# D - Patch

## The Problem

A mysterious computer virus that has infected all computers on Earth and has deleted all copies of the `patch` Linux command, including all binaries and all traces of the source files. So, you have to write an emergency replacement for that invaluable tool.

The program will receive an original text and a *patch*, which is a list of instructions about how to modify the original text to obtain a modified version. For example, given the following text:

```
aaa
bbb
ccc
ddd
eee
fff
ggg
hhh
iii
jjj
kkk
lll
mmm
```

The following patch means that two lines, containing "xxx" and "yyy" should be added after "fff" and that the last line should be removed:

```
...
 eee
 fff
+xxx
+yyy
 ggg
 hhh
...
 lll
-mmm
```

Note that the patch includes instructions about what lines to add or remove, using the surrounding lines (context) to indicate where to perform each change. A line with the string "..." is used to mean that some lines of the original have been skipped without modifying them.

## The Input

The input format is as follows:

An integer in a single line which says the number of problems to solve. Then, for each problem:

- A line containing the string "BEGIN TEXT" by itself.
- One or more lines, making the original text.
- A line containing the string "END TEXT" by itself.

- A line containing the string "BEGIN PATCH" by itself.
- One or more lines, making the patch. For each line:
    - The first character indicates the type of patch line. It can be:
        - A space (' '), indicating that the line should not be modified. The rest of the patch line must match the corresponding line in the original text.
        - A plus ('+'), indicating that a line should be inserted. The rest of the patch line contains the text to be inserted.
        - A minus ('-'), indicating that a line should be removed. The rest of the patch line contains the text of the line that must to be removed.
        - A dot ('.'), followed immediately by two other dots and nothing else. This means that this line represents one or more lines of the original text that have been elided for brevity. All the lines from the current position in the original text until the end of the ellipsis should be left unmodified. The ellipsis ends as soon as all the context lines immediately following it match corresponding lines in the original text. At least the next patch line after a "..." line will always begin with a space unless the end of patch is reached.
- A line containing the string "END PATCH" by itself.

## The Output

The output for each problem consists of the resulting text after applying the patch if it is possible to do so. Otherwise the string "PATCH FAILED" in a line by itself. A patch cannot be applied if any context line or removed line does not match its corresponding line in the original text.

If a context or a removed line can be applied to different lines of the text, they will be applied to the first occurrence of the text.

## Sample Input

```
4
BEGIN TEXT
aaa
bbb
ccc
ddd
eee
fff
ggg
hhh
iii
jjj
kkk
lll
mmm
END TEXT
BEGIN PATCH
...
 eee
 fff
+xxx
+yyy
 ggg
 hhh
```

```
...
 lll
-mmm
END PATCH
BEGIN TEXT
11111
22222
33333
44444
55555
END TEXT
BEGIN PATCH
+00000
...
 22222
+XXXXX
 33333
+YYYYY
-44444
END PATCH
BEGIN TEXT
AAAA
BBBB
CCCC
DDDD
EEEE
END TEXT
BEGIN PATCH
...
 CCCC
-DDDD
 FFFF
END PATCH
BEGIN TEXT
AAA
AAA
AAA
END TEXT
BEGIN PATCH
+BBB
END PATCH
```

# Sample Output

```
aaa
bbb
ccc
ddd
eee
fff
xxx
yyy
ggg
hhh
iii
jjj
kkk
```

```
lll
00000
11111
22222
XXXXX
33333
YYYYY
55555
PATCH FAILED
BBB
AAA
AAA
AAA
```