



## Problem of the Week

### Problem E

#### Forgotten Code

Suk-Ja has a combination lock that contains 12 wheels, each with the letters in her name. Thus, the code to open the lock is 12 characters long and contains only the letters  $S$ ,  $U$ ,  $K$ ,  $J$ , and  $A$ . Unfortunately, Suk-Ja has forgotten the code. She remembers the following information and plans to use this to determine all the possible codes.

- There were exactly three  $A$ s in the code, located in positions 3, 6, and 12, when numbered from left to right.
- The letter  $S$  was always followed by either  $U$  or  $K$ .
- The letter  $U$  was always followed by either  $K$  or  $J$ .
- The letter  $K$  was always followed by either  $J$  or  $A$ .
- The letter  $J$  was always followed by either  $A$  or  $S$ .
- The letter  $A$  was always followed by either  $S$  or  $U$ .

For example, one possible code is  $UJAU KASKJSKA$ .

How many different possible codes are there?

