**Ques 1**

CVS Health is trying to better understand its pharmacy sales, and how well different products are selling. Each drug can only be produced by one manufacturer.

Write a query to find the top 3 most profitable drugs sold, and how much profit they made. Assume that there are no ties in the profits. Display the result from the highest to the lowest total profit.

**Definition:**

* **cogs** stands for Cost of Goods Sold which is the direct cost associated with producing the drug.
* Total Profit = Total Sales - Cost of Goods Sold

**pharmacy\_sales Table:**

| **Column Name** | **Type** |
| --- | --- |
| product\_id | integer |
| units\_sold | integer |
| total\_sales | decimal |
| cogs | decimal |
| manufacturer | varchar |
| drug | varchar |

**pharmacy\_sales Example Input:**

| **product\_id** | **units\_sold** | **total\_sales** | **cogs** | **manufacturer** | **drug** |
| --- | --- | --- | --- | --- | --- |
| 9 | 37410 | 293452.54 | 208876.01 | Eli Lilly | Zyprexa |
| 34 | 94698 | 600997.19 | 521182.16 | AstraZeneca | Surmontil |
| 61 | 77023 | 500101.61 | 419174.97 | Biogen | Varicose Relief |
| 136 | 144814 | 1084258 | 1006447.73 | Biogen | Burkhart |

**Example Output:**

| **drug** | **total\_profit** |
| --- | --- |
| Zyprexa | 84576.53 |
| Varicose Relief | 80926.64 |
| Surmontil | 79815.03 |

**Explanation:**

Zyprexa made the most profit (of $84,576.53) followed by Varicose Relief (of $80,926.64) and Surmontil (of $79,815.3).

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**Ques 2**  
  
Assume you're given two tables containing data about Facebook Pages and their respective likes (as in "Like a Facebook Page").

Write a query to return the IDs of the Facebook pages that have zero likes. The output should be sorted in ascending order based on the page IDs.

### pages Table:

| **Column Name** | **Type** |
| --- | --- |
| page\_id | integer |
| page\_name | varchar |

### pages Example Input:

| **page\_id** | **page\_name** |
| --- | --- |
| 20001 | SQL Solutions |
| 20045 | Brain Exercises |
| 20701 | Tips for Data Analysts |

### page\_likes Table:

| **Column Name** | **Type** |
| --- | --- |
| user\_id | integer |
| page\_id | integer |
| liked\_date | datetime |

### page\_likes Example Input:

| **user\_id** | **page\_id** | **liked\_date** |
| --- | --- | --- |
| 111 | 20001 | 04/08/2022 00:00:00 |
| 121 | 20045 | 03/12/2022 00:00:00 |
| 156 | 20001 | 07/25/2022 00:00:00 |

### Example Output:

| **page\_id** |
| --- |
| 20701 |

**Ques 3**

Tesla is investigating production bottlenecks and they need your help to extract the relevant data. Write a query to determine which parts have begun the assembly process but are not yet finished.

Assumptions:

* **parts\_assembly** table contains all parts currently in production, each at varying stages of the assembly process.
* An unfinished part is one that lacks a **finish\_date**.

This question is straightforward, so let's approach it with simplicity in both thinking and solution.

*Effective April 11th 2023, the problem statement and assumptions were updated to enhance clarity.*

**parts\_assembly Table**

| **Column Name** | **Type** |
| --- | --- |
| part | string |
| finish\_date | datetime |
| assembly\_step | integer |

**parts\_assembly Example Input**

| **part** | **finish\_date** | **assembly\_step** |
| --- | --- | --- |
| battery | 01/22/2022 00:00:00 | 1 |
| battery | 02/22/2022 00:00:00 | 2 |
| battery | 03/22/2022 00:00:00 | 3 |
| bumper | 01/22/2022 00:00:00 | 1 |
| bumper | 02/22/2022 00:00:00 | 2 |
| bumper |  | 3 |
| bumper |  | 4 |

**Example Output**

| **part** | **assembly\_step** |
| --- | --- |
| bumper | 3 |
| bumper | 4 |

**Explanation**

The bumpers in step 3 and 4 are the only item that remains unfinished as it lacks a recorded finish date.