AP Computer Science Principles
Create Performance Task
Scoring Commentaries on 2021 Rubrics
(Applied to Pilot Student Responses)

Index of Scores for Samples

Sample Reference	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Total
A (Language Translator)	1	1	1	1	1	1	6
B (Typing Game)	1	1	1	1	0	1	5
C (Global Warming)	1	1	0	1	0	1	4
D (Air Hockey)	1	1	0	1	0	1	4
E (Screen Limiter)	1	1	1	0	0	0	3
F (Darts Game)	1	1	0	0	1	0	3
G (RPG Character)	0	1	1	0	0	0	2
H (Water Safety)	1	0	0	0	1	0	2
I (Random Numbers)	0	1	0	1	0	0	2

AP Computer Science Principles
Create Performance Task
Scoring Commentaries on 2021 Rubrics
(Applied to Pilot Student Responses)

Sample A (Language Translator)
6/6 Points

Row 1: 1 pt
The response earned the point for this row, meeting all six criteria:
- The video demonstrates the program receiving user color selection in both French and Spanish as input and producing as output the associated audio response of that color's pronunciation in the selected language. This satisfies the first three criteria for the video.
- The program's purpose is to "address the issue of learning new languages."
- The functionality demonstrated in the video is "where the user inputs what language it wants to hear, either Spanish or French, and then taps on a color, prompting the program to output the audio for that certain color."
- The input and output demonstrated in the video are described as, "In the video, it shows an example of the user clicking on the Spanish checkbox and playing the audio for red and blue."

Row 2: 1 pt
The response earned the point for this row, meeting all three criteria:
- Two distinct code segments are provided: one showing storage of data in a list named `Audio`; and a second one showing the use of `Audio` to process output audio to fulfill the program's purpose.
- The name of the list is identified as `Audio`.
- The response states that the data "represents all the colors a user can pick for the program in English. These are used to create the corresponding Spanish or French audio files based on which language is selected."

Row 3: 1 pt
The response earned the point for this row, meeting both criteria:
- The response includes a program code segment that shows the audio list being used to manage complexity in the program, because the list access and index enable the correct setting of a filename for audio file output.
- The response explains how the list `Audio` manages complexity in the program. It states, "When a button is pressed, it will get the English color word from the index of the color in the list…. The program will then create the audio file name for the Spanish or French audio based on what language the user has check marked by manipulating the text (for example, adding '-spanish' to the end if they selected spanish [sic]) and then adding '.mp3' to the end in order to call the correct audio file." The response also states that the use of lists manages complexity in the project, explaining that "without lists in general, each button will have to call the individual audio file, meaning we would need to have buttons for every color and language combination making the code and user interface more complex."

AP Computer Science Principles
Create Performance Task
Scoring Commentaries on 2021 Rubrics
(Applied to Pilot Student Responses)

Row 4: 1 pt

The response earned the point for this row, meeting both criteria:

- The response includes a student-developed procedure `ButtonClicked` that contains a parameter `index`. The parameter `index` is used in the procedure. Additionally, the response includes an example call to the procedure `ButtonClicked` that passes the argument "3" to the parameter.
- The response describes the purpose of `ButtonClicked` by stating that it selects "the correct audio file based on what language and color the user has selected." The response describes how `ButtonClicked` contributes to the overall functionality of the program by stating it "helps the overall efficiency of the program by having the code located in one location that the program repeatedly calls on."

Row 5: 1 pt

The response earned the point for this row, meeting both criteria:

- The student-developed algorithm within procedure `ButtonClicked` includes sequencing, selection (if...then statement), and iteration (while test...do).
- The response explains how the algorithm works. It states that it "takes the index of the color as a parameter and selects the respective list element, which is a string that contains the certain color. Then depending on the language, the procedure will append a language identifier (for example, '-spanish') and then add '.mp3.'" The response goes on to describe that iteration is used "when the procedure senses that there are no languages or both languages selected, and thus repeats the audio of 'Select a language!' until the user does."

Row 6: 1 pt

The response earned the point for this row, meeting all three criteria:

- The response describes two calls to the procedure: one for Spanish, with the color orange; and one for French, with the color orange.
- The response describes the conditions as being whether the user has selected Spanish or French. "For the language Spanish, we could select one of the colors, for example Orange [sic]," and "For the language French, we could select one of the colors, for example Orange [sic]."
- The response describes the results being tested as the "correct translation for Spanish" and the "correct translation for French."

Sample B (Typing Game)
5/6 Points

Row 1: 1 pt
The response earned the point for this row, meeting all six criteria:
- The video demonstrates the program functionality of the user playing the typing game by inputting phrases and earning points. The output shows whether there is an error on what was entered. This satisfies the first three criteria for the video.
- The response describes the program's purpose as "a computer game that allows people to practice their typing."
- The response describes the video demonstration of functionality as, "Upon pressing start, on the first sentence, I incorrectly input the sentence and press done, which outputs a penalty on the timer and notifies the user. After I correctly type it and press done, the output is that the timer restarts and the score updates."
- The response describes the input and output in the description of the program functionality. The input is "the sentence," and the output is "a penalty on the timer and notifies the user."

Row 2: 1 pt
The response earned the point for this row, meeting all three criteria:
- Two program code segments are provided in the written response, showing the initialization of a named list, `highScoreList`, and the use of `highScoreList` to maintain top-scoring players of the typing game.
- The response identifies the name of the list as `highScoreList`.
- The response describes the data contained in `highScoreList` by stating that the list "represents saved data from previous players of the game."

Row 3: 1 pt
The response earned the point for this row, meeting both criteria:
- The response includes a program code segment where `highScoreList` is used to manage complexity.
- The response explains why `highScoreList` is necessary to manage complexity, because it "allows the high scores to be sorted more easily and then resaved to the file in a new sorted order. The saved data is processed for displaying the high scores and without this list, there would not be a way to insert a new high score into the file since we don't know how many separate variables we would need."

AP Computer Science Principles
Create Performance Task
Scoring Commentaries on 2021 Rubrics
(Applied to Pilot Student Responses)

Row 4: 1 pt

The response earned the point for this row. Because the response contains two code segments, the response must be scored based on only the first code segment—the `hasSpaceInString` procedure. The responsemet both criteria:

- The response provides a program code segment of a student-developed procedure, `hasSpaceInString`, which uses a parameter, `str`. The response provides a code segment showing a call to `hasSpaceInString` within program code related to the saving of a player's name.
- The response describes what `hasSpaceInString` does: it "finds if there is a space in their name using iteration." The response describes how this contributes to the program, saying it is part of "managing the user's input for their score name which includes how long their username is and if there are spaces involved."

Row 5: 0 pts

The response did not earn the point for this row. Because the response contains two code segments, the response must be scored based on only the first code segment—the `hasSpaceInString` procedure. The response met only one of the two criteria:

- The response student-developed algorithm in the `hasSpaceInString` procedure includes sequencing, selection (if statement), and iteration (for loop).
- The response provides a description of the functionality of the second code segment, which has been provided to demonstrate a call to the first code segment (procedure `hasSpaceInString`), rather than a description of the algorithm in the procedure `hasSpaceInString`. The response begins to explain how `hasSpaceInString` works by saying "using iteration"; however, this is not enough detail for the algorithm to be recreated by another programmer.

Row 6: 1 pt

The response earned the point for this row, meeting all three criteria:

- The response describes two calls to the `hasSpaceInString` procedure, each passing different arguments: "Mr Guy" and "Mr.Clean."
- The response describes the conditions being tested as whether the string "has a space in it" and whether the string "doesn't have a space in it."
- The response describes the result of each call as true or false.

Sample C (Global Warming)
4/6 Points

Row 1: 1 pt
The response earned the point for this row, meeting all six criteria:
- The video demonstrates the running of the program, including input (user answering questions), functionality (processing of user input), and output (statement and visual "thumbs-up" or "thumbs-down"). This satisfies the first three criteria for the video.
- The response describes the program's overall purpose as being "to lessen the effects of global warming and to decrease the amount of non recyclable [sic] waste we produce."
- The response describes the functionality as follows: "displays a random list item from 'global questions list'."
- The response describes the input and output as "Once the user reads the question, they answer it using the text box. Depending on the users [sic] input, the program will produce various outputs, which it pulls from 'global solutions list,'" and, "Also, a thumbs down image is displayed, unless the input indicates they are being good with their emissions. In that case, a thumbs up is displayed and 'output label' tells the user they are doing good and to keep it up."

Row 2: 1 pt
The response earned the point for this row, meeting all three criteria:
- The response includes program code segments for initialization of two named lists, `solution_list` and `question_list`, as well as a code segment showing how the data in both lists are processed as a part of fulfilling the program's purpose of questioning the user and evaluating responses.
- The response identifies the list to be considered as `question_list`, so this is the list that was used to determine the score.
- The response describes the data in `question_list` to be "questions that the program displays for the user."

Row 3: 0 pts
The response did not earn the point for this row. The response does not meet either of the two criteria:
- The procedure, `interpret_response`, shows the list `question_list` being used; however, the value of each index in the list that is being stored in `item` is never used, making the list irrelevant. Instead, the list access and processing have been hard-coded based on list index number and do not manage complexity in the program as written, since the code has not been made easier to maintain and changes to the size of the list would require significant modifications to the code.
- The response states, "The use of the `question_list` manages complexity in my program, because the program would be more complicated if I had to type the question into the if statements." However, the code only uses lists to replace the question strings in a hard-coded manner, so the use of the list is irrelevant. Additionally, changes to the size of the list (i.e., the number of questions) would necessitate significant modifications to the code.

Row 4: 1 pt
The response earned the point for this row, meeting both criteria:
- The response includes a student-developed procedure, `interpret_response`, which has a parameter, `number_of_hours`, that affects the functionality of the procedure. The response provides a code segment showing a call to `interpret_response` from the `Find_Response_button.Click` event.
- The response describes what the procedure does: it "processes the 'number of hours' and formulates an output that it will pull from the list 'solution list' based on the question and the number of hours," and it "uses a loop that checks what question is displayed to the user, so it can understand the parameter in the context of what question is being asked."

Row 5: 0 pts
The response did not earn the point for this row. The response met only one of the two criteria:
- The response includes a program code segment of a student-developed algorithm found in the body of the `interpret_response` procedure. This algorithm appears to include sequencing, selection (if, then), and iteration (for each and do); however, the iteration is trivial, as the value of `item` is never used and the outcome is the same whether this code iterates one time or many times.
- The response explains how the algorithm sequence works using "a loop that checks what question is displayed to the user, so it can understand the parameter in the context of what question is being asked. After analyzing the question that is displayed and the 'number of hours', the procedure will pull different strings from a second list, 'solutions list.... Also, an image property is set" based on the number of hours indicated so that the user receives a string and visual output based on processing of the data input.

Row 6: 1 pt
The response earned the point for this row, meeting all three criteria:
- The response describes two calls to the `interpret_response` procedure. The first call asks, "how many hours their AC was on," where the "number of hours" parameter is "6." The second calls asks, "the question ... how long the user had spent driving on that day," where the "number of hours" parameter is "1."
- The response describes the conditions as "[when to] display to the user that they are using their AC too much" or "when they aren't emitting too many fossil fuels [sic]."
- The response states that the result of the first call will "display to the user that they are using their AC too much and offer them alternatives," and that the result of the second call "will display element 4 from 'solutions list' that notifies the user that they are doing a good job and that they aren't emitting too many fossil fuels [sic]."

Sample D (Air Hockey)
4/6 Points

Row 1: 1 pt
The response earned the point for this row, meeting all six criteria:
- The video demonstrates the running of the digital air hockey game, including user input (moving paddles up and down), processing (puck moving based on paddles, score advancing), and output (visible interface of the game and increasing score). This satisfies the first three criteria for the video.
- The response states that the program's purpose "is to provide enjoyable entertainment to solitary players."
- The response describes the program's functionality as shown in the video as, "The input demonstrated is the location of the mouse," and how being on the left or right half of the screen determines which paddle is being controlled.
- The written response describes the input as the "location of the mouse (x coordinate and y coordinate)" and output as the "visible interface of the game."

Row 2: 1 pt
The response earned the point for this row, meeting all three criteria:
- The response includes a program code segment showing how data are stored in the list `scores` based on the location of the puck on the playing interface.
- The response identifies the list as `scores`.
- The response describes the list as follows: "It keeps track of both the score of the left-side player and the score of the right-side player in the first and second indices of the list." Although the list is short, it does fulfill the purpose of the program code segment.

Row 3: 0 pts
The response did not earn the point for this row. The response does not meet either of the two criteria:
- The response includes a program code segment that shows a list, `scores`, being used; however, the list does not manage complexity in the program, as the same result could be accomplished with two variables.
- The response states that, "Without using this list we would have to use variables to hold these and it would be more difficult to increment the score." However, the use of two variables would not make it more difficult to increment the score.

Row 4: 1 pt
The response earned the point for this row, meeting both criteria:
- The response includes a program code segment of a student-developed procedure, `lpy`, which receives the parameter `y`. The response includes a program code segment showing a call to `lpy`.
- The response describes that the procedure's function is to "limit the movement of the left paddle to only when the mouse is on the left side of the screen" by holding "the y intercept of the mouse."

AP Computer Science Principles
Create Performance Task
Scoring Commentaries on 2021 Rubrics
(Applied to Pilot Student Responses)

Row 5: 0 pts
The response did not earn the point for this row. The response met only one of the two criteria:
- The response includes a program code segment of a student-developed algorithm that includes sequencing and selection(if statement); however, it does not include iteration.
- The response explains how the algorithm works in enough detail that someone else could recreate it.

Row 6: 1 pt
The response earned the point for this row, meeting all three of the criteria:
- The response describes two calls to the selected procedure, `lpy`. The first call "is for the mouse's y position to be less than 40" and the second is "if the mouse's y coordinate was 50."
- The response describes the first condition as "when the y position would not meet the requirements for the condition" and the second condition as when "the y position would meet the requirements of the if statement."
- The response states that the result of the first call "would cause the program to skip over the assignment of the y coordinate of the left paddle to the y coordinate of the mouse, so the paddle wouldn't move," and that as the result of the second call, "the y coordinate of the mouse was assigned to the y coordinate of the left paddle, allowing the paddle to move in the indicated direction up or down."

Sample E (Screen Limiter)
3/6 Points

<u>Row 1: 1 pt</u>
The response earned the point for this row, meeting all six of the criteria:
- The video demonstrates the running of the programming, including user input through pressing buttons; functionality of the timer; start, stop, reset, and output through the timer; random minute allotments; and activity suggestions. This satisfies the first three criteria for the video.
- The response states that the program's overall purpose is "to address the issue of screen addiction in society, as users who record their usage are more conscious of their own addiction."
- The response describes functionality of timing screen usage and the activity button for "new alternatives to screen usage can be selected with the activities button."
- The response describes the program input and output as follows: "users are able to input the amount of time they spend on their screen each day," and, "they [users] can click the screen free challenge button to output an amount of time to go screen free. They also have the activity button which outputs different activities to try that don't involve screens."

<u>Row 2: 1 pt</u>
The response earned the point for this row, meeting all three of the criteria:
- The response provides two program code segments. The first one shows storage of data in a list named `activity`. The second program code segment uses `activity` to process output from the activity list based on a random integer and works to fulfill the program's purpose of suggesting an activity alternative to screen use.
- The response identifies the name of the list as `activity`.
- The response identifies and describes what is contained in `activity` as "the data that represents alternatives to screen usage and screen free challenge times."

<u>Row 3: 1 pt</u>
The response earned the point for this row, meeting both of the criteria:
- The response includes a program code segment that shows a list, `activity`, being used to manage complexity in the program.
- The response explains that, "Instead of having several different buttons display alternative activities, the lists allow me to store all the data in one organized location."

<u>Row 4: 0 pts</u>
The response does not earn the point for this row. Because the response contains two code segments, the response must be scored based on the first procedure provided—the `procedurerunclock` procedure. The response met only one of the two criteria:
- The response includes a student-developed procedure, `procedurerunclock`, which uses the parameter `time`. A call to `procedurerunclock` is shown in a second procedure, `proceduredisplayclock`.
- The response does not provide a description for what `procedurerunclock` does. The response focuses on what `proceduredisplayclock` does and how it contributes to the program;

however, `procedurerunclock` is the identified procedure that contains a parameter and should be the focus of the response.

Row 5: 0 pts
The response did not earn the point for this row. Because the response contains two code segments, the response must be scored based on the first procedure provided—the `procedurerunclock` procedure. The response does not meet either of the two criteria:
- The `procedurerunclock` procedure includes a student-developed algorithm that includes sequencing and selection (if...then...else statement); however, it does not include iteration.
- Additionally, the response does not explain how `procedurerunclock` works but rather explains how `proceduredisplayclock` works.

Row 6: 0 pts
The response did not earn the point for this row. The response does not meet any of the three criteria:
- The description includes two test cases that are related not to `procedurerunclock` but to another aspect of the program.

Sample F (Darts Game)
3/6 Points

Row 1: 1 pt
The response earned the point for this row, meeting all six of the criteria:
- The video demonstrates the running of the program, including game play input, such as entering the user's name, selecting a game, and clicking where darts are thrown; functionality of gameplay; and output of the score for each dart thrown, as well as a high score list. This satisfies the first three criteria for the video.
- The response describes the overall purpose of creating a program that "entertains children by giving them multiple different games to play."
- The response describes the functionality demonstrated as, "The video shows the user typing in their username, throwing the dart, getting their score, and then their high score being displayed."
- The response describes the input and output shown in the video as, "One input into the program is the user's name," and, "The user's name is turned into an output when it is displayed in the high scores list."

Row 2: 1 pt
The response earned the point for this row, meeting all three of the criteria:
- The first two code segments presented are used to compute the score. The response includes program code segments showing how data have been stored in the list `Scores`, as well as how another list, `HighScores`, uses and sorts `Scores` to identify the highest-scoring player.
- The name of the list used in the response is `Scores`.
- The response explains that `Scores` is "a list to show our high scores called 'scores,'" as well as "data in the scores list is an integer [sic]."

Row 3: 0 pts
The response did not earn the point for this row. The response does not meet either of the two criteria:
- The code segment demonstrates the use of list `Scores`; however, the use of the list does not manage complexity in the program. If the length of the list grows beyond 5, significant modifications would need to be made for the functionality to be maintained.
- The response states that the list "reduces the amount of lines because it makes it so we don't have to display the scores over and over again each time the game is played." However, it does not explain how the list `Scores` manage complexity by explaining how the program would be written different without using the list. Additionally, the response does not explain precisely how the program would be more complex if a list was not used to maintain high scores. In fact, in the program code given, use of individual variables instead of a list would lead to essentially the same program.

Row 4: 0 pts
The response did not earn the point for this row. The response met only one of the two criteria:
- The response does not include a student-developed procedure that uses at least one parameter. The procedure `backdrop switches` is a built-in event. Additionally, there is no code segment included showing a call to `backdrop switches`.
- The response does describe what the event does: it "throws a dart at the dart board at a random strength/height drop. Then, the algorithm scores the dart bases [sic] on what color the tip of the dart is touching."

Row 5: 1 pt
The response earned the point for this row, meeting both of the criteria:
- The response includes a program code segment of a student-developed algorithm that includes sequencing, selection (if...then), and iteration (forever loop). Because the forever loop is used purposefully to record where the dart is touching, it can be used to satisfy this requirement.
- The response explains in detail how the algorithm works, including that it "throws a dart at the dart board at a random strength/height drop. Then, the algorithm scores the dart bases [sic] on what color the tip of the dart is touching. It does this by first, showing you how many darts you have left. Then, it only lets you throw the dart if there are 3 darts left because it is the first dart. When the mouse is clicked, the dart goes to where the pointer is and then its y value is changed randomly. One is taken away from darts left and then the program runs a loop that assigns the dart different scores based on which color the tip of the dart is touching."

Row 6: 0 pts
The response did not earn the point for this row. The response does not meet any of the three criteria:
- The response does not describe two calls to the `backdrop switches` procedure using different arguments. Instead, the response describes two paths in the program code based on user input during execution of the code rather than two calls to the procedure from another part of the program code that lead to different behaviors.

Sample G (RPG Character)
2/6 Points

Row 1: 0 pts
The response did not earn the point for this row. The response met only four of the six criteria:
- The video demonstrates the running of the program to collect input of answers based on a series of output in the form of displayed role-playing game questions and prompts for character creation. This satisfies the first three criteria for the video.
- The response states that the program's purpose is to address "the issue of making an RPG character" in a way that is "very straightforward with lots of room for customizability in order to allow the easy creation of an RPG character for either a beginner or a seasoned veteran."
- The response does not describe the functionality demonstrated in the video.
- The response does not describe the input and output of the program demonstrated in the video.

Row 2: 1 pt
The response earned the point for this row, meeting all three of the criteria:
- The response provides program code segments showing the list `stats` being initialized and being used in the `StatRoll` procedure.
- The response provides that the list is named `stats`.
- The response describes the data in the list as "the stats of the player's character, those being Strength, Intelligence, Wisdom, Dexterity, Constitution, and Charisma."

Row 3: 1 pt
The response earned the point for this row, meeting both of the criteria:
- The response provides a list, `stats`, which is being used to manage complexity in the program.
- The response explains how `stats` manages complexity in the program "by allowing all of the stats of the character to be in one area, so they can be easily changed when bonuses arise, certain armor or magic alters them, etc. Without this list, each stat would be its own separate variable. Furthermore, this dictionary will make it much easier to export everything to a document, as all the player stats are in one central location, and it'll take much less formatting."

Row 4: 0 pts
The response did not earn the point for this row. The program code segment provided in response 3c is not a student-developed procedure. The response does not meet any of the three criteria. While there is a student-developed procedure with parameter in response 3b, program code or answers provided in one prompt cannot be considered when scoring another prompt.

Row 5: 0 pts

The response did not earn the point for this row. The response does not meet either of the two criteria:

- The response includes a program code segment of a student-developed algorithm that appears to include sequencing, selection (if…elif statement), and iteration (while loop). Even though this algorithm is not included in a procedure with a parameter, it would still be considered. However, because the loop control variable `looper1` is initialized to `1` and will be changed to `2` after the first iteration causing the loop to stop, this loop is trivial and the code segment will function the same regardless.
- The response generally explains the functionality as the "algorithm loops until a proper race is entered, and using if/elif statements, it selects which race was entered. It then uses sequencing to append values to the stats list based on that race." However, the response does not explain how the algorithm works in enough detail to enable someone to recreate it.

Row 6: 0 pts

The response did not earn the point for this row. Since there is not a procedure with parameters identified in written response 3c, this response does not provide two specific test cases to a procedure with different paths and outcomes. The response does not meet any of the three criteria.

AP Computer Science Principles
Create Performance Task
Scoring Commentaries on 2021 Rubrics
(Applied to Pilot Student Responses)

Sample H (Water Safety)
2/6 Points

Row 1: 1 pt
The response earned the point for this row, meeting all six of the criteria:
- The video demonstrates the running of the program, including user input of values and processing of responses, which yield output statements. This satisfies the first three criteria for the video.
- The written response provides the program's purpose is "to help people identify if their water is safe for drinking or for animals."
- The written response describes the program's functionality as identifying "if their water is safe for drinking or for animals."
- The response describes the input as "the user input when prompted with questions" and the output as "the program telling if the water is safe for drinking or for animals to live in."

Row 2: 0 pts
The response did not earn the point for this row. The response met two of the three criteria:
- The response includes program code segments showing how data have been stored in a named list, `values`. Additionally, a program code segment is provided showing how `values` is used to process responses based on user data.
- The response identifies the list as `values`.
- The response does not describe what is being stored in the list `values`.

Row 3: 0 pts
The response did not earn the point for this row. The response does not meet either of the two criteria:
- The response includes a program code segment showing a list, `values`, being used; however, the list does not manage complexity in the program, as it holds only one element, which could be stored in a single variable.
- The response rationale provides that, "Instead of having to write every variable, I can just write the index of the list." However, this does not result in a program that is easier to develop, maintain, or scale based on the use of the list.

Row 4: 0 pts
The response did not earn the point for this row. The response met only one of the two criteria:
- The response includes a program code segment of a student-developed algorithm; however, it does not include a procedure with a parameter.
- The response describes what the program code segment does by saying that it "takes in the user input and adds it to the list," and that it "tests to see if the nitrate levels are in the correct range for the fish or to drink."

Row 5: 1 pt
The response earned the point for this row, meeting both of the criteria:
- The response includes a student-developed algorithm that includes sequencing, selection (the try...except), and iteration (the while loop).
- The response explains how the algorithm works in detail. It states that the "algorithm accomplishes the task of adding user input into a list...if the user enters something other than an integer, it will ask the user to try again.

Row 6: 0 pts
The response did not earn the point for this row. The response does not describe two calls to the selected procedure, as there was not a procedure provided in the response. The response describes user inputs, but these are not shown as parameters to a procedure. The response does not meet any of the criteria.

AP Computer Science Principles
Create Performance Task
Scoring Commentaries on 2021 Rubrics
(Applied to Pilot Student Responses)

Sample I (Random Numbers)
2/6 Points

Row 1: 0 pts
The response did not earn the point for this row. The response met only five out of the six criteria:
- The video demonstrates the programming running, including input (entering an integer), functionality (producing a series of values), and output (displaying the series of values). This satisfies the first three criteria for the video.
- The response states that the program's purpose is to "address the issue of having to create random numbers for various purposes."
- The response describes the functionality shown in the video as, "The video shows the program being used to create random integers based on an integer input."
- The response describes the input shown in the video as "based on an integer input"; however, there is no description in the response of the output demonstrated in the video. Calculating random numbers is not the same as displaying these numbers as output from the program.

Row 2: 1 pt
The response earned the point for this row, meeting all three of the criteria:
- The response includes a program code segment showing how data have been stored in a list, `list`, as well as how that list is generated in the procedure.
- The response identifies the list as `list`.
- The response provides that the "data contained represents random integers."

Row 3: 0 pts
The response did not earn the point for this row. The response does not meet either of the criteria:
- The response includes a program code segment that shows a list being used; however, this list does not manage complexity in the program, as it is irrelevant. The random values could easily be printed as they are generated.
- The response attempts to explain how the list would manage complexity by stating that it "makes generating multiple numbers easier because without lists each number would be printed individually." However, the random values could easily be printed as they are generated, so the list does not manage complexity in the program.

Row 4: 1 pt
The response earned the point for this row, meeting both of the criteria:
- The response includes a program code segment of a student-developed procedure, `genlist`, which takes in a parameter, `n`. It also includes a program code segment showing where `genlist` is called.
- The response describes what `genlist` does and how it contributes to the overall functionality of the program: "This procedure consolidates the generation of random numbers into a simple function. This accomplishes its task by generating numbers and returning a list."

Row 5: 0 pts

The response did not earn the point for this row. The response met only one of the two criteria:

- The response includes a program code segment of a student-developed algorithm that includes sequencing, selection (`if n < 2:`), and iteration (for loop).
- The response describes what the algorithm does; however, it does not explain how the algorithm works so it can be recreated.

Row 6: 0 pts

The response did not earn the point for this row. The response met only two of the three criteria:

- The response describes two calls to the selected procedure, `genlist`, with two different parameters (5 and 10).
- Both of the procedure calls supply valid input; however, since they are both greater than 1, the calls do not evoke different segments of code in the algorithm to execute.
- The response identifies the results of the calls: the "result is a list with a.) 5 random ints b.) 10 random ints."

MEM