

Table1 The original class UserManager in ApacheHSQLDB

Original Class UserManager	
Attributes	Methods
IntValueHashMapStringLookup emptyRightsList hRightsLists	getRightsArray(int) getRightsArraySub(int) createUser(String, String password) dropUser(String) getUser(String, String password) getUsers() grant(String, Object, int) revoke(String, Object, int) exists(String) get(String) removeDBObject(Object) listVisibleUsers(Session, boolean) getGrantedClassNames()

Table2 The new classes extracted by developers

Class Extracted by the Developers - 1	
Attributes	Methods
	createUser(String, String) dropUser(String) getUser(String, String) getUsers() exists(String) get(String) listVisibleUsers(Session, boolean) getRightsArray(ints) removeDBObject(Object) getRightsArraySub(int)
Class Extracted by the Developers - 2	
Attributes	Methods
IntValueHashMapStringLookup emptyRightsList hRightsLists	grant(String, Object, int) revoke(String, Object, int) getGrantedClassNames()

Table3 The new classes extracted by our approach

Class Extracted our approach - 1	
Attributes	Methods
	getUser(String, String) createUser(String, String, boolean) get(String) listVisibleUsers(Session, boolean) dropUser(String) exists(String)

	getUsers() removeDbObject(Object)
Class Extracted our approach - 2	
Attributes	Methods
hRightsLists rightsStringLookup emptyRightsList	grant(String, Object, int) revoke(String, Object, int) getRightsArraySub(int) getRightsArray(int) getGrantedClassNames()