

AUTHENTICATION SYSTEMS

# Decorator



# Objective

Create an account class that grants access to functions, the account has a password and Decorator classes can be used to add security layers.

# Component interface

Establishes a `getAccess` function which receives a `Map` that contains the passwords and other security tokens that the user introduces.

# Decorator

Abstract class that establishes an object which can contain a component instance and use its `getAccess` method.

# Account

Contains a username and a password

The get Access method looks into the token map for the Username and Password keys and checks if they are the same as the ones stored in the instance of the account.

# TwoFactorAccount

Decorator that in addition to the security measures of its defined component checks for a code in the Token Map when the getAccess method is invoked.

# SecurityQuestionAccount















Decorator that in addition to the security measures of its defined component checks for an answer to a question in the Token Map when the `getAccess` method is invoked.

The question and answer are set when the account is created, the question can be displayed in console with the method `getHint`.



# Tests

1. Access a normal account with a password.
2. Access an account with 2FA.
3. Access an account with security question.
4. Access an account with all security measures (2FA first).
5. Access an account with all security measures (SQ first).
6. Prevents an account from entering with wrong password.
7. Prevents an account from entering with wrong 2FA code.
8. Prevents an account from entering with wrong answer to SQ.

Element	Coverage	Covered Instru...	Missed Instruct...	Total Instructio...	
▼  com.curso.v0	 100.0 %	90	0	90	
>  Account.java	 100.0 %	25	0	25	
>  Decorator.java	 100.0 %	13	0	13	
>  SecurityQuestionAccount.java	 100.0 %	30	0	30	
>  TwoFactorAccount.java	 100.0 %	22	0	22	
▼  test	 100.0 %	338	0	338	
>  com.curso.v0	 100.0 %	338	0	338	

# Coverage