SEVEN LAKES KICKOFF CLASSIC

MAKE STROUDONIA GREAT AGAIN

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1. Another Brick in the Wall (Part 1)

Input File: none
Output File: standard out

PROBLEM DESCRIPTION:
The main reason that many people of Stroudonia feel the need to make it “great again” is that its bordering nations – Aruba and Robotown – are stealing jobs from the Glorious Nation. Robots basically work for free, and tubing in Aruba is so fun that many people don’t bother to visit Stroudonia. Thus, a wall needs to be built to keep the jobs in Stroudonia (we know it isn’t logical, but if we say it enough, it will make sense!).

INPUT DESCRIPTION:
No input.

OUTPUT DESCRIPTION:
Output the planned diagram of the wall, as shown in the sample output. The top of the wall is represented by underscores.

SAMPLE INPUT:

```
No input.
```

SAMPLE OUTPUT:

```
___________________
|xx|xx|xx|xx|xx|xx|
x|xx|xx|xx|xx|xx|xx
xx|xx|xx|xx|xx|xx|x
|xx|xx|xx|xx|xx|xx|
-------------------
```

2. The ‘B’ Word

Input File: bword.in
Output File: standard out

PROBLEM DESCRIPTION:
Despite having his companies file for government rescue three times in the past two decades and having over four billion dollars in personal debt at one point, Stroud still does not admit to “bankruptcy”. In fact, Stroud absolutely detests this word; he goes into a blind rage at the mere mention of this word. Thus, he has tasked you with the project of creating a device that will intelligently filter out this word from all 5 of his senses (yes, including smell).

INPUT DESCRIPTION:
There will be a stream of words, one on each line; the words will always start with a lowercase letter.

OUTPUT DESCRIPTION:
Print out “`ok`” if the word does not begin with the letter “`b`”. If the word begins letter “`b`”, but is not “`bankruptcy`”, print out “`uh-oh`”. If and only if the word is “`bankruptcy`”, print out “`YOU’RE FIRED`”.

SAMPLE INPUT:

```
bonobo
innocent
balloon
bankruptcy
football
```

SAMPLE OUTPUT:

```
uh-oh
ok
uh-oh
YOU’RE FIRED
ok
```

3. Pledge

Input File: none
Output File: standard out

PROBLEM DESCRIPTION:
Sensing decreasing support for him from the poll results, Stroud wants to change Stroudonia's pledge to be more supportive of him – as if it wasn't enough already.

INPUT DESCRIPTION:
None

OUTPUT DESCRIPTION:
Print the new pledge, written by Stroud himself, as shown in the sample output.

SAMPLE INPUT:

```
No input
```

SAMPLE OUTPUT:

```
Stroudonia, you great Stroudonia!
Led by the great Stroud, we will never fail!
The successful leader, with his luxurious hair,
will never ever fail us.
```

4. Transactions

Input File: trans.in
Output File: standard out

PROBLEM DESCRIPTION:
The Stroud Foundation does nothing wrong, so why do people need to see the large sums of money that come in as donations? It's not like the Stroud Foundation was using the government to make money, selling access to the government, right?

INPUT DESCRIPTION:
The first line contains integer **n** that specifies the number of test cases to follow. Each test case contains a double **d** that represents the amount of money that is coming in to the Stroud Foundation.

OUTPUT DESCRIPTION:
If the amount coming in is less than 5,000, print "`approved`". If it is greater than or equal to 5,000 but less than 50,000, print "`maybe not`". If the amount is greater than 50,000, print "`uh-oh`".

SAMPLE INPUT:

```
5
10.222
1642.234
7000.00
981923.99
35845.139
```

SAMPLE OUTPUT:

```
approved
approved
maybe not
uh-oh
maybe not
```

5. Tacocat

Input File: taco.in
Output File: standard out

PROBLEM DESCRIPTION:
It’s Taco Tuesday in Stroudonia, and everyone’s favorite taco stand, TACOCAT, is low on tortillas. They will need a small loan of a million dollars in order to continue business among the stands. Calculate the maximum amount of tacos TACOCAT can make with the given amount of money for each stand.

INPUT DESCRIPTION:
The first line contains an Integer **n** that represents how many TACOCAT taco stands will have money to use (aka how many data sets to follow). The next **n** lines each contain integers **m**, which represents how much money that stand gets, **e**, the amount of energy the stand worker has, **c**, the cost of making one taco (in dollars), and **u**, how much energy is used to make each taco, in that order and separated by spaces.

OUTPUT DESCRIPTION:
For each taco stand (data set), output the maximum number of tacos that can be made (rounded to the nearest whole taco) with the given energy and money.

SAMPLE INPUT:

```
2
250 170 19 14
2 2 3 1
```

SAMPLE OUTPUT:

```
12
0
```

6. Strexit Squares

Input File: squares.in
Output File: standard out

PROBLEM DESCRIPTION:

Stroud wants to leave the Aruban Union (AU). He believes that he should hold a referendum (even though Stroudonia is a dictatorship). In elections, the term “magic number” represents the number of votes that a candidate or option must get in order to pass. Thus, Stroud wants to know if he has achieved the magic number in each district that would bring him to win. The voting results of each district are represented in a square map. If the sum of each row, column and diagonal of the square district are all the same, then Stroudonia will leave the AU; otherwise, it will remain.

INPUT DESCRIPTION:

The input begins with the integer **n**, which represents the number of test cases to follow. Each test case begins with the integer **s**, which represents the side length of the square map that follows. Following this is a **s**x**s** square map of integers that represents the voting results of a district.

OUTPUT DESCRIPTION:

Output “`Stroudonia First`” if the voting results conclude that Stroudonia will leave the AU; otherwise, output “`United in Diversity`”.

SAMPLE INPUT:

```
2
3
2 7 6
9 5 1
4 3 8
4
1 1 1 1
1 1 1 1
1 1 1 1
1 1 1 2
```

SAMPLE OUTPUT:

```
Stroudonia First
United in Diversity
```

7. Another Brick in the Wall (Part 2)

Input File: brick2.in
Output File: standard out

PROBLEM DESCRIPTION:
Stroud is determined to build the wall, despite the rebukes from the leaders of both Aruba and Robotown. He thus has continued in his planning of the wall, examining various sized bricks that he could use in building the wall. He has been provided a list of the lengths (**l**) and widths (**w**) of various bricks, and wants to find the area that the bricks would cover.

INPUT DESCRIPTION:
The first line of the input contains an integer **n** representing the numbers of test cases to follow. The next **n** lines contain two integers separated by a space, representing **l** and **w**, respectively.

OUTPUT DESCRIPTION:
For each test case, print the area that the brick is expected to cover.

SAMPLE INPUT:

```
3
1 9
6 8
12 58
```

SAMPLE OUTPUT:

```
9
48
696
```

8. Approval Ratings

Input File: ratings.in
Output File: standard out

PROBLEM DESCRIPTION:
Stroud is seeing his approval ratings dipping. How can something this prosperous happen? The polls must be lying, and the people must see the truth! Thus, Stroud has decided to adjust the current ratings by his *Special Formula*, which is guaranteed by the great Stroud himself to be able to output his true ratings. The *Special Formula* is as follows:

$$r_{true} = 2 * \left(100 - r_{given}\right) * \sin(e^{\frac{r_{given}}{4}}) + \ r_{given}$$

Where r_{true} is the true rating as determined by the equation and r_{given} the rating given by the “lying” media.

INPUT DESCRIPTION:
The first line contains integer **n**, which represents the number of test cases to follow. The next **n** lines contain one decimal value $\mathbf{r_{given}}$**.**

OUTPUT DESCRIPTION:
Print the output of the equation, rounded to three decimal points.

SAMPLE INPUT:

```
4
50.11
32.58
44.3387
1.6722
```

SAMPLE OUTPUT:

```
20.132
62.236
149.571
198.064
```

9. Big Brains

Input File: brains.in
Output File: standard out

PROBLEM DESCRIPTION:
Stroud's brains are the biggest in the land; everyone knows that. However, some lame nerds (looking at you John Oliver) think they have bigger brains than him. In order to dispel such silly rumours, Stroud has called for a brain-measuring competition. Of course, even if someone does have bigger brains than Stroud, he doesn't have to tell anyone…

INPUT DESCRIPTION:
The first line will contain an integer **i** representing the number of test cases to follow.

The first line of each case will contain a double **d**, the volume of Stroud's brains.
The second line will contain an integer **c**, (**c** > 2) the number of competitors to follow.
The next **c** lines will contain a String **n**, guaranteed to have no spaces, representing the name of the competitor, and double **s**, representing the size of the competitor's brain.

"Sorry losers and haters, but my I.Q. is one of the highest – and you know it! Please don't feel so stupid or insecure; it's not your fault." – Glorious Leader Stroud

OUTPUT DESCRIPTION:
List, in order from largest to smallest, the brain sizes of the competitor (rounded to 2 decimal places), each followed by a space and then name of the competitor. If there is a competitor who has larger brains than Stroud, Stroud's brain size will magically swell to one unit more than that competitor's brain size to ensure that he has the largest brains.

SAMPLE INPUT:

```
1
23.1
3
Carl 12.332
Max 99.92
Sanjay 2.7
```

SAMPLE OUTPUT:

```
100.92 Stroud
99.92 Max
12.33 Carl
2.70 Sanjay
```

10. Eaten by a Grue

Input File: grue.in
Output File: standard out

PROBLEM DESCRIPTION:
Stroud has been accused by his opponent of being the Zork Killer! Preposterous, of course, but Stroud wants to make sure everyone knows that his intentions are altruistic by greeting and thanking each state in Stroudonia.

INPUT DESCRIPTION:
The first line of input contains a number **n** representing the number of states. The next **n** lines will each contain the name of a state **s**.

OUTPUT DESCRIPTION:
For each state **s**, print out "Aloha, Mahalo the great state of **s**"

SAMPLE INPUT:

```
5
Texas
Aruba
Stroudonia
America
Seven Lakes
```

SAMPLE OUTPUT:

```
Aloha, Mahalo the great state of Texas
Aloha, Mahalo the great state of Aruba
Aloha, Mahalo the great state of Stroudonia
Aloha, Mahalo the great state of America
Aloha, Mahalo the great state of Seven Lakes
```

11. HUUUUUUGE

Input File: huge.in
Output File: standard out

PROBLEM DESCRIPTION:
In order to make Stroudonia great again, it needs to be bigger – no – it needs to be HUGE. Stroud, the fearless leader of Stroudonia, has decided to make the letters of Stroudonia bigger to attract more attention to it. Stroud has asked you to capitalize only the letters in STROUDONIA so that it can be HUGE again.

INPUT DESCRIPTION:
The first line contains an integer **n** which represents how many lines will follow. The next **n** lines will each contain a sentence containing both capital and lowercase letters.

OUTPUT DESCRIPTION:
For each input line, the sentence with all lowercase occurrences of the letters ‘S’, ‘T’, ‘R’, ‘O’, ‘U’, ‘D, ‘N’, ‘I’, and ‘A’ capitalized.

SAMPLE INPUT:

```
StroUdonia Is goiNg to bE hUGe beCauSe caPiTAl lETters =
atTeNtioN. //(this is on one line)
dO You eVeR feEL liKe a plastic BAG, driFTiNg thRouGh thE WinD…
whOAAaa, wE’rE hALfwAy tHEre, WHoaaaa, liVIn On a PraYeR
```

SAMPLE OUTPUT:

```
STROUDONIA IS gOINg TO be hUge becAUSe cApITAl leTTeRS =
ATTeNTION. //(this is on one line)
DO yOU eveR feel lIke A plASTIc bAg, DRIfTINg ThROUgh The wIND…
whOAAAA, we’Re hAlfwAy TheRe, whOAAAA, lIvIN ON A pRAyeR
```

12. Encrypt Those Emails

Input File: emails.in
Output File: standard out

PROBLEM DESCRIPTION:
You are tasked with encrypting Stroud's emails. Every email has its own cipher. Given the messages and their corresponding key, encrypt each message and printout the encrypted message.

```
Example Key: qazwsxedcrfvtgbyhnujmikolp
             abcdefghijklmnopqrstuvwxyz
```

INPUT DESCRIPTION:
The first line will contain an integer **n** that represents the number of emails to be encrypted.
Each following test case will have 2 lines. The first line will contain a string with 26 characters each letter corresponding to the alphabet. The next line will contain the string to be encrypted. It will be all lower case and contain no punctuation.

OUTPUT DESCRIPTION:
On separate lines print out the encrypted message.

SAMPLE INPUT:

```
1
qazwsxedcrfvtgbyhnujmikolp
this message says bad things about stroud
```

SAMPLE OUTPUT:

```
jdcu tsuuqes uqlu aqw jdcgeu qabmj ujnbmw
```

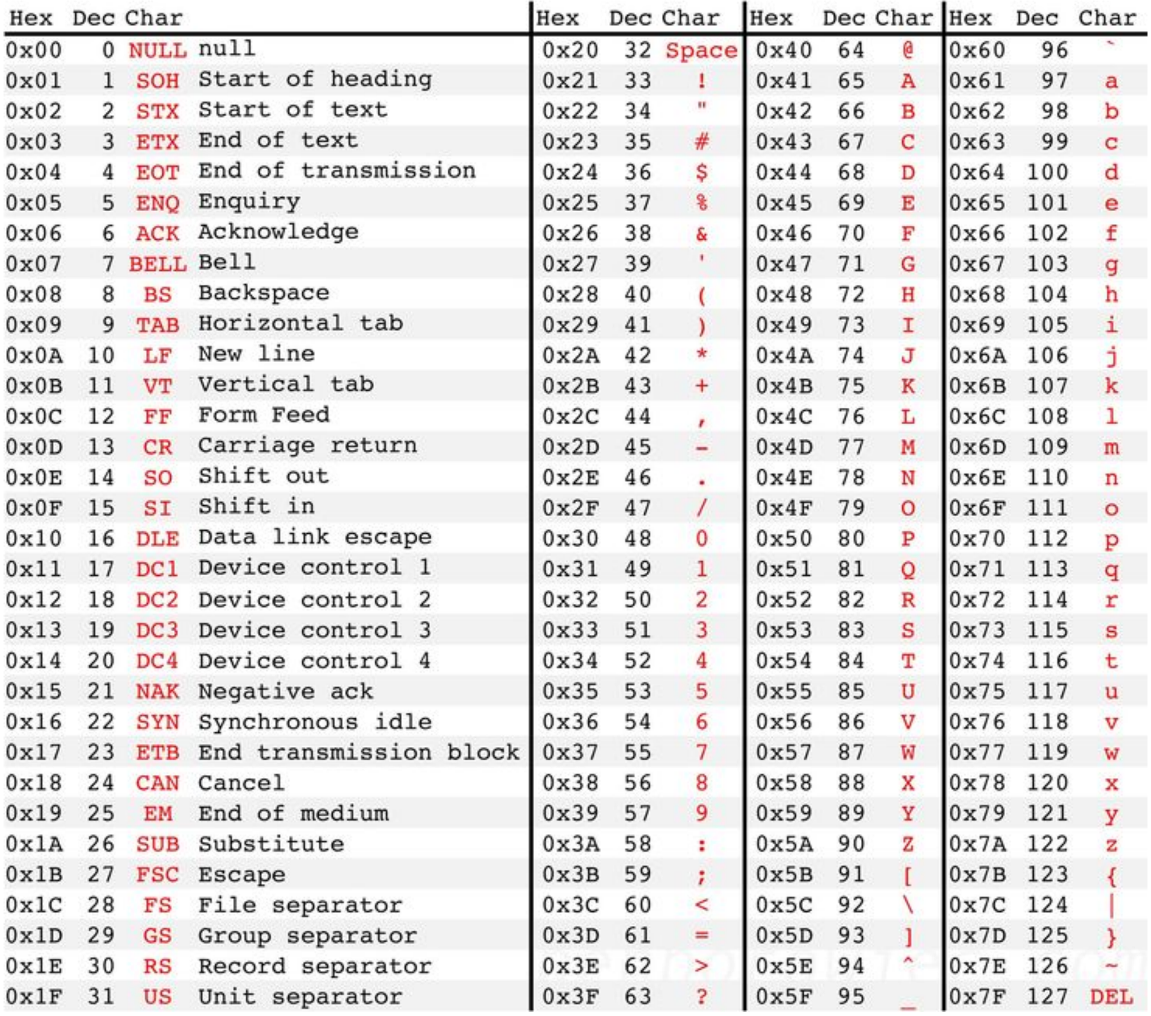
13. Clickbait

Input File: click.in
Output File: standard out

PROBLEM DESCRIPTION:

~~Miguel~~Felipe is trying to write a sensational headline for each new atrocity that Stroud has committed; however, because he is paid by how many clicks he gets on each article, he wants to make sure that he chooses the best headlines possible. Felipe determines the “click” value of each possible headline by taking the sum of the ASCII values of each character. For instance, one of his ideas is to write the headline “STROUD STRIKES AGAIN”, the “click” value would be 1446.

You may use the following ASCII chart for reference:



Hex	Dec	Char		Hex	Dec	Char	Hex	Dec	Char	Hex	Dec	Char
0x00	0	NULL	null	0x20	32	Space	0x40	64	@	0x60	96	`
0x01	1	SOH	Start of heading	0x21	33	!	0x41	65	A	0x61	97	a
0x02	2	STX	Start of text	0x22	34	"	0x42	66	B	0x62	98	b
0x03	3	ETX	End of text	0x23	35	#	0x43	67	C	0x63	99	c
0x04	4	EOT	End of transmission	0x24	36	$	0x44	68	D	0x64	100	d
0x05	5	ENQ	Enquiry	0x25	37	%	0x45	69	E	0x65	101	e
0x06	6	ACK	Acknowledge	0x26	38	&	0x46	70	F	0x66	102	f
0x07	7	BELL	Bell	0x27	39	'	0x47	71	G	0x67	103	g
0x08	8	BS	Backspace	0x28	40	(	0x48	72	H	0x68	104	h
0x09	9	TAB	Horizontal tab	0x29	41	)	0x49	73	I	0x69	105	i
0x0A	10	LF	New line	0x2A	42	*	0x4A	74	J	0x6A	106	j
0x0B	11	VT	Vertical tab	0x2B	43	+	0x4B	75	K	0x6B	107	k
0x0C	12	FF	Form Feed	0x2C	44	,	0x4C	76	L	0x6C	108	l
0x0D	13	CR	Carriage return	0x2D	45	-	0x4D	77	M	0x6D	109	m
0x0E	14	SO	Shift out	0x2E	46	.	0x4E	78	N	0x6E	110	n
0x0F	15	SI	Shift in	0x2F	47	/	0x4F	79	O	0x6F	111	o
0x10	16	DLE	Data link escape	0x30	48	0	0x50	80	P	0x70	112	p
0x11	17	DC1	Device control 1	0x31	49	1	0x51	81	Q	0x71	113	q
0x12	18	DC2	Device control 2	0x32	50	2	0x52	82	R	0x72	114	r
0x13	19	DC3	Device control 3	0x33	51	3	0x53	83	S	0x73	115	s
0x14	20	DC4	Device control 4	0x34	52	4	0x54	84	T	0x74	116	t
0x15	21	NAK	Negative ack	0x35	53	5	0x55	85	U	0x75	117	u
0x16	22	SYN	Synchronous idle	0x36	54	6	0x56	86	V	0x76	118	v
0x17	23	ETB	End transmission block	0x37	55	7	0x57	87	W	0x77	119	w
0x18	24	CAN	Cancel	0x38	56	8	0x58	88	X	0x78	120	x
0x19	25	EM	End of medium	0x39	57	9	0x59	89	Y	0x79	121	y
0x1A	26	SUB	Substitute	0x3A	58	:	0x5A	90	Z	0x7A	122	z
0x1B	27	FSC	Escape	0x3B	59	;	0x5B	91	[	0x7B	123	{
0x1C	28	FS	File separator	0x3C	60	<	0x5C	92	\	0x7C	124	|
0x1D	29	GS	Group separator	0x3D	61	=	0x5D	93	]	0x7D	125	}
0x1E	30	RS	Record separator	0x3E	62	>	0x5E	94	^	0x7E	126	~
0x1F	31	US	Unit separator	0x3F	63	?	0x5F	95	_	0x7F	127	DEL

13. Clickbait(cont.)

INPUT DESCRIPTION:

The first line contains an integer **n**, representing the number of ideas ~~Miguel~~Felipe has. The next **n** lines each contain a headline for you to analyze.

OUTPUT DESCRIPTION:

Output the value of each given string.

SAMPLE INPUT:

```
3
That thing with the crying baby
Reflected on a busy seven days
the clickbait candidate
```

SAMPLE OUTPUT:

```
2930
2817
2244
```

14. Aruban Rapids

Input File: rapids.in
Output File: standard out

PROBLEM DESCRIPTION:
In the heart of Aruba, governor McGee has neglected his duties as Official Aruban Tuber and frittered away his time making a church flyer. Glorious Leader Stroud is visiting and McGee doesn't have his rafting tube. Can you quickly navigate the rapids to give McGee his tube before the Stroud arrives?

INPUT DESCRIPTION:
The first line contains an Integer **n** which describes the number of grids to follow. There will be **n** 5X5 grids of the rapids. **S** is the starting point, **E** marks McGee's tube, **X**'s are unpassable rocks, and the rest are integers indicating how many minutes it takes to cross the corresponding square. You can only move up, right, left, and down.

OUTPUT DESCRIPTION:
Output the fewest minutes necessary to navigate the rapids.

SAMPLE INPUT:

```
1
S X 1 X X
3 2 3 5 2
1 X 4 X 3
X 1 3 1 2
2 2 X X E
```

SAMPLE OUTPUT:

```
18
```

15. Delete Everything

Input File: delete.in
Output File: standard out

PROBLEM DESCRIPTION:

Stroud's private email server has been compromised by the Arubans. He needs your help to quickly delete all the emails containing sensitive information. He gives you a list of keywords that if contained in an email must be deleted. Delete those emails and then report back to him the number of emails deleted and their subjects.

INPUT DESCRIPTION:

The first line will contain an integer **n** that represents the number of words in the dictionary.
The next **n** lines will each contain the sensitive keywords.

After the **nth** word a line will follow with an integer **e** that represents the number of emails that must be searched through, followed by **e** lines of emails.
Each email will have 2 lines. The first line will be the Subject and the second will be the Body of the email.

All letters will be Uppercase.

OUTPUT DESCRIPTION:

Print out on the first line the number of emails deleted in the format "`x email(s) deleted.`" where x is the number deleted emails. Then print on separate lines the subjects of the emails deleted in alphabetical order.

SAMPLE INPUT:

```
4
FBI
CONFIDENTIAL
SECRET
WAR
6
WE HAVE MAILED YOU THE SECRET TICKET TO THE STRONGHOLD.
THE WEAPONS WE SENT MAY HAVE FALLEN INTO THE WRONG HANDS.
WEDDING PLANS
MAKE SURE THAT THE CHRYSANTHEMUMS ARE ALL RED.
END OF THE WORLD
THE ARUBAN WAR SCANDAL
```

SAMPLE OUTPUT:

```
2 email(s) deleted.
THE ARUBAN WAR SCANDAL
WE HAVE MAILED YOU THE SECRET TICKET TO THE STRONGHOLD.
```

16. Corn Psychosis

Input File: corn.in
Output File: standard out

PROBLEM DESCRIPTION:
Tres Brennan, the governor of Oiho, a region favoured well in Stroudonia, has contracted corn psychosis in Awoi, the corn capital of Stroudonia. Despite his low popularity, Tres still believes he can win the race and his delusion has led him to believe that he has the best chance at winning if he runs from Awoi to Old Happyshire. However, Stroud's vigilant border control poses a great threat to Tres's plans as in order to protect the earth from illegal aliens, people coming from corn fields (the chief choice of landing for alien spacecraft) must be subjected to an alien test. With his illness, Tres is scared he might not be able to pass the test. As being deported to Mars would be a huge setback, Tres must pass this test at all costs. Luckily, Stroud's test is very simple. The suspect is asked to show understanding of a very basic pattern.

INPUT DESCRIPTION:
There will be one line, containing an integer **n**.
OUTPUT DESCRIPTION:
For every integer **i** from [1, **n**], follow these rules in the order shown:

If **i** is divisible by 5, print **AWOI**
If **i** is divisible by 7, print **OIHO**
If **i** is not divisible by 3, print **HAPPYSHIRE**
If **I** satisfies none of the above conditions, print **I AIN'T NO ALIEN**

There should be one line of output for each integer **i**. If multiple rules are satisfied, perform their operation in the order shown above without creating a new line.

SAMPLE INPUT:

```
9
```

SAMPLE OUTPUT:

```
HAPPYSHIRE
HAPPYSHIRE
I AIN'T NO ALIEN
HAPPYSHIRE
AWOIHAPPYSHIRE
I AIN'T NO ALIEN
OIHOHAPPYSHIRE
HAPPYSHIRE
I AIN'T NO ALIEN
```

17. Shady Server

Input File: shady.in
Output File: standard out

PROBLEM DESCRIPTION:
You are a white hat hacker that works for white-hat-hacking hacking organization in Stroudonia. You were on vacation Tubin' in Aruba, when a group of rebel Arubans kidnapped and forced you to hack into Stroud's personal email server. Fortunately, the server was not very secure and you were able to get the server's email logs. But now the hard part is parsing the logs and storing them.

INPUT DESCRIPTION:
The first line will contain an integer **n** which represents the number of members on the server.
The next **n** lines will each contain the first name of a senders.
The rest of the input lines will each have a log that describes an event on the email server.
There are three types of messages:

```
    1."[Sender] sends an email to [Recipient]. {[message body]}"
    2."[Sender] sends an email to [R1] and CCs [R2]. {[message
body]}"
    3."[Reader] reads an email"
```

The first type of action simply has a sender, one recipient and a message.
The second type of action has a sender, one recipient, and an additional recipient through carbon copy (CC).
The third type of action shows that a user has read the most recent email in his inbox.

OUTPUT DESCRIPTION:
For each of the members, in the order given, output following:

"[name] has X unread email(s)"

followed by each the unread messages in that member's inbox, on separate lines, from newest to oldest.

17. Shady Server(cont.)

SAMPLE INPUT:

```
4
Steve
Kevin
Angela
Joe
Joe sends an email to Angela. {Tell Kevin and Steve to back off.}
Kevin sends an email to Angela. {Hi, want to go to dinner
tonight?} //(this is on one line)
Steve sends an email to Angela. {Hey, are you cheating on me with
Kevin?} //(this is on one line)
Joe sends an email to Steve and CCs Kevin. {Guys, stay away from
my girlfriend!} //(this is on one line)
Angela reads an email
Angela sends an email to Joe. {I love you.}
```

SAMPLE OUTPUT:

```
Steve has 1 unread email(s)
Guys, stay away from my girlfriend!

Kevin has 0 unread email(s)
None

Angela has 2 unread email(s)
Hi, want to go to dinner tonight?
Tell Kevin and Steve to back off.

Joe has 1 unread email(s)
I love you.
```

18. Manifest Destiny

Input File: destiny.in
Output File: standard out

PROBLEM DESCRIPTION:

Corresponding with his view that the expansion of Stroudonia around the globe is both justified and inevitable, Stroud is considering buying more land for the nation. Robotown has offered **N** rectangular plots of land for sale, each with integer dimensions $\mathbf{L_i}$ and $\mathbf{W_i}$.

Stroud is also offered a deal: he can buy a group of plots of land for a price that is the width of the widest plot times the length of the longest plot in that group (clearly the price of a group containing a single plot of land will be the plot's area: $\mathbf{L_i}$x$\mathbf{W_i}$). Land plots also cannot be rotated. For example, if Stroud buys a 2x3 plot and a 3x2 plot in a group, he will pay 3x3=9, and buying a 2x5 plot will cost 2x5=10.

Of course, Stroud wants to buy all the plots of land. He realizes that he can purchase the land in successive groups while taking advantage of the deal in order to minimize his expenses. What is the minimum cost required to purchase all the plots of land?

INPUT DESCRIPTION:

The first line will contain an integer **T** (**T** <= 100) representing the number of test cases Each test case begins with an integer **N** (**N** <= 100000) representing the number of plots of land for sale. The next **N** lines contain two positive integers $\mathbf{L_i}$ and $\mathbf{W_i}$ (1 <= $\mathbf{L_i}$**,** $\mathbf{W_i}$ <= 1000000) describing the length and width of the **i**th plot of land.

OUTPUT DESCRIPTION:

For each test case, output the minimum cost required to purchase all the plots of land.

SAMPLE INPUT:

```
1
5
200 2
9 9
6 7
10 5
2 200
```

SAMPLE OUTPUT:

```
890
```