

Homework 4

Due: November 22, 2022

Points: 100

- (30 points)* Discuss controls that would prevent Dennis Ritchie's bacterium (see Section 23.6.1) from absorbing all system resources and causing a system crash.
- (30 points)* Consider the statement
if $(x = 1)$ **and** $(y = 1)$ **then** $z := 1$
where x and y can each be 0 or 1, with both equally likely and z is initially 0. Compute the conditional entropies $H(x|z')$ and $H(y|z')$.
- (40 points)* Extend the semantics of the information flow security mechanism in Section 17.3.1 to include structures (sometimes called "records").