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КУРСОВОЙ ПРОЕКТ

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| ПОЯСНИТЕЛЬНАЯ ЗАПИСКА К КУРСОВОМУ ПРОЕКТУ  Разработка программы |
| «Онлайн магазин» |
| по курсу: ОСНОВЫ ПРОГРАММИРОВАНИЯ |
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**Добавить вывод заказа**

**Использовать свою структуру для ексель**

**Изменить структуру отчета**

## Описание задачи

Работа представляет из себя пример реализации двух библиотек в виде онлайн магазина в оболочке терминала на языке программирования Python.

## Первая библиотека catalog\_hub.

Библиотека представляет из себя инструмент управления базой данных excel, в которой организатор ведет учет товара

## Вторая библиотека client\_hub

Библиотека дает возможность полного управления информацией о пользователях магазина. Хранит информацию: login, password и корзину в json формате

Вместе связка этих двух наборов функций дает возможность симулировать настоящий магазин. Для примера я завернул их реализацию в рамках терминала. Возможна интеграция и в другие api, которые поддерживают Python

## Листинг catalog\_hub

import openpyxl  
  
  
def separator(string, prefix='/', slicer=", "):  
 *"""  
 Function for making a dictionary that would be comfortable to use with catalog\_controller* ***:param*** *string: the input line that would be separated on name, price and count* ***:param*** *prefix: bot prefix that deletes command characters from line (default '/')* ***:param*** *slicer: char set that would be sliced on parts (default ", ")  
 """* if prefix != None:  
 string = string.replace(prefix + ' ', '', 1)  
 string = string.split(slicer)  
 data = {  
 'maker': string[0].upper(),  
 'taste': string[1],  
 'form': None,  
 'price': 0,  
 'count': 1,  
  
 }  
  
 try:  
 if data['price'] < int(string[3]): data['price'] = int(string[3])  
 except Exception:  
 print(f"price по умолчанию {data['price']}")  
  
 try:  
 if data['count'] < int(string[4]):  
 data['count'] = int(string[4])  
 except Exception:  
 print(f"count по умолчанию {data['count']}")  
  
 print(data)  
 return data  
  
  
def catalog\_add(maker, taste, form, price=0, count=1, path="databases/catalog.xlsx"):  
  
 wb = openpyxl.load\_workbook(path)  
 sheet = wb.active  
  
 is\_found = 0  
 for i in range(1, sheet.max\_row + 1):  
 if maker in str(sheet.cell(i, 1).value) and taste in str(sheet.cell(i, 2).value):  
 sheet.cell(i, 5).value = int(sheet.cell(i, 5).value) + count  
 is\_found = 1  
 break  
  
 if is\_found == 0:  
 placeholder = sheet.max\_row + 1  
 sheet.cell(placeholder, 1).value = maker  
 sheet.cell(placeholder, 2).value = taste  
 sheet.cell(placeholder, 3).value = form  
 sheet.cell(placeholder, 4).value = price  
 sheet.cell(placeholder, 5).value = count  
  
 wb.save(path)  
 wb.close()  
  
  
def catalog\_del(maker, taste, path="databases/catalog.xlsx"):  
 *"""  
 Deletes row from catalog* ***:param*** *maker:* ***:param*** *taste:* ***:param*** *path:* ***:return****: maker and taste string  
 """* wb = openpyxl.load\_workbook(path)  
 sheet = wb.active  
 info = 0  
 for i in range(1, sheet.max\_row + 1):  
 if str(maker).lower() in str(sheet.cell(i, 1).value).lower() and str(taste).lower() in str(  
 sheet.cell(i, 2).value).lower():  
 workcell = i  
 info = str(sheet.cell(workcell, 1).value)  
 sheet.cell(workcell, 1).value = ''  
 sheet.cell(workcell, 2).value = ''  
 sheet.cell(workcell, 3).value = ''  
 sheet.cell(workcell, 4).value = ''  
 sheet.cell(workcell, 5).value = ''  
 break  
  
 wb.save(path)  
 wb.close()  
 return info  
  
  
def catalog\_sell(maker, taste, count=1, path="databases/catalog.xlsx"):  
 *"""  
 Decreases count of product, if last product - deletes row* ***:param*** *maker:* ***:param*** *taste:* ***:param*** *count:* ***:param*** *path:* ***:return****: maker and taste string  
 """* wb = openpyxl.load\_workbook(path)  
 sheet = wb.active  
 found = 0  
 print(taste)  
 # уменьшение количетва, если последний товар - удаление  
 for i in range(1, sheet.max\_row + 1):  
 if str(maker).lower() in str(sheet.cell(i, 1).value).lower() and str(taste).lower() in str(  
 sheet.cell(i, 2).value).lower():  
 workcell = i  
 found = f"{str(sheet.cell(workcell, 1).value)} {str(sheet.cell(workcell, 2).value)}"  
  
 sheet.cell(workcell, 5).value = int(sheet.cell(workcell, 5).value) - count  
 break  
  
 wb.save(path)  
 wb.close()  
 return found  
  
  
def remove\_last\_pos(path="databases/catalog.xlsx"):  
 *"""  
 Function removes last product row from the catalog* ***:param*** *path: path to excel table (default "catalog.excel")* ***:return****:  
 """* wb = openpyxl.load\_workbook(path)  
 sheet = wb.active  
 workcell = sheet.max\_row  
  
 sheet.cell(workcell, 1).value = ''  
 sheet.cell(workcell, 2).value = ''  
 sheet.cell(workcell, 3).value = ''  
 sheet.cell(workcell, 4).value = ''  
 sheet.cell(workcell, 5).value = ''  
  
 wb.save(path)  
 wb.close()  
  
  
def get\_makers(path="databases/catalog.xlsx", column=1):  
 *"""  
 Get all unic makers from xlxs (default - 1 column of each row)* ***:param*** *path:* ***:return****: list of makers  
 """* wb = openpyxl.load\_workbook(path)  
 sheet = wb.active  
 workcell = sheet.max\_row  
 makers = []  
 for i in range(2, workcell + 1):  
 maker = sheet.cell(i, column).value  
 if maker not in makers and maker is not None:  
 makers.append(str(sheet.cell(i, column).value))  
  
 wb.close()  
 return makers  
  
  
def get\_products(maker, path="databases/catalog.xlsx"):  
 wb = openpyxl.load\_workbook(path)  
 sheet = wb.active  
 workcell = sheet.max\_row  
 products = []  
  
 for i in range(2, workcell + 1):  
 if sheet.cell(i, 1).value == maker:  
 if int(sheet.cell(i, 5).value) > 0:  
 product = {  
 "maker": sheet.cell(i, 1).value,  
 "taste": sheet.cell(i, 2).value,  
 "form": sheet.cell(i, 3).value,  
 "price": sheet.cell(i, 4).value,  
 "count": sheet.cell(i, 5).value  
 }  
 if product not in products:  
 products.append(product)  
  
 return products  
  
  
def find\_product(maker, taste, path='databases/catalog.xlsx'):  
 wb = openpyxl.load\_workbook(path)  
 sheet = wb.active  
 info = {}  
 for i in range(1, sheet.max\_row + 1):  
 if str(maker).lower() in str(sheet.cell(i, 1).value).lower() and str(taste).lower() in str(  
 sheet.cell(i, 2).value).lower():  
 info['maker'] = sheet.cell(i,1).value  
 info['taste'] = sheet.cell(i, 2).value  
 info['form'] = sheet.cell(i, 3).value  
 info['price'] = sheet.cell(i, 4).value  
 info['count'] = sheet.cell(i, 5).value  
 wb.close()  
 return info  
 return 'Not Found'  
  
  
def catalog\_get(path='databases/catalog.xlsx'):  
 wb = openpyxl.load\_workbook(path)  
 sheet = wb.active  
 catalog = []  
 for i in range(2, sheet.max\_row + 1):  
  
 if str(type(sheet.cell(i,1).value)) != "<class 'NoneType'>":  
 product = {  
 'maker': str(sheet.cell(i, 1).value),  
 'taste': str(sheet.cell(i, 2).value),  
 'form': str(sheet.cell(i, 3).value),  
 'price': int(sheet.cell(i, 4).value),  
 'count': int(sheet.cell(i, 5).value)  
 }  
 catalog.append(product)  
 wb.close()  
 return catalog  
  
  
def catalog\_change\_count(maker, taste, num,path ='databases/catalog.xlsx'):  
 wb = openpyxl.load\_workbook(path)  
 sheet = wb.active  
 for i in range(1, sheet.max\_row + 1):  
 if str(maker).lower() in str(sheet.cell(i, 1).value).lower() and str(taste).lower() in str(  
 sheet.cell(i, 2).value).lower():  
 sheet.cell(i, 5).value = int(sheet.cell(i, 5).value) + num  
  
 product = {  
 'maker': str(sheet.cell(i, 1).value).upper(),  
 'taste': str(sheet.cell(i, 2).value),  
 'form': str(sheet.cell(i, 3).value),  
 'price': int(sheet.cell(i, 4).value),  
 'count': int(sheet.cell(i, 5).value)  
 }  
 wb.save(path)  
 wb.close()  
 return product

**Листинг client\_hub**

import json  
from random import randint  
  
def registrate(login, password):  
  
 with open("databases/clients.json", 'r') as file:  
 db = json.load(file)  
 clients = db['clients']  
  
 new\_user = {  
 "login": str(login),  
 "password": str(password),  
 "cart": []  
 }  
  
 is\_found = 0  
 for client in clients:  
 if new\_user["login"] == client["login"]:  
 is\_found = 1  
  
  
 if is\_found:  
 print("User is already registred")  
 return new\_user  
 else:  
 clients.append(new\_user)  
 db['clients']=clients  
 with open("databases/clients.json", 'w') as file:  
 json.dump(db, file, indent=2)  
  
 with open("databases/clients.json", 'r') as file:  
 db = json.load(file)  
 clients = db['clients']  
  
 registred = 0  
 for client in clients:  
 if new\_user["login"] == client["login"]:  
 registred = 1  
 break  
  
 if registred:  
 print("Registration is succesful")  
  
 return new\_user  
  
def sign\_in():  
 with open("databases/clients.json", 'r') as file:  
 db = json.load(file)  
 clients = db['clients']  
 login = input("Enter your login: ")  
 registred = 0  
 for client in clients:  
 if login == client["login"]:  
 registred = 1  
 break  
  
 if registred:  
 print(f"Enter the password for {login}: ")  
 password = input()  
 for client in clients:  
 if login == client["login"]:  
 if password == client["password"]:  
 print("You are signed in")  
 return {'login': login, 'password': password}  
 else:  
 print("password is incorrect")  
 else:  
 print("No such user. Try one more time")  
  
  
def get\_cart(login):  
 with open("databases/clients.json", 'r') as file:  
 db = json.load(file)  
 clients = db['clients']  
  
 for client in clients:  
 if login == client["login"]:  
 return client['cart']  
  
def clear\_cart(login):  
  
 with open("databases/clients.json", 'r') as file:  
 db = json.load(file)  
 clients = db['clients']  
  
 for client in clients:  
 if client["login"] == login:  
 client["cart"] = []  
 db["clients"] = clients  
 with open("databases/clients.json", 'w') as file:  
 json.dump(db, file, indent=2)  
 break  
  
def add\_to\_cart(login, call):  
  
 with open("databases/clients.json", 'r') as file:  
 db = json.load(file)  
 clients = db['clients']  
  
 maker = call.split(sep=", ")[0]  
 taste = call.split(sep=", ")[1]  
  
 offer = {  
 "login": login,  
 "cart": [  
 {  
 "maker": maker,  
 "taste": taste  
 }  
 ]  
  
 }  
  
 # Если заказ первый, и если второй  
 is\_found = 0  
 for client in clients:  
 if offer["login"] == client["login"]:  
 client["cart"].append(offer["cart"][0])  
 db["clients"] = clients  
 with open("databases/clients.json", 'w') as file:  
 json.dump(db, file, indent=2)  
  
 is\_found = 1  
 break  
  
 if is\_found == 0:  
 clients.append(offer)  
 db["clients"] = clients  
 with open("databases/clients.json", 'w') as file:  
 json.dump(db, file, indent=2)  
  
 return offer  
  
def add\_book(login):  
 # сделать бронь товара - перенести карт юзера из клинт в букс  
  
 with open("databases/books.json", 'r') as file:  
 books\_db = json.load(file)  
  
 with open("databases/clients.json", 'r') as file:  
 clients\_db = json.load(file)  
 clients = clients\_db["clients"]  
  
 for client in clients:  
 if login == client["login"]:  
 cart = client["cart"]  
 break  
  
 client = {  
 "login": login,  
  
 "key": str(login[0].upper()) + "-" + str(randint(100, 999)),  
 "cart": cart  
 }  
  
 with open("databases/books.json", "w") as file:  
 books\_db["books"].append(client)  
 json.dump(books\_db, file, indent=2)  
 clear\_cart(login)  
 return client  
  
def cancel\_book(key):  
 with open("databases/books.json", 'r') as file:  
 db = json.load(file)  
 books = db['books']  
  
 for book in books:  
 if key == book['key']:  
 deleted = book  
 books.remove(book)  
 db["books"] = books  
 with open("databases/books.json", 'w') as file:  
 json.dump(db, file, indent=2)  
  
 return deleted  
  
  
def get\_books(login):  
 with open("databases/books.json", 'r') as file:  
 db = json.load(file)  
 books = db['books']  
  
 output = []  
 for book in books:  
 key = str(book['key'])  
 username = str(book["login"])  
 cart = str(book['cart'])  
 data = username + "\n" + key + "\n" + cart + "\n"  
 if username == login:  
 output.append(data)  
  
 return output

## Branch\_hub

Для реализации проекта в терминале я создал дополнительную библиотеку **branch\_hub,** которая написана только для удобства проектирования и разгрузки main.py

В этом модуле написан GUI для каждого ключевого слова, с помощью которого реализуется управление магазином. Модуль содержит только одну функцию branch\_render(), которая выводит ответ на запрос пользователя

## Листинг branch\_hub

import catalog\_hub  
import client\_hub  
  
  
def branch\_render(call, user):  
 call\_kw = {'mainmenu': "mainmenu",  
 'catalog': "catalog",  
 'cart': "cart"  
 }  
  
 makers\_kw = {}  
 tastes\_kw = {}  
 q=1  
 for item in catalog\_hub.catalog\_get():  
 tastes\_kw[f'taste{q}']=f"{item['maker']}, {item['taste']}"  
 q+=1  
  
 q = 1  
 for key in catalog\_hub.get\_makers():  
 makers\_kw[f'{str("maker") + str(q)}'] = key  
 call\_kw[f'{str("maker") + str(q)}'] = key  
 q = q + 1  
  
  
 answer = "Error, try again"  
 if call == call\_kw['mainmenu']:  
 answer = "Главное меню\n-catalog перейти в каталог\n-cart посмотреть корзину\n\n"  
  
 elif call == call\_kw['catalog']:  
 answer = f"Выбери производителя\n"  
 for maker in makers\_kw.values():  
 answer = answer + str(maker) + "\n"  
  
 elif call in makers\_kw.values():  
 answer = "Товары проиводителя в наличии:\n"  
 products = catalog\_hub.get\_products(call)  
 count = 1  
 for product in products:  
  
 answer = answer + product['maker'] + ", " + product["taste"] + " " + str(product['price']) + '\n'  
 count += 1  
 answer = answer + "\n-catalog назад"  
 elif call == call\_kw["cart"]:  
 cart = client\_hub.get\_cart(user["login"])  
 if cart:  
 answer = ''  
 for item in cart:  
 answer = answer + item['maker']+" "+ item['taste'] +"\n"  
 else:  
 answer = "Ваша корзина пуста"  
  
 elif call in tastes\_kw.values():  
  
 call = call.split(sep=", ")  
 product\_call = {  
 "maker": call[0],  
 "taste": call[1]  
 }  
  
 product= catalog\_hub.find\_product(product\_call["maker"], product\_call["taste"])  
 if product!="Not Found":  
 answer = f"{product['taste']} \nЦена: {product['price']}\nКоличество: {product['count']}"  
  
 elif "to cart" in call:  
 call= call.replace("to cart ", '',1)  
 client\_hub.add\_to\_cart(user['login'], call)  
 answer = f"Добавлено в вашу корзину {call}"  
  
 elif call == "book":  
 info = client\_hub.add\_book(user['login'])  
 for item in info['cart']:  
 maker = item['maker']  
 taste = item['taste']  
 catalog\_hub.catalog\_change\_count(maker, taste, -1)  
  
 answer = f"Ваш номер заказа {info['key']}"  
  
 elif call =="clear cart":  
 if client\_hub.get\_cart():  
 client\_hub.clear\_cart(user['login'])  
 answer = "Ваша корзина очищена"  
 else:  
 answer = "Ваша корзина уже пуста"  
  
  
 elif "cancel book" in call :  
 call = call.replace("cancel book ", '', 1)  
 info= client\_hub.cancel\_book(call)  
 print(info)  
  
 for item in info['cart']:  
 maker = item['maker']  
 taste = item['taste']  
 catalog\_hub.catalog\_change\_count(maker, taste, 1)  
  
 answer=f"Ваш заказ {call} отменен"  
  
 elif call == "show books":  
 info = client\_hub.get\_books(user['login'])  
 answer ="Заказы\n"  
 for i in info:  
 answer = answer+ i+"\n"  
  
 print(answer)

## Main

Главный модуль main, который позволяет зарегистрировать пользователя и реализует вызов brach\_render()

## Листинг main

import client\_hub  
import branch\_hub  
  
print("Добро пожаловать в терминал покупки печенья")  
print("1. Регистрация\n2. Вход")  
  
decide = int(input())  
if decide == 1:  
 login = input("Enter login")  
 psw = input("Enter password")  
 client\_hub.registrate(login, psw)  
 user = {  
 "login": login,  
 "password": psw  
 }  
  
elif decide == 2:  
 user = client\_hub.sign\_in()  
  
if user:  
  
 branch\_hub.branch\_render("mainmenu", user)  
 while 1:  
  
 branch = input()  
 branch\_hub.branch\_render(branch, user)

## Результат работы программы



