

# CPSC 304 Project Cover Page

Milestone #: 4

Date: 11/25/22

Group Number: 94

Name	Student Number	CS Alias (Userid)	Preferred E-mail Address
Alexander Liteplo	14470900	x5f6h	alexanderliteplo@gmail.com
Bhairaw Aryan	81199119	k0i3b	baryan01@student.ubc.ca
Lucas Moynier	94057809	s2x2b	lmoynier@student.ubc.ca

By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

Project description:

Our project is a website where users can manage BestBuy and view BestBuy products. Our website calls the BestBuy API to seed and populate our database with BestBuy product information. Users can make searches for specific products and filter their searches based on specific criteria such as price and reviews. Users will be able to view a search history page which will store the searches made by all users. Users will be able to retrieve information from the search history page, such as searches made in every country.

Final schema differences:



















Global Inventory deleted and replaced with:





























Searches(searchID, search, dateGenerated, **username**)

Repository Link:

[https://github.students.cs.ubc.ca/CPSC304-2022W-T1/project\\_k0i3b\\_s2x2b\\_x5f6h](https://github.students.cs.ubc.ca/CPSC304-2022W-T1/project_k0i3b_s2x2b_x5f6h)

Schema screenshots:

▼	 Searches	
	 searchID	INTEGER
	 search	VARCHAR(2...
	 date	DATETIME
	 username	
▼	 User	
	 username	VARCHAR(2...
	 loginId	VARCHAR(2...
	 password	VARCHAR(2...
	 advertisementID	INTEGER
	 postalCode	VARCHAR(2...
	 address	VARCHAR(2...
	 city	VARCHAR(2...
	 country	VARCHAR(2...
▼	 UserInterface	
	 enumCode	INTEGER
	 rgbValue	INTEGER
	 theme	VARCHAR(2...

▼	 <b>AIReview</b>	
	 reviewID	Integer
	 dateGenerated	DATETIME
	 algorithm	VARCHAR(2...
	 score	FLOAT
	 productID	DECIMAL
▼	 <b>Advertisement</b>	
	 advertisementID	INTEGER
	 brand	VARCHAR(2...
▼	 <b>BestBuyReview</b>	
	 reviewID	INT
	 score	FLOAT
	 ReviewerName	VARCHAR(2...
	 dateReviewed	DATETIME
	 productID	INTEGER
▼	 <b>Cart</b>	
	 cartID	Integer
	 username	VARCHAR(2...
▼	 <b>CartContainsProduct</b>	
	 cartID	INT
	 username	VARCHAR(2...
	 productID	INT
▼	 <b>Product</b>	
	 productID	Integer
	 price	FLOAT
	 name	VARCHAR(2...
	 searchID	Integer
	 company	VARCHAR(2...

List of queries used:

Query that updates user information

```
UPDATE User
SET password = User Input,
postalCode = User Input,
address = User Input,
city = User Input,
country = Userinput
WHERE username = 'username';
```

Query that adds a user:

```
INSERT INTO User(userName,
                loginID,
                password,
                advertisementID,
                postalCode,
                address,
                city,
                country)
VALUES('username',
      'logInId',
```

```
'password',  
advertisementID,  
'postalCode',  
'address',  
'city',  
'country');
```

Query that deletes a user

```
DELETE FROM User WHERE username = 'username';
```

Queries that do column selection:

Display product info all columns

```
SELECT U.username,  
  
       U.country,  
  
       S.search, P.name,  
  
       P.price, P.company,  
  
       AR.score as bestBuyReviewScore,  
  
       AI.score as aiReviewScore,  
  
       S.searchDate as date  
  
FROM User U NATURAL JOIN Searches S  
  
NATURAL JOIN Product P  
  
LEFT JOIN BestBuyReview AR ON P.productID = AR.productID  
  
LEFT JOIN AIReview AI ON P.productID = AI.productID
```

Display product info no country column

```
SELECT U.username,

       S.search, P.name,

       P.price, P.company,

       AR.score as bestBuyReviewScore,

       AI.score as aiReviewScore,

       S.searchDate as date

FROM User U NATURAL JOIN Searches S

NATURAL JOIN Product P

LEFT JOIN BestBuyReview AR ON P.productID = AR.productID

LEFT JOIN AIReview AI ON P.productID = AI.productID
```

Display searches no price

```
SELECT U.username,

       U.country,

       S.search, P.name,

       P.company,

       AR.score as bestBuyReviewScore,

       AI.score as aiReviewScore,

       S.searchDate as date

FROM User U NATURAL JOIN Searches S
```

# University of British Columbia, Vancouver

## Department of Computer Science

---

```
NATURAL JOIN Product P
```

```
LEFT JOIN BestBuyReview AR ON P.productID = AR.productID
```

```
LEFT JOIN AIReview AI ON P.productID = AI.productID
```

Display product info no price and no username

```
SELECT
```

```
    U.country,
```

```
    S.search, P.name,
```

```
    P.company,
```

```
    AR.score as bestBuyReviewScore,
```

```
    AI.score as aiReviewScore,
```

```
    S.searchDate as date
```

```
FROM User U NATURAL JOIN Searches S
```

```
NATURAL JOIN Product P
```

```
LEFT JOIN BestBuyReview AR ON P.productID = AR.productID
```

```
LEFT JOIN AIReview AI ON P.productID = AI.productID
```

Display product info no price no search no country

```
SELECT
```

```
    S.search, P.name,
```

```
    P.company,
```

```
    AR.score as bestBuyReviewScore,
```



**University of British Columbia, Vancouver**  
Department of Computer Science

---

```
        AI.score as aiReviewScore,  
  
        S.searchDate as date  
  
FROM User U NATURAL JOIN Searches S  
  
NATURAL JOIN Product P  
  
LEFT JOIN BestBuyReview AR ON P.productID = AR.productID  
  
LEFT JOIN AIReview AI ON P.productID = AI.productID
```

Display product info no price and no country

```
SELECT U.username,  
  
        S.search, P.name,  
  
        P.company,  
  
        AR.score as bestBuyReviewScore,  
  
        AI.score as aiReviewScore,  
  
        S.searchDate as date  
  
FROM User U NATURAL JOIN Searches S  
  
NATURAL JOIN Product P  
  
LEFT JOIN BestBuyReview AR ON P.productID = AR.productID  
  
LEFT JOIN AIReview AI ON P.productID = AI.productID
```

Display no username and no country

```
SELECT P.price,  
  
        S.search, P.name,
```

**University of British Columbia, Vancouver**  
Department of Computer Science

---

```
        P.company,  
  
        AR.score as bestBuyReviewScore,  
  
        AI.score as aiReviewScore,  
  
        S.searchDate as date  
  
FROM User U NATURAL JOIN Searches S  
  
NATURAL JOIN Product P  
  
LEFT JOIN BestBuyReview AR ON P.productID = AR.productID  
  
LEFT JOIN AIReview AI ON P.productID = AI.productID
```

Display product info no username

```
SELECT U.country,  
  
        S.search, P.name,  
  
        P.price, P.company,  
  
        AR.score as bestBuyReviewScore,  
  
        AI.score as aiReviewScore,  
  
        S.searchDate as date  
  
FROM User U  
  
NATURAL JOIN Searches S  
  
NATURAL JOIN Product P  
  
LEFT JOIN BestBuyReview AR  
  
    ON P.productID = AR.productID  
  
LEFT JOIN AIReview AI
```

**University of British Columbia, Vancouver**  
Department of Computer Science

---

```
ON P.productID = AI.productID
```

Display product info no username or country

```
SELECT P.price,

        S.search, P.name,

        P.company,

        AR.score as bestBuyReviewScore,

        AI.score as aiReviewScore,

        S.searchDate as date

FROM User U NATURAL JOIN Searches S

NATURAL JOIN Product P

LEFT JOIN BestBuyReview AR ON P.productID = AR.productID

LEFT JOIN AIReview AI ON P.productID = AI.productID
```

Display Product info with no price and no country columns.

```
SELECT U.username,

        S.search, P.name,

        P.company,

        AR.score as bestBuyReviewScore,

        AI.score as aiReviewScore,

        S.searchDate as date

FROM User U NATURAL JOIN Searches S
```

```
NATURAL JOIN Product P
```

```
LEFT JOIN BestBuyReview AR ON P.productID = AR.productID
```

```
LEFT JOIN AIReview AI ON P.productID = AI.productID
```

Query that retrieves searches by searchID

```
SELECT P.productID, P.name, P.price, A.score, R.score
FROM Product P
LEFT JOIN BestBuyReview A ON P.productID = A.productID
LEFT JOIN AIReview R ON P.productID = A.productID
AND A.productID = R.productID
WHERE P.searchID = User Input;
```

Query that retrieves search info for searches with and average AI score  $\geq$  user input

```
SELECT S.search, P.name, AVG(P.price), AVG(AI.score),
AVG(AR.score), date
FROM User U
NATURAL JOIN Searches S
NATURAL JOIN Product P
LEFT JOIN BestBuyReview AR ON P.productID = AR.productID
```

```
LEFT JOIN AIRreview AI ON P.productID = AI.productID
```

```
GROUP BY S.search
```

```
HAVING AI.score >= User Input;
```

Query for retrieving all search information

```
SELECT U.username, U.country, S.search, P.name, P.price,  
AR.score, AI.score
```

```
FROM User U
```

```
NATURAL JOIN Searches S
```

```
NATURAL JOIN Product P
```

```
LEFT JOIN BestBuyReview AR ON P.productID = AR.productID
```

```
LEFT JOIN AIRreview AI ON P.productID = AI.productID
```

Query for retrieving all search information that hides username

```
SELECT U.country, S.search, P.name, P.price, AR.score,  
AI.score
```

```
FROM User U
```

```
NATURAL JOIN Searches S
```

```
NATURAL JOIN Product P
```

```
LEFT JOIN BestBuyReview AR
```

```
ON P.productID = AR.productID
```

```
LEFT JOIN AIRreview AI
```

ON P.productID = AI.productID

Query to find the average price and average review score from all the searches

```
SELECT S.search, P.name, AVG(P.price), AVG(AR.score),  
       AVG(AI.score)
```

```
FROM Searches S
```

```
NATURAL JOIN Product P
```

```
LEFT JOIN BestBuyReview AR
```

```
ON P.productID = AR.productID
```

```
LEFT JOIN AIReview AI
```

```
ON P.productID = AI.productID
```

```
GROUP BY S.search;
```

Query to find the average price and review scores of searches that have been made more than once

```
SELECT S.search, AVG(P.price), AVG(AR.score),  
       AVG(AI.score)
```

```
FROM Searches S
```

```
NATURAL JOIN Product P
```

```
LEFT JOIN BestBuyReview AR
```

```
ON P.productID = AR.productID
```

```
LEFT JOIN AIReview AI
```

```
ON P.productID = AI.productID
```

```
WHERE P.searchID IN (SELECT S1.searchID
                        FROM Searches S1
                        GROUP BY S1.search
                        HAVING COUNT(*) > 1)
GROUP BY S.Search;
```

Query that finds the searches that have been made in all countries

```
DROP VIEW IF EXISTS Division;
```

```
CREATE VIEW Division AS
```

```
SELECT U.username, S.search, U.country
```

```
FROM User U LEFT JOIN Searches S ON U.username = S.username;
```

```
SELECT DISTINCT D.Search
```

FROM Division D

WHERE NOT EXISTS (SELECT U1.country

FROM User U1

EXCEPT

SELECT D1.country

FROM Division D1

WHERE D1.search = D.search);

Query that retrieves product information from a search and is ordered by top ten AI review

```
SELECT P.productID, P.name, P.price, A.score, R.score
```

```
FROM Product P LEFT JOIN BestBuyReview A ON P.productID =  
A.productID LEFT JOIN AIReview R ON P.productID =  
A.productID AND A.productID = R.productID
```

```
WHERE P.searchID = User Input
```

```
ORDER BY R.score DESC
```

```
LIMIT 10;
```

Query that retrieves product information from a search and is ordered by AI review

```
SELECT DISTINCT P.productID, P.name, P.price, A.score,  
R.score
```



```
FROM Product P LEFT JOIN BestBuyReview A ON P.productID =  
A.productID LEFT JOIN AIRreview R ON P.productID =  
A.productID AND A.productID = R.productID
```

```
WHERE P.searchID = 21
```

```
ORDER BY R.score DESC;
```

Query that finds products that are over a certain price

```
SELECT P.productID, P.name, P.price, A.score, R.score
```

```
FROM Product P
```

```
LEFT JOIN BestBuyReview A
```

```
ON P.productID = A.productID
```

```
LEFT JOIN AIRreview R
```

```
ON P.productID = A.productID
```

```
AND A.productID = R.productID
```

```
WHERE P.price <= User Input;
```

Query that adds product to a cart

```
SELECT FROM CartContainsProduct WHERE username = User Input AND  
productID = User Input
```

```
SELECT cartID FROM Cart WHERE username = User Input
```

```
INSERT INTO CartContainsProduct (cartID, username, productID)  
VALUES (cartId, userInput, userInput)
```

Query that checks if product is already in cart

```
SELECT * FROM CartContainsProduct WHERE username = User Input  
AND productID = User Input;
```

Query that adds product into cart

```
INSERT INTO CartContainsProduct (cartID, username, productID)  
VALUES (User Input, User Input, User Input)
```


Query that deletes product from cart

```
DELETE FROM CartContainsProduct WHERE productID = User Input  
AND username = UserInput
```

Screenshots of sample input/output:

### **INSERT Operation**

Before user Input:



## Sign Up

Username

Password

Address

Postal Code

City

Country

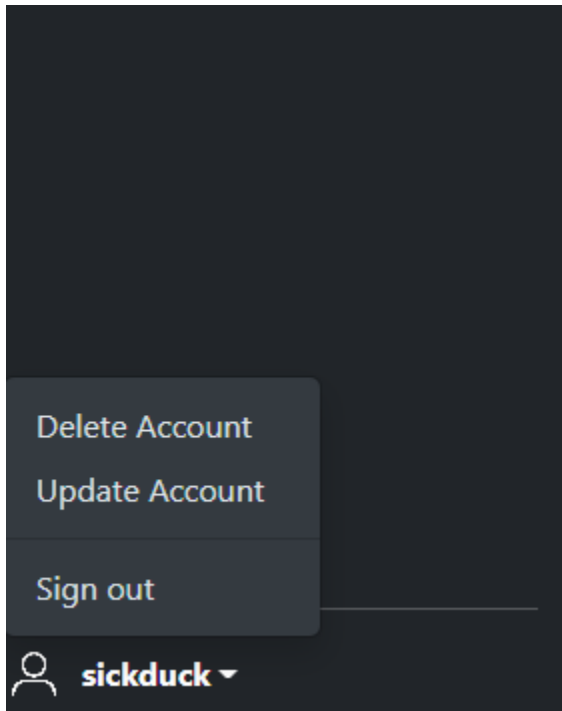
Already a User?

After User Input:

Database Structure   Browse Data   Edit Pragmas   Execute SQL						
Table: <span>User</span> <span>Filter in ...</span>						
	username	logInId	password	advertisementID	postalCode	addr
	Filter	Filter	Filter	Filter	Filter	Filter
1	shadowblade	testloginID1	password1	1	112 xyz	v6g 5
2	noobmaster68	testloginID3	password3	3	testaddress3	v9g 5
3	xanderminer	testloginID4	password4	4	testaddress4	v6g 1
4	tryhardallday	testloginID5	password5	5	testaddress5	v6g 5
5	saucemaster	testloginID6	password6	1	testaddress1	xx9 2
6	crazy8	testloginID7	password7	2	testaddress2	xx9 2
7	doobtoob	testloginID8	password8	3	testaddress3	1x9 2
8	alohahola	testloginID9	password9	4	testaddress4	xx9 2
9	6ix9ine	testloginID10	password10	5	testaddress5	xxx 2
10	elefe	testloginID91	swagmoney	1	ubc	1121








## DELETE Operation

GUI :



Changes before Input:

University of British Columbia, Vancouver  
Department of Computer Science

Database Structure   Browse Data   Edit Pragmas   Execute SQL					
Table: <span>User</span>       					
	username	loginId	password	advertisementID	postalCod
	Filter	Filter	Filter	Filter	Filter
1	shadowblade	testloginID1	password1	1	testaddres
2	sickduck	testloginID2	password2	2	testaddres
3	noobmaster68	testloginID3	password3	3	testaddres
4	xanderminer	testloginID4	password4	4	testaddres
5	tryhardallday	testloginID5	password5	5	testaddres
6	saucemaster	testloginID6	password6	1	testaddres
7	crazy8	testloginID7	password7	2	testaddres
8	doobtoob	testloginID8	password8	3	testaddres
9	alohahola	testloginID9	password9	4	testaddres
10	6ix9ine	testloginID10	password10	5	testaddres

---

Changes in Database:

Table: <span>User</span> <span>Filter in ...</span>						
	username	logInId	password	advertisementID	postalCode	addre
	Filter	Filter	Filter	Filter	Filter	Filter
1	shadowblade	testloginID1	password1	1	testaddress1	v6g 56
2	noobmaster68	testloginID3	password3	3	testaddress3	v9g 56
3	xanderminer	testloginID4	password4	4	testaddress4	v6g 16
4	tryhardallday	testloginID5	password5	5	testaddress5	v6g 56
5	saucemaster	testloginID6	password6	1	testaddress1	xx9 22
6	crazy8	testloginID7	password7	2	testaddress2	xx9 20
7	doobtoob	testloginID8	password8	3	testaddress3	1x9 22
8	alohahola	testloginID9	password9	4	testaddress4	xx9 21
9	6ix9ine	testloginID10	password10	5	testaddress5	xxx 22



## UPDATE Operation








GUI:

The screenshot displays a web application interface with a modal form titled "Account Info : shadowblade (#testloginID1)". The modal is overlaid on a background that shows a table with columns: ProductID, Name, Company, Price, and Bestbuy Rating. The modal form contains the following fields:

- Username:** shadowblade
- Password:** password1
- Address:** v6g 565
- City:** Vancouver
- Zip Code:** testaddress1
- Country:** Canada

A blue button labeled "Update User" is located at the bottom right of the modal form.

Changes before Input:

Table:  User       » Filter in ...

	password	advertisementID	postalCode	address	city	country
	Filter	Filter	Filter	Filter	Filter	Filter
1	password1	1	testaddress1	v6g 565	Vancouver	Canada
2	password3	3	testaddress3	v9g 565	Vancouver	Canada
3	password4	4	testaddress4	v6g 165	Vancouver	Canada
4	password5	5	testaddress5	v6g 565	Vancouver	Canada
5	password6	1	testaddress1	xx9 221	Brooklyn	United States
6	password7	2	testaddress2	xx9 201	Paris	France
7	password8	3	testaddress3	1x9 221	Mexico City	Mexico
8	password9	4	testaddress4	xx9 211	Mogadishu	Somalia
9	password10	5	testaddress5	xxx 221	Cairo	Egypt

Changes in Database:

## Department of Computer Science

## Selection Operation

Changes before Input (when user inputs a max price)

### Database Dealers

SearchCartSearch HistorySign out

#### Search Page

Queries :

Select top products

#Products

☐ Order By AI Sentiment Score

Filter (max price)


CA\$

Search

Search

Search

ProductID	Name	Company	Price	Bestbuy Rating	AI Score	
6110713	AppleCare+ for iPhone - Monthly	AppleCare	CA\$9.99	4.7	3.4	<div>Add to Cart</div>
6110714	AppleCare+ for iPhone - Monthly	AppleCare	CA\$199	4.7	2.1	<div>Add to Cart</div>
6368834	AppleCare+ for iPhone 11 Pro - Monthly Plan	AppleCare	CA\$9.99	4.7	3.4	<div>Add to Cart</div>
6430553	AppleCare+ for iPhone 8 - 2 Year Plan	AppleCare	CA\$129	5	2.5	<div>Add to Cart</div>
6430558	AppleCare+ for iPhone Xs - 2 Year Plan	AppleCare	CA\$199	5	2.5	<div>Add to Cart</div>
6430559	AppleCare+ for iPhone X - 2 Year Plan	AppleCare	CA\$199	0	0	<div>Add to Cart</div>
6430560	AppleCare+	AppleCare	CA\$149	4.4	3.7	<div>Add to Cart</div>

 shadowblade

Changes after Input:

# Database Dealers

[Search](#)[Cart](#)[Search History](#)[Sign out](#)

## Search Page

Queries :

Select top products


#Products

☐ Order By AI Sentiment Score

Filter (max price)

CA\$ 100

Search

 shadowblade

Search

Search

ProductID	Name	Company	Price	Bestbuy Rating	AI Score	
366110713	AppleCare+ for iPhone - Monthly		CA\$9.99	4.7	3.4	<div>Add to Cart</div>
366368834	AppleCare+ for iPhone 11 Pro - Monthly Plan		CA\$9.99	4.7	3.4	<div>Add to Cart</div>

PROJECTION Operation

Changes before Input:

Database Dealers

Search Cart Search History Sign out

Search History Page

Filter (min AI score)

Rating

☐ Hide Username

☐ Hide Country

☐ Hide Price

Display all searches

Display searches > 1 (Duplicates)

Display searches made in all countries

Username	Country	Search	Name	Price	AI Sentiment	Best Buy Score	Date
xanderminer	Canada	mouse pad	mouse pad	19.99	5	5	2016
xanderminer	Canada	gaming mouse	gaming mouse	25.19	4	4	2016
xanderminer	Canada	playstation	Playstation 5	599.99	3	3	2016
xanderminer	Canada	cpu	Ryzen 7 CPU	499.99	2	2	2016
xanderminer	Canada	gpus	rtx 3090ti	1500.99	1	1	2016
6ix9ine	Egypt	gpus	gpu1	300	5	4	2016
6ix9ine	Egypt	gpus	gpu2	800	4.9	2.2	2016
6ix9ine	Egypt	gpus	gpu3	69.99	3.1	0.3	2016
6ix9ine	Egypt	gpus	gtx 1080ti	250	4.1	3.3	2016
6ix9ine	Egypt	gpus	gpu4	100000	3.6	2.4	2016
sickduck	Canada	ps5	KontrolFreek - FPS Freek Inferno 4 Prong Performance Thumbsticks for PS5 and PS4 - Red	12.99	N/A	N/A	1986
sickduck	Canada	ps5	KontrolFreek - FPS Freek Galaxy 4 Prong Performance Thumbstick for PS5 and PS4 - Purple	12.99	2.7	4.7	1986
sickduck	Canada	ps5	KontrolFreek - FPS Aim Boost Kit for PS5 and PS4	21.99	3.5	4.6	1986
sickduck	Canada	ps5	Shantae Half-Genie Hero - PlayStation 5	34.99	N/A	N/A	1986
sickduck	Canada	ps5	Shantae and the Seven Sirens - PlayStation 5	34.99	N/A	N/A	1986
sickduck	Canada	ps5	Shantae - PlayStation 5	34.99	N/A	N/A	1986

Changes after Input:

Database Dealers

Search Cart Search History Sign out

Search History Page

Filter (min AI score)

Rating

☒ Hide Username

☐ Hide Country

☐ Hide Price

Display all searches

Display searches > 1 (Duplicates)

Display searches made in all countries

Username	Country	Search	Name	Price	AI Sentiment	Best Buy Score	Date
	Canada	mouse pad	mouse pad	19.99	5	5	2016
	Canada	gaming mouse	gaming mouse	25.19	4	4	2016
	Canada	playstation	Playstation 5	599.99	3	3	2016
	Canada	cpu	Ryzen 7 CPU	499.99	2	2	2016
	Canada	gpus	rtx 3090ti	1500.99	1	1	2016
	Egypt	gpus	gpu1	300	5	4	2016
	Egypt	gpus	gpu2	800	4.9	2.2	2016
	Egypt	gpus	gpu3	69.99	3.1	0.3	2016
	Egypt	gpus	gtx 1080ti	250	4.1	3.3	2016
	Egypt	gpus	gpu4	100000	3.6	2.4	2016
	Canada	ps5	KontrolFreek - FPS Freek Inferno 4 Prong Performance Thumbsticks for PS5 and PS4 - Red	12.99	N/A	N/A	1986
	Canada	ps5	KontrolFreek - FPS Freek Galaxy 4 Prong Performance Thumbstick for PS5 and PS4 - Purple	12.99	2.7	4.7	1986
	Canada	ps5	KontrolFreek - FPS Aim Boost Kit for PS5 and PS4	21.99	3.5	4.6	1986
	Canada	ps5	Shantae Half-Genie Hero - PlayStation 5	34.99	N/A	N/A	1986
	Canada	ps5	Shantae and the Seven Sirens - PlayStation 5	34.99	N/A	N/A	1986
	Canada	ps5	Shantae - PlayStation 5	34.99	N/A	N/A	1986
	Canada	ps5	River City Girls - PlayStation 5	34.99	N/A	N/A	1986
	Canada	ps5	Shantae - PlayStation 5	34.99	N/A	N/A	1986

Database Dealers

SearchCartSearch HistorySign out

Search History Page

Filter (min AI score)

Rating

Hide Username

Hide Country

Hide Price

Display all searches

Display searches > 1 (Duplicates)

Display searches made in all countries

sickduck

Username	Country	Search	Name	Price	AI Sentiment	Best Buy Score	Date
		mouse pad	mouse pad	19.99	5	5	2016
		gaming mouse	gaming mouse	25.19	4	4	2016
		playstation	Playstation 5	599.99	3	3	2016
		cpu	Ryzen 7 CPU	499.99	2	2	2016
		gpus	rtx 3090ti	1500.99	1	1	2016
		gpus	gpu1	300	5	4	2016
		gpus	gpu2	800	4.9	2.2	2016
		gpus	gpu3	69.99	3.1	0.3	2016
		gpus	gtx 1080ti	250	4.1	3.3	2016
		gpus	gpu4	100000	3.6	2.4	2016
		ps5	KontrolFreek - FPS Freek Inferno 4 Prong Performance Thumbsticks for PS5 and PS4 - Red	12.99	N/A	N/A	1986
		ps5	KontrolFreek - FPS Freek Galaxy 4 Prong Performance Thumbstick for PS5 and PS4 - Purple	12.99	2.7	4.7	1986
		ps5	KontrolFreek - FPS Aim Boost Kit for PS5 and PS4	21.99	3.5	4.6	1986
		ps5	Shantae Half-Genie Hero - PlayStation 5	34.99	N/A	N/A	1986
		ps5	Shantae and the Seven Sirens - PlayStation 5	34.99	N/A	N/A	1986
		ps5	Shantae - PlayStation 5	34.99	N/A	N/A	1986
		ps5	River City Girls - PlayStation 5	34.99	N/A	N/A	1986
		os5	Quake - PlayStation 5	34.99	N/A	N/A	1986

Database Dealers

SearchCartSearch HistorySign out

Search History Page

Filter (min AI score)

Rating

Hide Username

Hide Country

Hide Price

Display all searches

Display searches > 1 (Duplicates)

Display searches made in all countries

sickduck

Username	Country	Search	Name	Price	AI Sentiment	Best Buy Score	Date
		mouse pad	mouse pad	5	5	5	2016
		gaming mouse	gaming mouse	4	4	4	2016
		playstation	Playstation 5	3	3	3	2016
		cpu	Ryzen 7 CPU	2	2	2	2016
		gpus	rtx 3090ti	1	1	1	2016
		gpus	gpu1	5	4	4	2016
		gpus	gpu2	4.9	2.2	2.2	2016
		gpus	gpu3	3.1	0.3	0.3	2016
		gpus	gtx 1080ti	4.1	3.3	3.3	2016
		gpus	gpu4	3.6	2.4	2.4	2016
		ps5	KontrolFreek - FPS Freek Inferno 4 Prong Performance Thumbsticks for PS5 and PS4 - Red	N/A	N/A	N/A	1986
		ps5	KontrolFreek - FPS Freek Galaxy 4 Prong Performance Thumbstick for PS5 and PS4 - Purple	2.7	4.7	4.7	1986
		ps5	KontrolFreek - FPS Aim Boost Kit for PS5 and PS4	3.5	4.6	4.6	1986
		ps5	Shantae Half-Genie Hero - PlayStation 5	N/A	N/A	N/A	1986
		ps5	Shantae and the Seven Sirens - PlayStation 5	N/A	N/A	N/A	1986
		ps5	Shantae - PlayStation 5	N/A	N/A	N/A	1986
		ps5	River City Girls - PlayStation 5	N/A	N/A	N/A	1986
		os5	Quake - PlayStation 5	N/A	N/A	N/A	1986

## **JOIN Operation**

Changes before Input:



# Database Dealers

[Search](#)[Cart](#)[Search History](#)[Sign out](#)

## Search Page

### Queries :

Select top products

#Products

☐ Order By AI Sentiment Score

Filter (max price)


CA\$

Search

Search

Search

ProductID	Name	Company	Price	Bestbuy Rating	AI Score
-----------	------	---------	-------	----------------	----------

 shadowblade

Changes after Input

# Database Dealers

[Search](#)[Cart](#)[Search History](#)[Sign out](#)

## Search Page

Queries :

Select top products

#Products

☐ Order By AI Sentiment Score

Filter (max price)

CA\$

Search

shadowblade

xbox

Search

ProductID	Name	Company	Price	Bestbuy Rating	AI Score	
4248500	Microsoft - Xbox \$50 Gift Card - Multi	Microsoft	CA\$50	4.9	1.8	<div>Add to Cart</div>
4249413	Microsoft - Xbox \$25 Gift Card - Multi	Microsoft	CA\$25	4.9	1.8	<div>Add to Cart</div>
4605700	Microsoft - Xbox \$100 Gift Card - Multi	Microsoft	CA\$100	4.9	1.8	<div>Add to Cart</div>
6512573	Microsoft Complete for Xbox Console - 3 Year Plan	Microsoft	CA\$49	0	0	<div>Add to Cart</div>
6512574	Microsoft Complete for Xbox Controller - 3 Year Plan	Microsoft	CA\$19.99	0	0	<div>Add to Cart</div>
6508430	Forza	Xbox Game	CA\$34.99	1	2.5	<div>Add</div>



AGGREGATION BY GROUP BY Operation

Changes before input:

# Database Dealers

[Search](#)[Cart](#)[Search History](#)[Sign o](#)

## Search History Page

Filter (min AI score)

Rating

☐ Hide Username

Display all searches

Display searches > 1 (Duplicates)

Display searches made in all countries

shadowblade

Username	Country	Search	Name	Price	AI Sentiment	Best Buy Score
xanderminer	Canada	mouse pad	mouse pad	19.99	5	5
xanderminer	Canada	gaming mouse	gaming mouse	25.19	4	4
xanderminer	Canada	playstation	Playstation 5	599.99	3	3
xanderminer	Canada	cpu	Ryzen 7 CPU	499.99	2	2
xanderminer	Canada	gpus	rtx 3090ti	1500.99	1	1
6ix9ine	Egypt	gpus	gpu1	300	5	4
6ix9ine	Egypt	gpus	gpu2	800	4.9	2.2
6ix9ine	Egypt	gpus	gpu3	69.99	3.1	0.3
6ix9ine	Egypt	gpus	gtx 1080ti	250	4.1	3.3
6ix9ine	Egypt	gpus	gpu4	100000	3.6	2.4
shadowblade	Canada	alienware	Alienware - AREA-51 2.8GHz Notebook	2529.99	N/A	N/A
shadowblade	Canada	alienware	Alienware - AREA-51m Notebook	2529.99	2.5	3

Changes after input (pressing display all searches button):

# Database Dealers

[Search](#)[Cart](#)[Search History](#)[Sign out](#)

## Search History Page

Filter (min AI score)

Rating

☐ Hide Username

Display all searches

Display searches > 1 (Duplicates)

Display searches made in all countries

shadowblade

Username	Country	Search	Name	Price	AI Sentiment	Best Buy Score
		alienware		850.4899999999998	1.8	4.1
		cpu		499.99	2	2
		gaming mouse		25.19	4	4
		gpus		17153.496666666666	3.6	2.2
		macbook		3185.297	1	1.9
		mouse		14.690000000000001	2.3	4.4
		mouse pad		19.99	5	5
		nintendo		18.594	1.8	4.4
		playstation		599.99	3	3
		ps5		30.101111111111113	0.7	1
		xbox		48.49400000000001	1.3	3



AGGREGATION WITH HAVING Operation

Changes before input

Database Dealers

Search

Cart

Search History

Sign out

Search History Page

Filter (min AI score)


Rating

☐ Hide Username

Display all searches

Display searches > 1 (Duplicates)

Display searches made in all countries

 shadowblade

Username	Country	Search	Name	Price	AI Sentiment	Best Buy Score
xanderminer	Canada	mouse pad	mouse pad	19.99	5	5
xanderminer	Canada	gaming mouse	gaming mouse	25.19	4	4
xanderminer	Canada	playstation	Playstation 5	599.99	3	3
xanderminer	Canada	cpu	Ryzen 7 CPU	499.99	2	2
xanderminer	Canada	gpus	rtx 3090ti	1500.99	1	1
6ix9ine	Egypt	gpus	gpu1	300	5	4
6ix9ine	Egypt	gpus	gpu2	800	4.9	2.2
6ix9ine	Egypt	gpus	gpu3	69.99	3.1	0.3
6ix9ine	Egypt	gpus	gtx 1080ti	250	4.1	3.3
6ix9ine	Egypt	gpus	gpu4	100000	3.6	2.4
shadowblade	Canada	alienware	Alienware - AREA-51 2.8GHz Notebook	2529.99	N/A	N/A
shadowblade	Canada	alienware	Alienware - AREA-51m Notebook	2529.99	2.5	3

Changes after input (after inputting min A.I. score 1.5):

# Database Dealers

[Search](#)[Cart](#)[Search History](#)[Sign out](#)

## Search History Page

Filter (min AI score)

Rating

1.5


☐ Hide Username

Display all searches

Display searches > 1  
(Duplicates)

Display searches made in all  
countries

Username	Country	Search	Name	Price	AI Sentiment	Best Buy Score	Date
		alienware			1.8	4.1	
		cpu			2	2	
		gaming mouse			4	4	
		mouse			2.3	4.4	
		mouse pad			5	5	
		nintendo			1.8	4.4	
		playstation			3	3	
		xbox			1.3	3	

 shadowblade





NESTED AGGREGATION WITH GROUP BY Operation

Changes before input (after pressing display searches >1):

Database Dealers

SearchCartSearch HistorySign out

Search History Page

Filter (min AI score)


Rating

☐ Hide Username

Display all searches

Display searches > 1 (Duplicates)

Display searches made in all countries

 shadowblade

Username	Country	Search	Name	Price	AI Sentiment	Best Buy Score	
xanderminer	Canada	mouse pad	mouse pad	19.99	5	5	2
xanderminer	Canada	gaming mouse	gaming mouse	25.19	4	4	2
xanderminer	Canada	playstation	Playstation 5	599.99	3	3	2
xanderminer	Canada	cpu	Ryzen 7 CPU	499.99	2	2	2
xanderminer	Canada	gpus	rtx 3090ti	1500.99	1	1	2
6ix9ine	Egypt	gpus	gpu1	300	5	4	2
6ix9ine	Egypt	gpus	gpu2	800	4.9	2.2	2
6ix9ine	Egypt	gpus	gpu3	69.99	3.1	0.3	2
6ix9ine	Egypt	gpus	gtx 1080ti	250	4.1	3.3	2
6ix9ine	Egypt	gpus	gpu4	100000	3.6	2.4	2
shadowblade	Canada	alienware	Alienware - AREA-51 2.8GHz Notebook	2529.99	N/A	N/A	2
shadowblade	Canada	alienware	Alienware - AREA-51m Notebook	2529.99	2.5	3	2

Changes after input:

# Database Dealers

[Search](#)[Cart](#)[Search History](#)[Sign out](#)

## Search History Page

Filter (min AI score)

Rating


☐ Hide Username

Display all searches

Display searches > 1 (Duplicates)

Display searches made in all countries

Username	Country	Search	Name	Price	AI Sentiment	Best Buy Score
		gpus		1500.99	1	1
		mouse		14.690000000000001	2.3	4.4
		xbox		48.494	1.3	3

 shadowblade ▾

## Before Input

Database Dealers								
Search History Page								
Filter (min AI score)								
Rating								
Hide Username								
Display all searches								
Display searches > 1 (Duplicates)								
Display searches made in all countries								
shadowblade								
Username	Country	Search	Name	Price	AI Sentiment	Best Buy Score	D	
xanderminer	Canada	mouse pad	mouse pad	19.99	5	5	20	
xanderminer	Canada	gaming mouse	gaming mouse	25.19	4	4	20	
xanderminer	Canada	playstation	Playstation 5	599.99	3	3	20	
xanderminer	Canada	cpu	Ryzen 7 CPU	499.99	2	2	20	
xanderminer	Canada	gpus	rtx 3090ti	1500.99	1	1	20	
6ix9ine	Egypt	gpus	gpu1	300	5	4	20	
6ix9ine	Egypt	gpus	gpu2	800	4.9	2.2	20	
6ix9ine	Egypt	gpus	gpu3	69.99	3.1	0.3	20	
6ix9ine	Egypt	gpus	gtx 1080ti	250	4.1	3.3	20	
6ix9ine	Egypt	gpus	gpu4	100000	3.6	2.4	20	
shadowblade	Canada	alienware	Alienware - AREA-51 2.8GHz Notebook	2529.99	N/A	N/A	10	
shadowblade	Canada	alienware	Alienware - AREA-51m Notebook	2529.99	2.5	3	10	

After user Input (pressing display searches made in all countries button):

# Database Dealers

[Search](#)[Cart](#)[Search History](#)[Sign out](#)

## Search History Page

Filter (min AI score)


Rating

☐ Hide Username

Display all searches

Display searches > 1  
(Duplicates)

Display searches made in all  
countries

 shadowblade ▾

Username	Country	Search	Name	Price	AI Sentiment	Best Buy Score	Date
		gpus			N/A	N/A	