Exercise:

This week, Professor Snape decided to cover Amortentia (The most powerful love potion in the world!) in the class. However, he realized that he needs to check inventory for the needed ingredients. Then, he made a list for amount of needed ingredients, amount of inventory in each store in units, and unit price of each ingredient at each store in galleons. He saved these three as matrices called `p0`, `inv` and `c`, respectively to MATLAB as workspace named `ICE6w.mat`. However, he is not good at programming; that's why he needs our help (Even though we are just Muggles, we can make magical things on Matlab.).

You are required to write a script that helps Prof. Snape to decide whether to buy an ingredient from a store or not. As expected, he wants to minimize the cost. To do this, you need to find store with minimum price that has sufficient inventory. Meanwhile, calculate the total cost. You should print out purchasing decision for each product and the total cost as given in the output format.

! <u>Important:</u>

- In order to use given workspace, first download it from Odtuclass and copy it to your current folder. Then, write the command `load HW5w2` to your script before using the variables in this workspace.
- For this example, number of ingredients is 15 and number of stores is 10. However, your code must be generic; number of ingredients and number of stores should be calculated with given matrices. Do not use numbers directly since we will test your code with a different example.
- You need to check shortage. If demand of a certain ingredient is higher than inventory of any store, ingredient could not be purchased. We do not allow partial purchase.
- If an ingredient is the cheapest in more than one stores inventory of which is sufficient, you can select any of them.

Output Format

```
>>HW5_ID1234567_Q2
Ingredient  1 purchased from store  7
Ingredient  2 purchased from store  7
Ingredient  3 purchased from store  9
Ingredient  4 purchased from store  9
Ingredient  5 purchased from store  5
Ingredient  6 purchased from store  1
Ingredient  7 purchased from store  3
Ingredient  8 purchased from store  4
Demand of ingredient  9 not satisfied!
Ingredient 10 purchased from store  5
Ingredient 11 purchased from store  9
Ingredient 12 purchased from store  3
Ingredient 13 purchased from store  5
Ingredient 14 purchased from store  7
Ingredient 15 purchased from store  3
Total cost is 4529 galleons.
```

Output is correct for the given workspace.