

Data ↔ Security

You have already proven that, like me, you are a computer science wizard. Whether you are working with binary bits or writing complex programs, you are a true expert. You also know your Internet protocols and the fields of cybersecurity/cryptography. But the other thing that makes Bitcoin so revolutionary is that it keeps your financial data hidden from banks and the government. The final step of this challenge is for you to prove that you are an expert when it comes to protecting your own data and the data of others. Good luck, and may your knowledge point you in the right direction!

-Satoshi

[T]

Red

[H]

Green

[A]

Blue

[W]

Purple

All of the following are ways that a research team can try to protect an individual's privacy. Which is most likely to be effective?

- (C) Store data on a webserver, and only grant server access to authorized employees.
- (B) Outsource cloud data storage to a company specializing in secure data storage solutions.
- (S) Regularly update software and apply security patches on servers containing sensitive data.
- (T) Obfuscate the data so that it cannot be linked to any single individual.

Which of the following will affect the ability of a program to process a large data set?

- (O) The amount of additional processing power the program requires per additional entry in the data set.
- (I) The amount of additional memory (RAM) the program requires per additional entry in the data set.
- (E) The amount of additional hard drive space the program requires per additional entry in the data set.
- (A) All of the above.

Which of the following is best describes a benefit of cloud computing?

- (R) Cloud computing is less susceptible to a data breach than storing files locally.
- (L) Cloud computing reduces the chance that advertisers and data brokers will access an individual's sensitive data.
- (H) Cloud computing allows individuals to access their data in more locations and on more devices.
- (E) Individuals get more control about how their data is used and stored compared to storing files locally.

Which of the following is least likely to be partly attributable to Moore's Law?

- (T) The need for longer encryption keys over time.
- (D) The increasing ability of data scientists to process large data sets.
- (W) The creation of the open Internet protocols such as DNS, TCP/IP, HTTP, and TLS/SSL.
- (P) Advances in machine learning and artificial intelligence, such as Google's AlphaGo.