Cairo University
Faculty of Computers & Artificial Intelligence
Department of Computer Science
Artificial Intelligence Course

<u>Assignment 1</u>

Problem Statement

Given the data.pl file, you are required to write a prolog problem that answers some questions about the customers and their orders. Also, you shall help the customers to know boycott items and their alternatives.

Facts (data.pl file):

You **must** use this data file in your assignment. You are given some facts about customers, items, orders, boycott companies and their alternatives. For Example:

```
customer(CustID, CustUserName).

→ customer(104, mazen122)

item(ItemName, companyName, Price).

→ item(pepsi, "PepsiCo", 8.5).

order(CustID,OrderID,[Items]).

→ order(1,1,[ariel_4k, biskrem, cheese]).

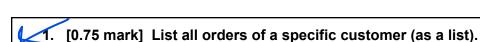
boycott_company(companyName, justification).

→boycott_company("PepsiCo", "PepsiCo purchased the ...")

alternative(ItemName,AlternativeItem).

→alternative(chipsy, tiger).
```

Required Predicates:



Example:

?- list_orders(shahd_ghazal2002,L).

L = [order(101, 2, [loreal_hair_serum_100ml, sunsilk_shampoo_350ml]), order(101, 1, [puvana, orange_1k, feba_dishwash_1L, snickers, ahlawy])].

2. [0.75 mark] Get the number of orders of a specific customer given customer id.

Example:

?- countOrdersOfCustomer(shahd_ghazal2002,Count). Count = 2.



[0.25 mark] List all items in a specific customer order given customer id and order id.

Example:

?- getItemsInOrderById(shahd_ghazal2002,1,Items).

Items = [puvana, orange_1k, feba_dishwash_1L, snickers, ahlawy] .



[0.25 mark] Get the num of items in a specific customer order given customer Name and order id.

Example:

?- getNumOfItems(shahd_ghazal2002,2,Count).

Count = 2.



5. [1 mark] Calculate the price of a given order given Customer Name and order id

Example:

?- calcPriceOfOrder(shahd_ghazal2002,2,TotalPrice).

TotalPrice = 319.

6. [0.25 mark] Given the item name or company name, determine whether we need to boycott or not.

Examples:

?- isBoycott(sunbites).

true.

?- isBoycott(biskrem).

false.

7. [0.25 mark] Given the company name or an item name, find the justification why you need to boycott this company/item.

Examples:

?- whyToBoycott(dasani, Justification).

Justification = 'Coca-Cola israel: owns farms in the illegal israeli settlements of Shadmot Mechola in the Jordan Valley and a plant in the industrial zone of Katzerin in the occupied Golan Heights'.

8. [0.75 mark] Given an username and order ID, remove all the boycott items from this order.

Examples:

?- removeBoycottItemsFromAnOrder(abu juliaa, 1, NewList).

NewList = [flour 1k].

9. [0.75 mark] Given an username and order ID, update the order such that all boycott items are replaced by an alternative (if exists).

Examples:

?- replaceBoycottItemsFromAnOrder(abu_juliaa, 1, NewList).
NewList = [juhayna yogurt, corona chocolate, puvana, flour 1k].

10. [0.5 mark] Given an username and order ID, calculate the price of the order after replacing all boycott items by its alternative (if it exists).

Examples:

?- calcPriceAfterReplacingBoycottItemsFromAnOrder(abu_juliaa, 1, NewList, TotalPrice). NewList = [juhayna_yogurt, corona_chocolate, puvana, flour_1k], TotalPrice = 56.

11. [0.5 mark] calculate the difference in price between the boycott item and its alternative.

Examples:

?- getTheDifferenceInPriceBetweenItemAndAlternative(lipton, A, DiffPrice).

A = elarosa tea,

DiffPrice = -11.25.

12. [1 mark] BONUS: Insert/Remove (1)item, (2)alternative and (3)new boycott company to/from the knowledge base. Hint: use <u>assert</u> to insert new fact and retract to remove a fact

Examples:

?- add item(alpella wafer, 'Alpella', 4).

true

?- item(alpella_wafer, 'Alpella', 4).

true.

?- remove_item(alpella_wafer, 'Alpella', 4).

true.

?- item(alpella wafer, 'Alpella', 4).

false.

Important Notes

Please read these notes carefully to avoid losing grades

\Box	Don't change the structure of "data.pl".
	Include "data.pl" in your source code by writing this line in the beginning of your source
	code make sure to place "data.pl" in same location of your source code
	:-consult(data).
	Don't use any built-in predicates.
	The number of students in a team is 3-4 students from the same lab group or with the
	same TA.
	Please make sure that the load is almost equally distributed between team members.
	Please submit one .pl file containing your solution. The file name must follow this
	structure: ID1_ID2_ID3_ID4_DEPARTMENT_GROUP.pl
	Cheaters will be given a NEGATIVE grade and no excuses will be accepted.

References

https://github.com/TechForPalestine/boycott-israeli-consumer-goods-dataset

https://play.google.com/store/apps/details?id=com.mogate3.mogate3&hl=en_SG&gl=UShttps://www.tutorialspoint.com/prolog/index.htm