source code. The report identifies the purpose of the program and explains the process for detecting errors. The explanation of how the algorithm is integrated into the program, if provided, lacks detail. The report includes no information about how errors were corrected.	The report exhibits a lack of focus and a confused description of the program's purpose, along with an unclear source code. The report describes the purpose of the algorithm, but excludes an explanation of how the algorithm is integrated with the program and how errors have been managed.	
	5-4	**3-2**	**1-0**	
Individual Reflection	The reflection on collaboration demonstrates a high level of cooperation between partners in coordinating the workload to create artifacts and to solve a problem. The partners communicate effectively in sharing what each knows, questioning each other and giving feedback, and reviewing and revising their work.	The reflection on collaboration demonstrates a balance between partners in coordinating the workload to create artifacts and to solve a problem. The partners communicate in sharing what they know. However, they skip the important steps of providing each other with feedback and reviewing and revising their work.	The reflection on collaboration indicates that the partner work is primarily independent, each contributing separate portions of an artifact or solving a problem without receiving insights or feedback from each other.	
	5-4	**3-2**	**1-0**	
			Total Score – CREATE (max = 20)	