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Homework 2 Database Security

Short answers

1. A user is cleared for <secret>. Can he have access to data objects labeled <classified>? Why?

Yes the user can. A <secret> clearance is higher than a <classified> one, therefore the user can have access to it.

2. The user at <secret> level wants to pass a file to a user at <top secret> level, how could he do that?

The user with <secret> level could post the file to the database as a <secret> level file. This would then allow the user at <top secret> to access the file since that user would have a higher clearance level than <secret>.

3. Multi-level security is used in a database system. Access control is enforced at record level, which means there is no attribute-level classification. The following table contains records about employees' information:

UID	title	task ID	report date	TC
72564	manager	K2398	09/20/2015	S
35920	special agent	D9372	08/28/2015	C
56973	special agent	K8364	09/05/2015	UC
00369	director	K2398	09/27/2015	TS
65851	assistant	K2934	09/20/2015	S

3.1 A user at security level 'S' browses the database, what could he/she see from the table?

A user with security level 'S' would be able to see everything in the database except for the TS level information. Therefore the director's information would be off limits only.

3.2 A user at security level 'TS' wants to add a task for UID 65851 with the following information: (65851, assistant, M9374, 12/21/2015). How will the request be processed (show the updated table)? What is the rationale behind the procedure?

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00369	director	K2398	09/27/2015	TS
65851	assistant	K2934	09/20/2015	S
65851	assistant	M9374	12/21/2015	TS

Since the user who wants to add a task is at security level 'TS', the table would then be replicated for the assistant. The table would then take in the information for the new assistant column provided by the 'TS' level user, and the clearance level would then be set to 'TS' since that was the level of the clearance the user inserting has. This is to prevent anyone with a lower clearance level from seeing the update.