

**AP<sup>®</sup> COMPUTER SCIENCE PRINCIPLES  
SCORING COMMENTARY: 2017 STUDENT SAMPLES  
ALIGNED TO THE 2018 SCORING GUIDELINES**

**Explore Performance Task**

**Sample: A**

**Row 1: 1**

**Row 2: 1**

**Row 3: 1**

**Row 4: 1**

**Row 5: 1**

**Row 6: 0**

**Row 7: 1**

**Row 8: 1**

**Using Development Processes and Tools — Row 1**

The response earned the point for this row.

Although the video does not show autonomous cars, the video does serve as an explanation of the beneficial effect of the computing innovation.

**Analyzing Impact of Computing — Row 2**

The response earned the point for this row.

The response states: “The intended purpose of the autonomous car is to provide a safer way to get from one place to another.”

**Analyzing Impact of Computing — Row 3**

The response earned the point for this row.

One benefit is fewer accidents.

**Analyzing Impact of Computing — Row 4**

The response earned the point for this row.

The benefit is fewer accidents.

The harm is the effect it would have on car culture and the ability for people who enjoy driving to be able to do so. The response states “the thrill of independence and freedom being stripped away from driving.”

**Analyzing Impact of Computing — Row 5**

The response earned the point for this row.

The response states that self-driving cars will be beneficial to society because “they would result in less car accidents.” The response goes on to explain how this is a benefit by saying that “driverless cars could eliminate 90% of these (car accident related) deaths and injuries.”

**Analyzing Data and Information — Row 6**

The response did not earn the point for this row.

While the response states that data would be shared to improve the performance of self-driving cars, it does not specify the data.

**Analyzing Data and Information — Row 7**

The response earned the point for this row.

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The response states “With a car that is essentially a computer, a breach in data security or data control could prove devastating for the owners of the car as well as the car itself. If a car doesn’t have tight enough data security, it could result in havoc on the roads and many lives could be at risk as cars don’t only have the ability to harm the people inside of them, but they also have the ability to do great harm to people in their vicinity.”

**Finding and Evaluating Information — Row 8**

The response earned the point for this row.

The response uses "according to" to provide at least 3 in-text citations of attributed sources, and a bibliography for these citations is given.

**Sample: B**

**Row 1: 0**

**Row 2: 1**

**Row 3: 1**

**Row 4: 1**

**Row 5: 0**

**Row 6: 1**

**Row 7: 1**

**Row 8: 1**

**Using Development Processes and Tools — Row 1**

The response did not earn the point for this row.

The computational artifact shows a feature of the EQ Radio is that it can separate the different signals, but it is not clear from the artifact that the EQ Radio uses this information to determine someone’s emotions, which is the function of the device.

**Analyzing Impact of Computing — Row 2**

The response earned the point for this row.

The response states the fact about the innovation intended purpose as “The EQ Radio is a device designed by MIT students to determine what kind of emotion someone is feeling, even if they are attempting to hide it [3].”

**Analyzing Impact of Computing — Row 3**

The response earned the point for this row.

The response identifies an effect as it being helpful to psychologists to diagnose depression or anxiety.

**Analyzing Impact of Computing — Row 4**

The response earned the point for this row.

The written response identifies a beneficial effect (helping psychologists), and harmful effect (make people less social, understand emotions less).

**Analyzing Impact of Computing — Row 5**

The response did not earn the point for this row.

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The written response does not connect one of the effects to society, economy, or culture. It does state that it might “make the people of the future less social,” but this is not an explanation of how this would affect society.

**Analyzing Data and Information — Row 6**

The response earned the point for this row.

The response identifies the data as wireless signals to determine heart rate and breathing patterns. The response describes the data being input into an algorithm that compares this data to other users and transforms that to a display of the resulting emotion.

**Analyzing Data and Information — Row 7**

The response earned the point for this row.

The response gives a data privacy concern that insurance companies can get a hold of the information (via cybercriminals) and increase rates.

**Finding and Evaluating Information — Row 8**

The response earned the point for this row.

At least three in-text attributed citations are provided using parenthetical numbers corresponding to references.

**Sample: C**

**Row 1: 1**

**Row 2: 1**

**Row 3: 1**

**Row 4: 1**

**Row 5: 1**

**Row 6: 1**

**Row 7: 1**

**Row 8: 1**

**Using Development Processes and Tools — Row 1**

The response earned the point for this row.

The computing innovation is the Global Positioning System (GPS). The artifact illustrates the intended purpose of the GPS by including many different examples of its use, such as directions on a map, use by military personnel, and to find things like keys, pets, and kids.

**Analyzing Impact of Computing — Row 2**

The response earned the point for this row.

The response states the fact of the computing innovation “Originally, it was created for military purposes, but it was soon realized that civilians could utilize this device according to the ‘General Information on GPS’.”

**Analyzing Impact of Computing — Row 3**

The response earned the point for this row.

The response identifies an effect as “it can very easily increase the safety of children or even teenagers.”

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**Analyzing Impact of Computing — Row 4**

The response earned the point for this row.

The beneficial effect stated is that it would increase the safety of children.

The harmful effect stated is the overuse of the GPS. This is more fully explained earlier in the response. The response states, "It causes many people to only trust the words of the GPS and to not actually become familiar with the places they are going. If something were to happen while someone was driving and they had to know where they were, many people would have no idea where they were. While many people would be able to use their phone to find out where they are, if for some reason they could not do this, they would be in trouble."

**Analyzing Impact of Computing — Row 5**

The response earned the point for this row.

The response states how the beneficial effect relates to the society: "When looking at the GPS's ability to track children, this becomes a huge benefit to society. It betters the safety for children nowadays. If they get lost, a parent can easily use their iPhone to track their location. Also, if parents see that their child is heading towards somewhere that is potentially dangerous, they can prevent the child from getting in trouble."

**Analyzing Data and Information — Row 6**

The response earned the point for this row.

The response identifies the data being used as "data signals from several satellites that are in orbit around the Earth.... In general, the data it produces is the location." It states that these locations can be used to "figure out other things, like directions, speed, and more," which indicates how data is consumed.

**Analyzing Data and Information — Row 7**

The response earned the point for this row.

The data security concern cited is: "However, there can be some serious security concerns when it comes to using GPS. According to Catherine Rump, the government can track people's locations through their cell phone use."

**Finding and Evaluating Information — Row 8**

The response earned the point for this row.

This response uses the authors' names as in-text citations of at least three attributed sources.

**Sample: D**

**Row 1: 1**

**Row 2: 1**

**Row 3: 1**

**Row 4: 0**

**Row 5: 0**

**Row 6: 0**

**Row 7: 1**

**Row 8: 1**

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**Using Development Processes and Tools — Row 1**

The response earned the point for this row.

The computational artifact identified the computing innovation as Android Auto and illustrates the purpose by explaining the purpose in text over the illustration of the phone interfacing with the car.

**Analyzing Impact of Computing — Row 2**

The response earned the point for this row.

The response indicates that the function of Android Auto is to “be able to translate the features used on someone’s android phone to the car’s in dash head unit.”

**Analyzing Impact of Computing — Row 3**

The response earned the point for this row.

The response states an effect: "Android auto has the ability to cut down on driver distraction"

**Analyzing Impact of Computing — Row 4**

The response did not earn the point for this row.

The response states a beneficial effect: "Android auto has the ability to cut down on driver distraction."

The response does not indicate a harmful effect directly caused by the innovation. The difficulty of using the innovation in some cars is not due to the innovation itself, but instead is due to the car's interface or features.

**Analyzing Impact of Computing — Row 5**

The response did not earn the point for this row.

The written response does not connect one of the effects to society, economy, or culture.

**Analyzing Data and Information — Row 6**

The response did not earn the point for this row.

Data is identified as google maps, your phone book, and streaming apps, however it does not identify the specific data these apps are using.

**Analyzing Data and Information — Row 7**

The response earned the point for this row.

The response states a privacy concern that location tracking can “broadcast where you are at any given time from having your phone in the car.”

**Finding and Evaluating Information — Row 8**

The response earned the point for this row.

At least three in-text attributed citations are provided using parenthetical numbers corresponding to references.

**Sample: E**

**Row 1: 1**

**Row 2: 0**

**Row 3: 1**

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**Row 4: 0**

**Row 5: 0**

**Row 6: 0**

**Row 7: 0**

**Row 8: 0**

**Using Development Processes and Tools — Row 1**

The response earned the point for this row.

The artifact identifies the innovation as near field communication (NFC) and illustrates purpose: coming in contact and transferring data back and forth.

**Analyzing Impact of Computing — Row 2**

The response did not earn the point for this row.

The innovation, near field communication (NFC), is not a computing innovation; rather, it is a standard that allows computing innovations to transfer data between them when they are close together.

**Analyzing Impact of Computing — Row 3**

The response earned the point for this row.

The beneficial effect given is the ability to pay for things with your mobile device at faster (transmission) rates. In this response the described computing innovation is the mobile device.

**Analyzing Impact of Computing — Row 4**

The response did not earn the point for this row.

The beneficial effect given is the ability to pay for things with your mobile device at faster (transmission) rates. No clear harmful effect is identified.

**Analyzing Impact of Computing — Row 5**

The response did not earn the point for this row.

The response does not identify an impact to society, economy, or culture.

**Analyzing Data and Information — Row 6**

The response did not earn the point for this row.

The data described is “consumer’s data,” which is not sufficient for identifying what data is being used by the described computing innovation, which in this case is the handheld device.

**Analyzing Data and Information — Row 7**

The response did not earn the point for this row.

The response does not identify the data concern as a security, privacy or storage data concern.

**Finding and Evaluating Information — Row 8**

The response did not earn the point for this row.

There are no in-text citations to reference the bibliography.