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Week 2 Questions

Lecture 17

1. Yes because NI policies are more general than BLP policies.

2. Neither should be able to interfere with the other

3. Ideally there shouldn't be because the highest level subject can only communicate with the middle channel rather than directly with the lowest channel.

4. B is high and A is low. A and B are the same level in the same subject.

Lecture 18

1. There are no rules saying what subjects can do with the objects. It is more about confidentiality.

2. Any action from h should be invisible to L.

3. Interferences are common in real systems. Most attributes are low level that are interfering. Most interferences are encrypted.

Lecture 19

1. A student changing their grades on the UT system gives them more credibility than they deserve. Changing any sort of access authority could give somebody unwanted access into something they should be involved in.

2. Because there is more confidence in something that is bought opposed to something that is free.

3. Separation of duty is more about having more things complete a function whereas separation of function ensures that one subject can't play more than one role in a process.

4. You are able to fix the problem by rolling back everything to information saved from previous records.

5. Separate roles in different departments and have secured ways to transfer data between these departments.

6. Depositing money into your bank account.

Lecture 20

1. Highly reliable with little sensitivity- unbiased reviewer
Not highly reliable with higher sensitivity- corrupt high-standing official

2. Expert dominates student and they both have physics are a category therefore it dominates
novice doesn't dominate expert therefore no dominance
student dominates novice and null space is a superset of Art therefore dominates

3. A is high, B is low A→B

4. The issues for one aren't necessarily a problem/focus for the other.

Lecture 21

1. Because the flow of information is the complete opposite of how BLP works.

2. Because B,C is not a superset of A,B

3. No, both policies need to pass.

Lecture 22

1. It is assumed that the subject will get corrupted when reading a lower level object

2. No

3. It assumes that the subject will filter and bad information that is read.

4. Yes

Lecture 23

1. No

2. Because it helps to change labels and levels for transportation between departments.

3. No, that would defeat the purpose of integrity security

4. Weak tranquility

Lecture 24

1. To makes sure that little to no lower level influence can change something important, and if there are changes, there are ways to fix it.

2. Checks, credit cards, transactions

3. Complimentary items

4. Certification rules verify that a CDI is in a valid state of integrity while enforcement rules ensure that it stays that way during s TP.

5. (Teller, deposit check, {bank account})

Lecture 25

1. Because they might accidentally leak information about that rivaling airline.

2. Yes because they don't compete with each other.

3. One company from each conflict class.

4. You cannot access information from the same level/class and you can freely move to any unaccessed class.

Lecture 26

1. You give permission to a group of subjects, which makes things easier to manage. This prevents subjects at the same to do something different.

2. Active roles are basically authorized roles that have already been taken on and permitted.

3. Transaction authorization tells you what actions you can do in an active role and role authorization verifies that an active role if you have proper authorization.

4. Stuck with individual duties rather than groups them
subjects can't switch between roles.

Lecture 27

1. Most subjects don't have any access to most objects

2. access control list: representation of a column of an ACM
capability based system: stores a row of an ACM
implicitly maintain a set of rules.

Lecture 28

1. Receiver know the sender has the answer.

2. So we know what to do.

3. no communication will occur.

4. So the bandwidth doesn't get too large.

5. 1 bit because the will usually send a 0 or 1

Lecture 29

1. Single decimal: 4 bits
2-digit: 7 bits
"The attack is at dawn": 168 bits

2. 1 bit will not cover all the ambiguity at higher levels of uncertainty.

3. 4, because each bit will separate the amount of messages in half until you find the desired message.

4. 8 bits

5. We don't know how many messages will be sent beforehand.

Lecture 30

1. One is discrete and the other is continuous.

2. 0000, 0001, 0010, 0011, 0100, 0101, 0110, 0111

3. Assume that 995 messages will be correct and then add up the remaining bits multiplied by the different possibilities of the bad messages.

4. You can assign the proper amount of bits showing that probability rather than taking into account everything at once.

5. 000, 001, 010, 011, 100, 101, 110, 111

6. You know what the prior probabilities are and on average the amount of bits you want.

Lecture 31

1. 2468642….

2. 0, 1, 10, 11, 100, 101

3. Having only one way to decode makes the string unambiguous to the receiver.

4. Makes it to where there should be no lost information

5. We have no way to distinguish letters because the symbols aren’t streamed together.

Lecture 32

1. 3 bits/symbol

2. – (4/5 * log(4/5) + 1/5 * log(1/5))

3. It sets a lower limit on encoding efficiency.

Lecture 33

1. Flipping a coin is independent so you multiply the probability of the two outcomes.

2. Multiply the count of something happening with the amount of bits in the code for the respective outcome then add these bits.

3. 000, 001, 010, 011, 100, 101

4. – (5/18 * log(5/18) + 5/18 * log(5/18) + 3/18 * log(3/18) + 3/18 * log(3/18) + 1/18 * log(1/18) + 1/18 * log(1/18))

5. 1: 00, 2: 01, 3: 10, 4: 110, 5: 1110, 6: 1111

6. This only takes 43 bits while naïve will take 64.