

1. The Google Nest smart thermostat, with which you can remotely control the temperature of your home, is an example of which type of context aware application? 1 point
 - ☐ Presentation, Adaptation and Execution
 - ☐ Presentation and Tagging
 - ☐ Tagging and Execution
 - ☒ Adaptation and Execution

2. What is the *advantage* of context definition by relevance and functionality? *Select all that apply.* 1 point
 - ☐ There is no advantage with respect to application development.
 - ☒ It considers parameters relevant to the application as well as parameters that potentially can be used by other applications.
 - ☒ It is suitable for IoT based applications.
 - ☐ It incorporates auxiliary information that helps reduce system complexity.

3. One of the main problems with the Boeing 737 Max 8 was the failure of the “angle of attack” (AOA) sensors. There are two sensors that provide the raw angle data. Only one was used for the MCAS pitch control system. 1 point

Suppose that, instead of the AOA sensors, we used a simulation model that derives the angle of attack value from air speed, velocity, and pitch measurements. What kind of context sensor is this?

 - ☐ Physical sensor
 - ☐ Logical sensor
 - ☒ Virtual sensor
 - ☐ None of the above

4. In what ways do context models help us? *Select all that apply.* 1 point
 - ☐ They increase information content in raw data.
 - ☒ They enable easier integration into applications.
 - ☒ They provide higher level knowledge about contexts rather than raw data.
 - ☒ They allow us to perform trend analysis.

5. How does CareDroid implement adaptation? 1 point
 - ☐ By using user-defined functions, where each specific context and adaptation strategy requires a different function.
 - ☒ By using polymorphic functions that can be instantiated using the desired context configurations.
 - ☐ CareDroid does not typically perform adaptation.
 - ☐ By using function overrides, which can be modified by the user while writing the code.

6. What is a way to solve the Ground Truth Challenge? 1 point
 - ☒ Use the delayed response of a secondary sensor to validate the primary sensor.
 - ☐ Collect training data again and identify training data that had labeling errors.
 - ☐ Use unsupervised learning techniques.
 - ☐ Train probabilistic belief networks that can incorporate noise in training data.

7. A persistent question when working with deep learning systems is: “How much data is required to ensure that a deep learning system does not overfit?” 1 point

If the amount of available training data drastically decreases, what is the *best* way to accommodate this change?

 - ☒ It is better to use a simpler machine.
 - ☐ It is better to use a high complexity machine without applying data augmentation techniques.
 - ☐ It is better to use a high complexity machine, but data augmentation techniques should be applied to increase the data size before the training process.
 - ☐ Data augmentation should be used, regardless of the machine complexity, because it is an error-free way to avoid overfitting.

8. Which statements *best* describe Naïve Bayes classifiers? *Select all that apply.* 1 point
 - ☒ They heavily depend on the conditional independence of attributes given the class.

- ☐ They can be classified as linear classifiers.
- ☒ Their decision boundary is nonlinear.
- ☒ They are simpler versions of Belief Networks.

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