**APCSP Activity 1.1.5 Conclusion Questions**

Learning Target: Develop, construct, and analyze a working model/prototype addressing the given problem.

**Scratch Links:**

**1.1.5d**

|  |
| --- |
| [**https://scratch.mit.edu/projects/174457178/**](https://scratch.mit.edu/projects/174457178/) |

**1.1.5e**

|  |
| --- |
| [**https://scratch.mit.edu/projects/174458150/**](https://scratch.mit.edu/projects/174458150/) |

**Conclusion Questions**

Remember that variable roles refer to why a variable is being used. In this activity we have examined four of the eight most common variable roles: fixed value, most recent, accumulator, and aggregator.

1. What do you see as the primary advantage of using a **fixed value** variable?

|  |
| --- |
| A fixed variable would primarily be used for assigning data to a variable that the developer has no intent to change. |

2. Write a pseudocode segment that shows usage of a **most recent** variable that is significantly different than the example given in this activity.

|  |
| --- |
| var x = 0;  setInterval(function() {  if (keyboard.RIGHT) {  x++;  // 1 is the “most recent variable” because x was recently overwritten  }  }, 100); |

3. Explain the **accumulator** role:

a. List two examples of software you have used that you suspect might have used an accumulator.

|  |
| --- |
| An accumulator role is a variable that tallies up values to get a total, so for example, the original super mario bros. used an accumulator which was the score that kept on incrementing depending on what you did in-game. Another program that would utilize an accumulator is a word processor such as word because it keeps track of your word count. |

b. Choose one of your examples from part (a) and explain what you think the accumulator in the program might have been doing and why this function leads you to classify the object as an accumulator.

|  |
| --- |
| In super mario bros. the accumulator in this instance is the score that’s being tracked. For example, if you jump on an enemy you would get 50 points compared to if you smashed a brick you would get 10 points. Every time you’re rewarded points the programming within the game adds the amount of points you’re awarded to the total points that have been stored. |

4. Explain the difference between the **accumulator** role and the **aggregator** role.

|  |
| --- |
| An accumulator keeps track of a total, as opposed to an aggregator which stores any other variable such as a movement variable. For example in super mario bros. the accumulator is the score that’s being tracked and the aggregator is the movement/momentum variables which determines the acceleration and direction in which mario moves. |