

Exercises XP Gold

Not Completed

Last updated : May 2nd 2021

What You Will Learn

- Inheritance

Exercise 1: Bank Account

Instructions

Part I:

1. Create a class called `BankAccount` that contains the following attributes and methods:
 - `balance` - (an attribute)
 - `__init__` : initialize the attribute
 - `deposit` : - (a method) accepts a positive int and adds to the `balance`, raise an **Exception** if the int is not positive.
 - `withdraw` : - (a method) accepts a positive int and deducts from the `balance`, raise an **Exception** if not positive



Part II : Minimum balance account

1. Create a `MinimumBalanceAccount` that inherits from `BankAccount`.
2. Extend the `__init__` method and accept a parameter called `minimum_balance` with a default value of 0.
3. Override the `withdraw` method so it only allows the user to withdraw money if the `balance` remains higher than the `minimum_balance`, raise an **Exception** if not.

Part III: Expand the bank account class

1. Add the following attributes to the `BankAccount` class:
 - `username`
 - `password`
 - `authenticated` (False by default)
2. Create a method called `authenticate`. This method should accept 2 strings : a `username` and a `password`. If the `username` and `password` match the attributes `username` and `password` the method should set the `authenticated` boolean to True.
3. Edit `withdraw` and `deposit` to only work if `authenticated` is set to True, if someone tries an action without being authenticated raise an **Exception**

Part IV: BONUS Create an ATM class

1. `__init__`:

1. Accepts the following parameters: `account_list` and `try_limit`.
2. Validates that `account_list` contains a list of `BankAccount` or `MinimumBalanceAccount` instances.
Hint: `isinstance()`
3. Validates that `try_limit` is a positive number, if you get an invalid input raise an **Exception**, then move along and set `try_limit` to 2.
Hint: Check out [this tutorial](#)
4. Sets attribute `current_tries = 0`
5. Call the method `show_main_menu` (see below)

1. Methods:

1. `show_main_menu`:

1. This method will start a while loop to display a menu letting a user select:
 - Log in : Will ask for the users username and password and call the `log_in` method with the username and password (see below).
 - Exit.

2. `log_in`:


1. Accepts a username and a password.
2. Checks the username and the password against all accounts in `account_list`.
 - If there is a match (ie. use the `authenticate` method), call the method `show_account_menu`.
 - If there is **no match** with any existing accounts, increment the current tries by 1. Continue asking the user for a username and a password, until the limit is reached (ie. `try_limit` attribute). Once reached display a message saying they reached max tries and shutdown the program.

3. `show_account_menu`:

1. Accepts an instance of `BankAccount` or `MinimumBalanceAccount`.
2. The method will start a loop giving the user the option to deposit, withdraw or exit.



Submit Your Exercises :

Don't forget to push to 

More Info

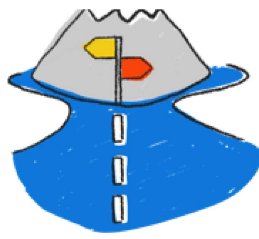
Duration (approx)
> 1h30

One Last Thing: **Good luck!**

[Back to Top](#)

Feedback

Tell us what you thought about the chapter: Exercises XP Gold



This typeform has moved
to a new address

Hit the button and we'll redirect you to
developersinstitute.typeform.com

