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CSE-1010

**PROBLEM STATEMENT**

Compute and display the square centimeters on a sheet of material that have a refractive index equal to or greater than an inputted maximum refractive index.

**INPUT**

Maximum refractive index

**Constraints**

* **The refractive index must be greater than zero**

**OUTPUT**

The count of locations that have a refractive index greater than the input

Table with all values that that have a refractive index greater than the input (rows|colums|value)

**HAND EXAMPLE**

Given the following 3x4 sheet with indicated refractive indexes.

|  |  |  |  |
| --- | --- | --- | --- |
| 1.50 | 1.45 | 1.52 | 1.55 |
| 1.60 | 1.56 | 1.55 | 1.23 |
| 1.46 | 1.60 | 1.66 | 1.54 |

Given the following 3x3 sheet with indicated refractive indexes.

Input

InputMaxReractiveIndex = 1.6

Output

Number of square centimeters with refractive index greater than or equal to 1.6 is 3

|  |  |  |
| --- | --- | --- |
| Rows | Columns | Values |
| 2 | 1 | 1.60 |
| 3 | 2 | 1.60 |
| 3 | 3 | 1.66 |

**ALGORITHM**

1. Ask for the user to input their maximum desired refractive index
2. Find and display the number of values larger than the input
3. Extract the values greater than the input
4. Output a table with the row and column location of each value along with the value.

**PROBLEM 2**

**PROBLEM STATEMENT**

Given its ID, remove a protein from the database. The protein and the ID must both exist within the database.

**INPUT**

Protein ID

**Constraints**

* The ID must exist within the database
* ID must match a protein within the database
* The ID must be unique and within character limits for the database

**OUTPUT**

The protein sequence with matching ID to the input will be removed from the database. The database minus would then be printed omitting the deleted entry.

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **SEQUENCE** | **COMPOSITION** | **MOLECULAR WEIGHT** |
| Protein-A | MKIL | M  K  I  L | 1220 |
| Protein-B | YWJQJ | Y,1  W,1  J,2  Q,1 | 1455 |
| Protein-C | POLP | P,1  O,1  L,1  P,1 | 1220 |
| Protein-D | GKIWK | G,1  K,2  I,1  W,1 | 1303 |

**HAND EXAMPLE**

When prompted for input, the ID Protein-C is entered.

The program searches the database for a protein sequence identified by the ID Protein-C and removes it

The following is then printed:

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **SEQUENCE** |  | **MOLECULAR WEIGHT** |
| Protein-A | MKIL | M,1  K,1  I,1  L,1 | 1220 |
| Protein-B | YWJQJ | Y,1  W,1  J,2  Q,1 | 1455 |
| Protein-D | GKIWK | G,1  K,2  I,1  W,1 | 1303 |

**ALGORITHM**

1. Get input ID
2. Verify input adheres to constraints
3. Delete the protein sequence that has ID equal the input from the database
4. Print the updated database